

Science Fiction
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The Metal Giants
by

Edmond Hamilton

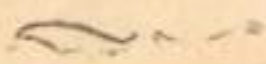
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As to the beginning of the matter, there is information in plenty. Dusty files of yellowing newspapers yield columns about it, for it was a mild sensation at the time. And concerning the appalling climax of the business, when the machine-monsters burst upon an incredulous world, there are but few who need to be informed. But what of the four years between, when that monstrous menace to humanity lay hidden in the West Virginia hills, germinating, growing, reaching? Will anything more of that time ever be known than a few scrawled pages in a little diary? Shall we ever comprehend much of the story but the petty furor of its beginning and its flaming, tragic end? Well, to that beginning. One starts with Detmold. A professor of electro-chemistry, a rather unusual professor, who was constantly advancing radical, astounding theories in almost every branch of science. A few of his theories he proved, but most of them were improvable, wild, untrammled speculations. Today his suggestions are genuinely interesting and stimulating, but at the time it seemed that his experiments, his statements, were becoming more and more fantastic, calling forth an ever-increasing flood of shocked protests from outraged scientists. And this was not at all to the liking of Juston University, where he taught. Juston is the third oldest college in the country, and has an ancient, scholarly tradition that it takes very seriously.

So when complaints began to come in from some of the more prosperous alumni, possible donors of buildings and the like, the middle-aged gentlemen who directed the university's policy met around a mahogany table and decided that Detmold must be removed from the institution at the first opportunity, as quietly as possible. And the next morning, as if to confirm the wisdom of their decision, Detmold announced the partial success of his latest experiment, which was the making of an artificial brain.

It was a supreme chance for the sensation-mongering Sunday supplements, for the gibing columnists, and they seized it at once. Detmold's brain, as it was called, was derided in the theaters, cartooned in the newspapers and jeered at by his fellow scientists. And yet, reading over the man's ideas now, it is hard for us to detect any flagrant absurdity.

No doubt it was a startling proposition, to construct an artificial brain that would possess consciousness, memory, reasoning power. That mass of fiber inside our skulls by virtue of which we comprehend the world about is a seemingly unsolvable mystery. Yet even such an idea as Detmold's, advanced by a man of his admitted intellect and achievements, should have been given a fair hearing, at least.

In fact, experimenters had already tried to reproduce the make-up of the brain. Several scientists, following up the work of Loeb and Kendler in their efforts to manufacture living protoplasm from chemicals, had tried to produce a mass of living cells, with which to form a living organ, a heart or a brain. All such efforts had been failures, and it was admitted that success seemed impossible.

But Detmold had attacked the problem from an entirely different standpoint. It was his theory that the sensations of the nervous system are flashed to the brain as electric currents, or vibrations, and that it was the action of these vibratory currents on the brain-stuff that caused consciousness and thought. Thus instead of trying to make simple, living cells and from them work up the complicated structure of the brain, he had constructed an organ, a brain, of metal, entirely inorganic and lifeless, yet whose atomic structure he claimed was analogous to the atomic structure of a living brain. He had then applied countless different electrical vibrations to this metallic brain-stuff, and finally announced that under vibrations of certain frequency the organ had shown faint signs of consciousness.

To the public of that time such an assertion must have seemed quite insane. The usual comment on the subject was that if this were a sample of Detmold's ideas, he had best keep the first brain he manufactured for his own use. And Detmold's own attitude did not help his case, for he was an impatient, high-tempered type prone to regard as fools and asses all those people who expressed any doubt concerning his work.

Three eminent scientists accepted his invitation to witness a demonstration of his experiment, and their comments later were caustic. It would seem that when the three illustrious gentlemen called at his laboratory at the appointed hour, Detmold had brusquely informed them that he was working out a sudden new idea concerning the experiment, and that they would have to call a few days later, by which time he hoped to have achieved complete success.

Naturally, that was the end of him at the university. It was plain to everyone that the man was a cheap

faker who had warded off investigation and exposure at the last moment, and a cry went up that he should be removed from the institution he was disgracing. At the year's biggest football game the next afternoon, when Juston played Bannister College, ten enterprising students rushed onto the field between halves and unrolled a large cloth banner, with the painted words, "Fire Detmold!" A wave of applause and laughter rippled across the stadium at sight of it.

And after the game, the football team, become heroes of the hour by their victory over Bannister, marched together to the home of the university's president and presented him with a petition demanding the summary dismissal of the professor whose charlatanism was smirching the name of Juston. The president smilingly accepted the document.

So the next morning, after an hour of nervous fidgeting and snapping of fingers, the president, summoned Detmold and smoothly informed him that his resignation would be accepted.

There was a stormy scene in that office when Detmold learned that he was to be shunted out of the university. He was a tall, powerful man with a keen, relentless face, and in his rage he came near to laying violent hands on the president, and said a number of scathing things regarding that individual's stupidity and cowardice, winding up with a red-hot denunciation of the world at large. When he burst out of the office, he thrust rudely through the little knot of curious listeners at the door, and hurried over to his laboratory, to begin packing the experiment that had caused his dismissal.

It was there that he was found an hour later by Gilbert Lanier, the one instructor at Juston who understood and sympathized with the man. Also Lanier, a diffident young English teacher, was probably Detmold's only friend, for Detmold seemed to have no close relatives at all, and his testy, high-strung nature repelled most people. Sitting on a desk, moodily contemplating the little room that had been his private laboratory for years, he told Lanier of his dismissal, raging the while at the president and his disapproval of "impossible theories."

"Impossible theories!" he mocked. "My God, and I used to think that a great scientific discovery was welcomed with open arms! And these fools think I am crazy, to work on such a thing at all? Look at this, Lanier,—you haven't seen it since I made the improvements," and he turned to a table upon which rested the artificial brain.

It was very simple in appearance, resembling an egg of black metal, some ten inches in length. Inset in its upper surface was a small lens of glass, and leading into each end of the thing were three wires, which were connected to a complicated tangle of electrical apparatus on the other side of the room.

As Lanier watched, Detmold made swift adjustments and snapped on several switches, and the low humming of a motor-generator filled the room. Turning eagerly, his smoldering resentment forgotten for the moment, he said, "The same basic principle. The T-wave, the vibratory current, is produced over there and led into the brain-case to act on the atomic organism inside. Right now that thing is conscious," and he gazed at it with mingled fondness and pride.

Lanier could not restrain an incredulous shrug of his shoulders, and Detmold took it up at once. "I repeat, conscious," he asserted. "It is consciousness of a crude, dim sort, but still consciousness, awareness, knowledge. And I can prove it now. Since you last saw it I've provided it with the sense of sight. See that inset lens? Well, it's like no lens you ever saw, for it's really an artificial eye, that I made myself. There is an artificial retina beneath and it is connected direct to the brain-stuff, and carries its sensations to it, as electric currents."

"An artificial retina?" asked Lanier. "Isn't that going a bit too far? An inorganic material sensitive to light?"

"Did you never hear of a substance called selenium?" asked Detmold with fine sarcasm, and as Lanier started, he added, "Ah, you begin to see! You remember that the electrical resistance of selenium varies enormously in light and in darkness, and you begin to perceive how the light striking that artificial retina could be translated into electricity and flashed to the brain. It is all so clear—now. But I was telling you about the eye. There's a shutter that closes across the lens, much like a high-speed camera shutter, but capable of being opened or closed by an inconceivably delicate force. I'm not going to tell you all about it, you or anyone, but watch it now," and taking a small flashlight from his pocket, he flashed its brilliant little beam directly on the inset lens.

Lanier watched intently. There was no change for a space of seconds, then, with a tiny click, the shutter closed across the lens. He drew a long breath as he straightened up.

"You saw?" asked Detmold, snapping off the switches. "The thing can see with that eye, just enough

to differentiate between light and dark, and it hates bright light, so what? It closes the shutter, cutting off the light. Isn't that intelligence, mind, reason? Crude and feeble now, I grant you, but it will grow. I will develop it. I'll go farther yet." His voice dropped, and the brooding, sullen expression crept back over his face. "And yet those fools say, 'Impossible, impossible!' Damn them, this metal brain has more intelligence than they. Or it will have. It will have." As his friend remained silent he asked, "Do you think I am faking it, Lanier?"

"No," was the slow answer, "but I do think you're treading very near forbidden ground. That movement—that intelligence—have you considered, Detmold, what an intelligence might be like, that had no controlling, directing power, a brain without a soul?"

"Theology, mysticism!" cried the other. "No, Lanier, I am going on with this, if only to show these fools the depth of their folly. I have a place where I can work in peace, thank God, and where the confounded newspapers won't pester me, for I'll tell no one where I'm going. No, not even you," he added, clapping his friend on the back affectionately, "for you might talk in your sleep. But when I finish it, you'll hear from me. And so will the world."

Lanier did not reply, and in silence they began the work of packing. And the next day, when they stood on the station platform in the last few minutes before the train's departure, there seemed little to say. The whistle of the locomotive, a last clasp of Detmold's hand and a muttered "Good-bye," and the train was receding swiftly down the track, and he was gone.

More than one person wondered where Detmold had gone. His name was prominent in the newspapers that night, was mentioned often in homes and clubs and restaurants, with a chuckle or a sneer. It was not mentioned so much the next night; a month afterward it was seldom heard; and in a year not one person in ten thousand remembered the man. None knew where he had gone, his name and personality and strange ideas had sunk into silence and forgetfulness; and laughing, toiling, hurrying, the world sped on.

2.

It was fully four years after Detmold's disappearance that the strange phenomena at Stockton began to attract attention. Stockton was a small steel town in northern West Virginia, set in a long valley between dark, thickly wooded hills, and from those hills came news of mysterious occurrences.

The first thing to reach the newspapers was a small article printed early in July, telling of some very curious ground-markings that had been discovered several miles west of Stockton. These marks were circles some ten feet across in which trees, bushes and ground had evidently been stamped down by some tremendous force, forming circular pits in the ground some three feet in depth. A number of these strange pits had been found by farmers and no one seemed able to advance a plausible suggestion as to their cause.

The article was published throughout the country, but as no further news on the matter was immediately forthcoming, it was forgotten in a week, as stranger incidents have been forgotten.

Ten days passed before the second Stockton dispatch was printed, an article that caused a good many smiles. This dispatch told of a farmer named Morgan who lived in the hills north of the city, a wild, lonely district, and who had suddenly appeared in Stockton with his family and few possessions packed into a ramshackle Ford, intent on departing from the vicinity as soon as possible. When questioned as to the cause of his sudden migration, he told a very strange story.

Two nights before, he said, he had been awakened shortly after midnight by a crashing, snapping sound outside. His small house was set on the steep side of a narrow, winding valley, and the noise seemed to come from the forests at its foot. His curiosity aroused, he had stepped out on his little porch and had dimly seen, in the moonlight, a gigantic shape that was moving along the valley.

He described it, very vaguely, as being a monstrous parody of a human figure, with two huge legs or supports, all of three hundred feet in height, and for body, a large, cylindrical mass. It gleamed in the moonlight, he said, as if it were made of metal. It was striding down the valley, in a stiff, immense imitation of the human step, and he could see that its towering limbs or supports, which buckled and straightened midway, like a human knee, were crushing the forest beneath them like a forest of twigs. Only one hurried, misty glimpse of the thing he got, and it disappeared around a turn in the valley, but when he explored the next morning he found its tracks, shallow, circular pits, identical in appearance with the strange markings that had already been found.

There was a good deal of amusement in Stockton over this tale, though Morgan sullenly asserted its

truth. When it was reprinted throughout the country, the story was generally accompanied by some humorous comment regarding the powers of West Virginia moonshine, and the progressiveness of the day, when tipplers now saw weird machines instead of the traditional serpents.

But the next day, after Morgan and his family had clattered out of Stockton in the rickety little car, it occurred to an inquisitive newspaper reporter to drive out to the valley and gather some information—not that he put any faith in Morgan’s story, but in order to get the views of the man’s former neighbors, the farmers of that section.

Early that evening the reporter returned, and the news he brought set Stockton buzzing with conjecture and argument. For he had not only found the markings Morgan had described, he had definitely ascertained that before the night in question no such marks had been seen in the little valley. And the few families who made their homes in that district were not laughing over the matter, but seemed considerably perturbed. All of them testified as to Morgan’s sobriety and truthfulness, and one household added a corroborating occurrence of a few days before, when an eight-year old son had returned from a ramble in the hills with a twisted, childish story of having seen “a big tin man” a long way off.

Such was the information the reporter brought back, and it caused excited discussion through all the town. Was such a thing possible? Could Morgan’s story have been true? But if so, if such a thing had actually been seen, what was it? Machine, vehicle, what? No, it could not be true, there must be some mistake, some exaggeration. And yet—

The wires out of Stockton were humming that night, and in Boston and Duluth and Fort Worth, the next morning, people were to read and wonder. It was a new sensation, and they waited with interest for further news. Whatever happened, the reporters would get it and serve it up in their daily paper, with photographs made on the spot and a diagram to make it all clear.

Until late that night the city’s principal streets were quite crowded, and there was constant discussion and speculation. For the first time, Stockton was finding itself a center of national interest, and it was very proud of its sudden fame.

Once, an hour before midnight, a great light was seen above the northern hills, a brilliant shaft of purple light that swept across the sky like a gigantic, flaming finger, then faded into the darkness. The crowds in the streets saw and marveled. For some time they watched, but it was not seen again, and the blackness of the night seemed to close around the city like a giant hand.

From the steel mills, great tongues of red flame shot up, soaring, beautiful, conveying a warm quality of reassurance against the vast, breeding darkness. The mighty furnaces and towers standing out black and austere against the glare of molten steel, held with them a calm, silent encouragement, as if proclaiming the greatness and power of their builder, man. But the flame-shot sky behind them, like blood...

3.

Lanier arrived in Stockton early the next morning. His face was drawn and haggard, as it had been since he first read a certain humorous newspaper dispatch, and in his mind was an immense perplexity, a vague, chilling fear.

Until late in the afternoon he tramped wearily through the town, asking in all quarters the same question: “Do you know of anyone named Detmold who lives in or around Stockton? A tall, strong man—” And from all he questioned he got no trace, until he happened into the office of a small trucking and hauling company.

None there knew anything of Detmold, but they had done some work for a certain Foster, who corresponded exactly to Lanier’s description. This man lived several miles from the city, in a northeastern direction, and had hired them to haul some boxes from the railroad to his home, an old farmhouse. A mighty bad road it was, too, and this Foster had been very particular about the moving of his stuff. Yes, they could direct him to the place. You went out such and such a concrete road, and turned up a ratty lane, very steep...

By the time the sun hung poised above the western horizon, Lanier was already ascending that steep, twisted road. More than once he glanced back at the city below, a city bathed in the golden afternoon sunlight. Its streets were filled now bathed in the golden afternoon sunlight. Its streets were filled now with the workers returning home from the mills, tired and blackened, calling out to the friends they met for the latest news on “that Morgan critter,” as they termed it.

A quiet serenity, a dreamy, contented peace pervaded Stockton, contrasting with the tense excitement of the preceding night. In a thousand homes, the evening meal was being prepared and the day's gossip related, in the west the sun sank lower and lower, and all around, beyond the encircling hills, death marched toward the city with crashing, giant strides.

4.

The sun had slipped down very near the horizon when a sudden jangling of bells ran through Stockton, hurried, confused. The factory whistles blew frantically for a few minutes, then suddenly, unaccountably stopped. A cry, a shout was running over the city, swift as spreading flame, and everywhere houses belched forth their inmates and people looked anxiously about for the cause of disturbance. And then they looked up to the hills and saw their doom.

For on the heights around Stockton, in a great circle, stood a score or more of gigantic shapes, silent, motionless. They seemed quite identical in appearance, towering metal giants cast in a roughly human form, each with two immense limbs, smooth columns of metal ten feet across, looming up all of a hundred yards in height. And set on those two huge supports, the body, an upright cylinder of the same gleaming metal, fifty feet in diameter, quite smooth and unbroken of surface, and bearing on its smooth top something that flashed brilliantly in the sunlight, a small, triangular case in each side of which glittered a lens of glass. And from each cylinder projected two additional limbs, arms, shining and flexible, hanging almost to the ground, tapering, twisting.

The bells had stopped ringing, and in thick stupefied silence the people in the streets gazed up at the metal giants, who surveyed them in equal immobility and silence. Then from one of their number sounded a weird call, a harsh, wailing sound that rose to a high-pitched scream. And at that signal all of the things began to stride swiftly down to the city, the mighty limbs whirling out and crashing down in steps of unbelievable length, buckling and straightening and whirling out in another step. Rapidly, inexorably, they closed in on Stockton, a diminishing, tightening circle.

That stunned moment of sheer astonishment fled, and a vast, hoarse bellow sounded, the mad shout of thousands of panic-stricken people. Down the streets raced careening autos, ripping through crowds of hapless pedestrians, driving into the mass of tangled wrecks that blocked every corner in a few minutes. Screaming, pushing, striking, the mobs flowed along the streets, striving always to win away from the city's central section and escape into the surrounding country. And all the while, with thundering, earth-shaking strides, the metal shapes marched on toward the city.

On and on they came, until they had reached the outer suburbs, looming up above the buildings like giants in a toy village. The long, flexible arms were whipping out now, with tremendous power. Smash!—and a small brick building toppled. Smash!—a giant limb crashed down through a bungalow. Smash! smash! smash!—on and on, slowly, deliberately, reducing the city to ruins.

They made but small effort to kill the screaming little figures that ran about beneath them, but they let few of these escape outside their circle, herding them always toward the center of the city, as they closed in on it.

Nearly an hour had passed before that ring of giants had contracted to a mile diameter. Inside of it the streets were solidly packed with people, and the buildings were full to bursting, the supposedly safer cellars being pools of suffocating, trampling humanity.

Around was ranged the circle of the metal shapes, and for a moment they seemed to be contemplating the tiny, frenzied throngs beneath them. Again sounded the wailing signal, and each of the things seemed to be fumbling behind itself with a flexible arm, an arm that reappeared grasping a small, black sphere. In unison, they thrust forward these globes from each of which a cloud of yellow gas instantly spurted, falling on the crowds beneath, flowing over and through them, a saffron flood that rolled on through the buildings and down into the packed cellars.

Wherever it touched, the people sank into death, slumping down like bags of sawdust, suddenly limp and inert. And the faces of the dead were dreadful to see, shrunken, collapsed, like shriveled masks of skin.

Swiftly the gas flowed away and sank into the ground, and the heaps of bodies were revealed, silent and unmoving, a strange contrast to the shouting and running of the moment before. Then smash! smash!—and the huge limbs were jerking out and crashing buildings down, kicking them over, pushing them aside, covering the mounds of dead with a tangled mass of broken bricks and twisted steel.

The metal giants strode away, here and there crushing a building, uprooting a track, moving toward the eastern end of the valley, whose inhabitants had seen and were fleeing in terror. And one man had seen who did not flee, whose face was stamped with horror. It was Lanier, and from his distant hill-top he looked down on a mass of broken ruins where an hour before had been a bustling city.

As he watched, darkness flowed down on the city, veiling its shattered remnants. He heard distant shouts snapping out, up the valley, where the metal shapes had gone. He could hear, too, a humming drone, as an airplane came and went and circled over the broken city, hovering for a time, then winging away toward the north. For some minutes he continued to peer into the deepening darkness, then rose stiffly from his crouched position and stumbled back into the forest, moving as a man in a daze. His brain held but one thought his lips uttered but one word: "Detmold!"

5.

And fear swept through the land. In New York the first fragmentary reports of the annihilation of Stockton had been greeted with a good-natured laugh, but as more and more details came in, extras began to pour into the streets, and crowds gathered around the clamorous bulletins. In troubled silence they read the account of the few survivors, the story of that red hour of Stockton's death. There came, too, later, short dispatches relating the further advance of the metal giants, who were evidently proceeding leisurely northward, killing, destroying, uprooting all in their path.

Clicking out over the network of wires, flashing across the night in radio waves went the short, ominous sentences, sentences in which an epoch of comparative safety and peace was dissolving, crumbling, falling. There were reports of action at Washington, of hurried meetings and swift discussions, and finally, late in the morning, a proclamation of the Federal government was flashed to every section of the country.

It was evident, declared this statement, that the country was being attacked from within by men possessing new types of fighting machines, with vast and unknown powers. Those men, who were probably either anarchists or agents of some foreign power, were using as a weapon a new and very deadly poison gas, a gas that sank harmlessly through skin and flesh but which dissolved all kinds of bone like sugar in water, causing instant dissolution of the skeleton and skull of every human body it touched, resulting in instant collapse and death. Therefore, it was advisable for everyone living within a three hundred mile radius of Stockton to take refuge in flight. Troops and artillery were already on the way to meet and battle the new foe, and scientists were being consulted as to the best method of combating it. It was hoped that the people would give full co-operation to the government by following its orders carefully, refraining from spreading alarmist rumors and trying to carry on all essential business as usual.

Thus the proclamation, and its business-like sound caused people to breathe easier for a time. There had been so many emergencies before that had been met and conquered. War and riot, flood and fire. And after all, these new war-machines could not be so very formidable, even though they had devastated a city. That story of their size, hundreds of feet and such, must be exaggerated. As for the deadly gas, well, there had been deadly gases before. Anarchists, foreign invaders, whoever they were, the soldiers would stop them. A few high-explosive shells would fix them.

Thus did the average citizen reassure his household when anyone in it expressed anxiety or fear. After that first panicky moment, the usual serenity of the country was again ascendant, and there was but little open worry concerning the enemy. An ignorant observer would scarcely have suspected the existence of the things, except for the newspapers.

It was definitely known that the metal giants, leaving four of their number at Stockton, were now advancing north toward Wheeling and Pittsburgh, eighteen in number. Airplanes and scouts reported their destruction of all towns and villages in their path, whose inhabitants had fled at the first alarm. The War Department had decided to concentrate its force a few miles south of Wheeling, and ten thousand soldiers, part of them hastily assembled militia, had been flung across the enemy's path at that spot, backed by a heavy force of artillery. There were vague rumors of ambushes prepared for the foe, pits and high-explosive mines and the like.

On the evening of the third day after Stockton's destruction, the fighting-machines were reported to be less than twenty miles south of the troops, and were already being shelled by a few heavy guns that were mounted on railway platforms. In every city, all waited tensely for news of the first clash. The hours dragged past, the crowds moved restlessly about, and still came no news. It was well after 2 o'clock in the

morning that word finally came, that short, fateful dispatch that loosed terror on the world. It emanated from the fast-crumbling Federal government, which had been transferred from Washington to Philadelphia:

PHILADELPHIA, July 24.—*Word has been received by the War Department here that the troops defending Wheeling have been severely defeated by the enemy's fighting-machines, which, using some unknown device, projected a blanket of their deadly gas over the country for several miles ahead of them, nine-tenths of the troops have been killed without seeing the enemy. The remnant of the force has retreated toward Pittsburgh, and it is thought that the fighting-machines have already entered Wheeling. One is believed to have been destroyed by shell-fire early in the engagement, but aside from this they have proved to be quite invulnerable. No word has yet been received concerning the smaller force of troops detailed to attack the four machines at Stockton, but it is doubtful, if such an attack has already been made, whether it was successful. No one has yet seen the men controlling and operating the fighting-machines, as they seem to stay closely hidden within the latter, but they have shown by their actions that they are quite merciless, so warning is conveyed to the people of the country that when any section of the country is invaded by the enemy in these machines, the only safety at present lies in flight. Offers of military aid have been tendered this government by several European powers, but until some new and effective weapon can be devised, it will be impossible to meet this unknown foe in battle with any chances of success.*

6.

When Lanier stumbled into Detmold's farmhouse, early in the second day after the massacre of Stockton, he could only half understand that he had finally found the object of his hours of searching. After that seeming eternity of wandering wildly through the forest, he was very near collapse. Even after his brain had cleared enough to recognize that this was the place that had been described to him, he took but little interest. In the kitchen of the house he found canned food, and after wolfing some of this he flung himself on the couch and slept heavily for all of that day and night, not waking until near noon of the third day.

But he woke with mind clear and alert and feeling immensely hungry. After another sketchy meal from tins he began to prowl about the house. And to his dismay, he found that there was no sign of Detmold's having occupied the place for weeks at least.

The furniture of the house was very simple, and it was in the condition to be expected when kept by a careless bachelor. A single large room had been converted into a laboratory, but even this was in great disorder and had evidently been stripped of most of its apparatus. There were many unmistakable signs of Detmold's residence in the place, but none that would indicate how long before he had deserted it.

But in the laboratory, by chance, he found Detmold's diary, a thick, canvas-covered book tossed to one side of a table. Lanier glanced into it idly, then with startled interest, and an hour later was still reading intently.

For in it he found explanation, and found too, greater fear. Now, for the first time he saw clearly the monstrous horror that had been loosed on the world, saw it in its most terrible aspect.

The diary began with the events immediately previous to Detmold's departure from Juston, and seemed to be kept as a record of his various experiments, references to many of which Lanier could not understand. On the day of his ousting from the university, he had made some very vitriolic comments in the little book concerning the officials of Juston, and, their general asininity. He also spoke of the place where he intended to carry on his experiments, an old farmhouse outside of Stockton, a half-forgotten inheritance. And when he had gone there, fitting the place up as a laboratory, he had done so under the name of Foster, in order to escape the unwelcome attention of prying reporters.

There were a number of gaps in the diary's entries, but on the whole, the story it told was quite continuous. He had found a place where he could work in peace, and had centered his time and effort on the metal brain, constantly striving to improve it. And as the months passed, he had made vast progress with the thing. Though the basic principle of it was the same, he had made it much larger, had made the ramifications of its atomic organism far more complex, with a corresponding increase in the thing's mental power. Instead of a crude, single lens, he had furnished it with two large, all-seeing eyes, one on each side of its oval case. He had added an ear for the perception of sound, a super-microphone that caught the smallest sounds and, translating them into electrical impulses, flashed them to the central,

conscious brain. And after months of weary trials, he had been able to furnish the brain with arms or members, two small, hollow limbs of flexible metal that projected from each end of the brain-case, being actuated by a chain of electro-magnets inside, so that the brain, by sending the correct electrical current through these magnets, could twist the arms about at its pleasure.

There came a page where the diary was spotted and hard to understand, where Detmold's mind had out-leaped his pen in his exultation. Gradually Lanier made out that he had perfected a method which made it unnecessary to produce the actuating electric- vibrations outside the brain. Instead, he had found a way to produce these vibrations inside of the very brain-stuff itself, inside of its atomic structure, constantly and automatically. He had achieved this by a manipulation of electrons, a tampering with the innermost secrets of matter. How he had accomplished this stupendous feat was not explained, for he had confided but few technical secrets to the diary. But by virtue of this discovery, the metal brain became, for the first time, wholly independent of anything outside itself, quite self-sufficient and almost, one could say, living.

And from that point forward, the pages of the little book were records of wonder. Detmold wrote always of the brain's leaping intelligence, its growing power to differentiate between the sensations it received, its deft handling of objects and instruments. And later, of teaching it to read, of starting with children's picture-books and working on with models and printed words, until finally it could read books, and evidently understand them, at least partly. It was significant, he noted, that while it would read, with unvarying attention, any scientific work, it rejected completely all fiction, poetry, and other imaginative literature, preferring facts. It made him realize, he wrote, the limitations of the thing. It had intelligence, yes, but not human intelligence, for all it had been constructed by a human. And it was for this reason that he gave up his efforts to communicate with the thing. Evidently it did not understand his spoken words, and when he wrote numberless messages and held them for it to see, it made no response. He began to understand that the thing had no point of contact, no common ground, with himself, except in the realm of science.

So he took another course and taught it to handle experiments, to duplicate the simple experiments he performed before it, which it did with ease. Apparently it showed astounding ability along these lines and could perform highly complex experiments in chemistry and physics without a single error, unhumanly perfect. And finally a day came when his triumph was complete, for the brain performed successfully an experiment that had baffled Detmold himself, as well as all other experimenters. The creature was proving itself greater than its creator.

He wrote that as he watched the flexible, snakelike metal arms flashing about with beaker and test-tube and burner, unerringly, swiftly, he realized that he had constructed an intelligence that was more than human. A mind that was far greater than man's, aided as it was by cold, ruthless reasoning power, precise, perfect memory, and quite unswayed by the thousand and one emotions that affect human intelligence, untroubled by love and hate and fear and joy and sorrow.

Detmold's triumph was complete, and he could return to the mocking world with the metal brain, as he had planned. But the three years of strain and solitude and toil, and this sudden realization of his hopes, were too much for him, and he was stricken with sudden sickness, while he was making one of his infrequent visits to Stockton. For a short time he was cared for at the hospital there, then was taken to Pittsburgh for a necessary operation, which was neatly and successfully performed, but which kept him in a Pittsburgh hospital for more than a month. And back in the home in the hills, the metal brain, conscious, reasoning, planning...

This much Lanier learned from entries farther on in the diary. But the first note after that gap of weeks is one of sudden dismay. Detmold had returned, eager to get back to his precious experiment, and had walked into his house to find the laboratory in confusion and the metal brain missing. There were signs of work there, sawed pieces of steel and smashed test-tubes, but no indication of the location of the brain.

From the disjointed entries in the diary, he seemed to have been almost mad with anxiety and rage, for if the thing had been stolen from him, he alone knew the impossibility of replacing it without years of work. So for days he ranged the forest in search, and on a morning early in June he stumbled on the thing he sought, hidden far back within the hills.

In a circle some hundreds of feet across, trees and shrubs and grass had been cleared away, and the ground stamped down hard and smooth, forming a great clearing, surrounded by a high embankment of earth. And in this circle there was extraordinary activity. Watching from the top of the embankment, he

noted first a small, solid-looking machine directly beneath him, constructed of shining, unfamiliar metal. It looked very much like an old fashioned pump, without the handle, having a spout at its top from which poured a thin stream of molten, gleaming metal, falling into black molds beneath, and solidifying instantly. This small, pump-like structure seemed to be sunken into the earth for an unguessable distance, but the source of the molten metal was a mystery to the wondering Detmold, as also was the use it was intended to serve.

But as he looked about, that, at least, became clearer. For on the farther side of the circle, a half-dozen machines were busy with large lengths of shining metal, similar to those in the molds, fastening them together. And it was these latter busy mechanisms that were even greater mysteries to him for the moment.

They were simply shining globes of the omnipresent metal, perhaps five feet in diameter, provided with six long tentacles or arms, many yards in length, twisting, flexible, busy holding and fastening and tightening, accomplishing an incredible amount of work as he watched. They resembled large octopuses of shining metal, but except for the arms that projected from the globes, were entirely featureless. Those twisting, tapering arms held his attention. They were like—they were like the arms that he had provided the metal brain! As that thought flashed over him, he turned his gaze and saw the brain itself, near the right side of the circle.

The brain—but different. For it moved, possessed the power of motion in any direction, instead of being set on a table, as he had made it. Even as he stared, it seemed to glimpse him, and glided smoothly toward him, across the clearing, its great weight of metal being suspended above the ground six inches or more by some unknown, unguessed force.

Over it came until it stood motionless beneath that part of the embankment on which Detmold was standing. A black, oval case, more than a yard its greater length, eerily suspended above the ground, contemplating him with its dark lens.

And as Detmold stared back, the explanation of all flashed over him and he cried aloud. He saw that the metal brain had never been stolen from him, that it had, in his absence, discovered a method by which it could move about in that unearthly fashion, and, using that method, and using the tools it had stolen from him, and its own vaulting intelligence, had come to this place and constructed those machines that were working its will. And it was doing—what? Constructing what? Those great lengths of metal on which the tentacle-machines worked, that device that sucked molten metal from the earth itself, all for what?

According to the broken account in the diary he must have stared at the thing for minutes, realizing at last what a monster he had created, and set free. Then one of the brain's twisting arms dipped down behind it and instantly he caught the suggestion of sudden peril, of nearing death, and leaped back behind the embankment. As he did so, he glimpsed the metal arm flashing up with a small globe in its grasp, from which a cloud of yellow gas sprang toward him. He was already over the embankment and the gas touched only a small part of his left hand, but it stung intensely. When he stopped to inspect the hand, a mile away, he was amazed to see that where the gas had touched, the bones of the hand were quite dissolved, without wound or break of skin, leaving two fingers partly boneless and hurting intensely.

And all of the time he stumbled homeward, one word beat through his dazed mind like the stroke of a mighty bell—a word that seemed to be written in letters of flame before his eyes: "Frankenstein."

7.

From that point onward, Lanier found the diary almost undecipherable, spotted and torn, with a broken scrawl here and there. There were entries that seemed to indicate that following his discovery of the metal brain's activities, he had not left the house for several days, brooding over what he had seen. There were wild speculations on his part—he constantly accused himself of having loosed a terror on the world, foresaw a metal horde that would sweep over the earth, destroying, conquering, perhaps swinging out to other planets in its irresistible march, a cosmic metal plague. And all his work!

There was a gap of two days in the entries, and the following notes showed that he had spent those two days crouching near the fortress of the metal brain, observing the activity there. He wrote of the tentacle-machines and claimed that they were merely machines, without any trace of brain or intelligence, simply complex, automatic, and self-powered mechanism that were controlled by the metal brain, perhaps by some intricate form of radio-control. But he wrote also of a thing he had not seen on his first glimpse of

the clearing, and that was the existence of the cylinders, as he called them throughout. They were just that, gleaming cylinders of metal, some fifty feet in diameter and half again as much in height, provided with two flexible arms on the same principle as the arms of the metal brain and the tentacles of the working-machines, but much larger and longer. And he believed these cylinders to contain some artificial brain like the one he had built, though not so intelligent, he thought. To think of it! The metal brain was constructing intelligent, similar servants, in addition to the mindless tentacled slave-machines.

There is a note of bitterness in that entry, where he wrote that while the cylinders undoubtedly had been furnished some portion of intelligence by their master, the metal brain, that master had been careful, evidently, not to repeat his own mistake and make them powerful enough to revolt against it. He believed these cylinders to be dependent almost entirely on the metal brain's commands, thought they had been furnished also with a triple, all-seeing eye, set in a small case on their upper surfaces.

And now it was that Detmold first glimpsed the purpose and plans of the brain. For the tentacle-machines had finished their work, and strewn about the clearing lay a number of gigantic columns of metal, smooth and round, whose purpose could not understand until he saw one of the cylinders, aided by the working-machines and directed by the metal brain, connect the ends of two of those huge columns to its lower surface and then scramble up to a towering height, erect, powerful!

Aided by this giant, the other cylinders were soon in position also, and the clearing was filled by a score or more of towering metal giants, who strode about in humanlike steps, under the commands of the comparatively tiny brain beneath.

There was no speculation on his part as to why the metal brain had picked this form for its huge servants, why it had cast on a shape so nearly human. Was it unconscious imitation, mimicry? For several days Detmold returned to the clearing and saw the metal giants walking about, testing, drilling. Once he narrowly escaped being stepped on by a great limb and thereafter was more careful. He could not understand the power of locomotion of the things, but set it down to some application of atomic force, discovered by the brain. Almost two weeks after his first discovery of the metal brain's fort, he returned to find it deserted, the tentacle-machines and the metal-pourer lying in a heap at one side. But after a period of beating through the hills on the tracks of the giant fighting-machines, he found the brain's new camp, a grassy basin in the hills, only a few miles from Stockton, where it sat like a spider in a gigantic web, guarded by the metal giants.

It was then that Detmold saw the immediate purpose of the brain, saw that Stockton was marked for annihilation. The writing at that point was tortured, agonized. What could he do? He never considered bringing a force of men from Stockton to deal with the thing, for best of all men he knew the utter futility of such a course. Nor would the story he told have even been listened to in Stockton. Yet the thing must be crushed, and soon.

It would be best, perhaps, to give the last two entries in the diary in full. The first reads:

"I came back through the former camp of the brain today and spent some time examining the tentacle-machines there. As I thought, they are intricate mechanisms, capable of receiving an outside command and translating it into action, but that is all. I examined, too, the machine that produces molten metal and discovered the principle of the thing. It sucks up ordinary earth and separates the metallic atoms in that earth from the non-metallic, and pours out a constant stream of metal in this way. It is mostly aluminum, but inexplicably hardened and reinforced, probably by addition of outside elements. The principle of the thing is fairly simple and I am beginning to understand the power used to move the metal giants. I think that it could be applied differently, more effectively."

And a little farther, the very last entry, tremendous in its implications; an entry, Lanier noted, that was dated two weeks before:

"I have just thought, if I were able to control those tentacle-machines, what might be done. And why not? The commands of the metal brain were undoubtedly transmitted to them by some form of radio waves, as is the case also with the cylinder things. And if I could control them in the same manner, would I be able—strike at the center—"

The entry stopped there, abruptly, and though Lanier thumbed the pages he found no more writing in the little book. His brain was whirling, but in it was a wild hope, half doubting, half believing. Could such a thing—?

Very carefully he reread certain passages in the diary, striving to calculate the position of the places

mentioned. An hour later he was already a few miles from the house, heading toward the spot where he believed was the new camp of the metal brain. Evening was drifting down on the world like a cloud of gray powder, and soon came the thick, obscuring darkness.

That night he slept within a little group of pines, on a heap of gathered boughs, waking only at dawn. He stretched and yawned, then snapped to alertness as a sound came whispering faintly through the forest, a distant, wailing scream.

It came from the direction in which he was heading, and aroused at once, he plunged ahead at top speed. After he had gone the little glade was very silent, except for that distant cry. The chattering birds and squirrels had ceased their tiny clamor, vaguely frightened by the unfamiliar sound. All the creatures of the wild were silent, fearful, listening...

8.

A sound of crashing trees greeted Lanier as he went on, and then, very much louder, the whistling scream he had already heard, near by, clamorous. Aflame with excitement he pushed on, forced through a cruel growth of briars and down a wooded hillside, emerging with a sudden shock into a grassy basin, more than a half-mile across, level and treeless. And in its center was a great circle that flashed brilliantly in the sunlight, shining, magnificent. A circular, gleaming platform, and on it, hanging a few inches above its surface, a dark, egg-shaped object, with two thin, tapering arms. The metal brain!

An electric shock seemed to pass through Lanier at sight of it. The super-intelligence that was destroying the civilization of man, casting him from his lordship of the world! A metal king on its throne of metal! For the first time Lanier realized the soulless nature of the thing, cold, precise, unhuman, unswerving in purpose, terrible.

Standing near the platform was one of the towering metal giants, and it was from this one that there emanated the screaming signal he had heard. And over at the basin's farther side, where the hills beyond sank down to it in a long, wooded slope, stood another of the great fighting-machines, also motionless.

Lanier sensed a quality of waiting, of expectancy, in the attitude of the brain and its minions. Over beyond that wooded slope, the crashing of trees began again and he wondered if the other metal giants were returning from their raid to the north. Louder, even louder, became that snapping and roar of falling timber, and now a shape began to loom up at the top of that long slope, a gigantic shape that was moving rapidly toward the basin.

On it came, until its whole bulk was in view, poised on the ridge, and Lanier jerked with astonishment, for the thing was a mighty wheel, a wheel that must have been at least fifty feet taller than even the immense fighting-machines, whose huge, shining spokes and broad, point-studded rim were of smooth metal, and at the hub of which swung a square, boxlike structure of the same material.

Again the whistling signal of the nearer fighting-machine ripped the silence, and now it was answered from far away, toward the east. Lanier looked and saw, in surprise, four others of the metal giants, very far away, hurrying across the hills toward the basin, with mighty, whirling steps. The four that had been left at Stockton, coming at the summons of the metal brain, for what? Aid, battle—that mighty wheel, a foe of the metal brain—then, who—?

“Detmold!” Lanier’s cry was like a trumpet call, a scream of comprehension and gladness and faith. “Detmold!” He had constructed the wheel to crush the metal brain and its minions, had built it up using the tentacle-machines as his own tools, controlling them in the way he had thought, fighting the metal brain with the instruments of its own making.

And now the great wheel was slowly rolling down the slope toward the outermost metal giant. There was no sound to indicate the source of the wheel’s motive power, but Lanier little doubted that Detmold had seized and utilized the same secret of atomic power that had been used by the brain for its own creatures. Slowly, almost clumsily, the wheel lumbered down to the basin, until it was but a few hundred feet above the outer fighting-machine. Suddenly the inaction of the latter ended and one long arm flashed out, holding a globe from which the deadly gas spurted toward the hub of the wheel.

With unexpected, lightning rapidity, the larger machine swerved to one side, then, pivoting instantly, rolled with terrific speed and power toward the erect giant, striking it with a deafening crash. The fighting-machine went down, and as the huge wheel rolled over it there was a cracking of metal, and the thing lay broken and harmless.

Over in the east the four approaching fighting-machines were striding toward the basin with utmost

speed, screaming their signals, that were answered by the metal giant left functioning in the basin, that stood beside the brain and its platform. And it was toward this remaining enemy that the wheel advanced, slowly, cautiously, edging forward like a snake that can strike with lightning speed. It followed a course that circled with the edge of the basin, and as it passed near Lanier, he saw the tiny figure of a man at the box-structure at the hub, saw Detmold, intent on the control of the giant mechanism; and then the wheel had rolled past him and was moving slowly toward the metal platform and the fighting giant beside it.

On it went, until it was very near the monster machine there, then paused, twisting, hovering, turning. Flash!—and it had struck at the watchful giant, struck and missed. Since the thing had turned in time to avoid the impact. Instantly the wheel turned and struck again, and Lanier cried out to see it crash squarely into the fighting-machine. But the latter was not overturned. It braced itself to stand and wound its mighty arms around the spokes of the wheel in a great effort to hold it back from the platform and the brain. The hurrying metal giants in the east were very near now, striding almost into the basin, racing madly toward this combat of titans. And on the metal circle rested the brain, its lens-eyes turned toward the battle, directing the efforts of its creatures as they battled and hurried in its behalf.

The long arms were still twisting through the spokes of the wheel, that was still striving to reach the near-by platform. Suddenly one of those arms released its hold on a spoke and swept up to the hub, caught the tiny figure of the man there and hurled him toward the edge of the basin, where Lanier saw him strike a tree there. And at the sight, Lanier screamed, ran forward with fists clenched, shouting insane, childish threats, an ant beside the two battling giants. But now, without the controlling hand of its builder, the wheel was whirling, toppling, falling, crashing down onto the circular platform, smashing fighting-machine and metal brain beneath its mighty bulk, crushing both into a twisted heap of metal.

Crash!—and Lanier stood quite still. Over at the eastern edge of the basin the four metal giants had suddenly slumped down and lay motionless, sunken into the heaps of cold, lifeless metal, as also must have done all those other metal giants that were spreading terror at Wheeling, as all the creatures of the metal brain must have done when released from its commands by its shattering. Truly, Detmold had struck at the center, had smashed completely the dreadful menace that was his own creature. In awe and wonder, in swiftly flooding thankfulness and gratitude, Lanier looked about. All around was silence.

9.

The face of Detmold was very peaceful when Lanier found him, huddled at the foot of a great tree. It was as if, at the very moment of death, he had known his victory and had seen in that victory atonement for the evil done by his creature. With a shattered piece of metal Lanier dug a deep grave beneath the tree, and placed his friend in it, rolling a great stone to its head when he had filled it.

“Good-bye, Detmold,” he whispered. “I think—I hope—that you have found some peace, now. Good-bye!”

There was no answer from the cold mound of earth that lay like a brown scar on the bright carpet of grass. But it seemed that the wind was answering, sighing through the trees like a released spirit; that the pines were answering, pointing like lofty, dark-green spears to the blue depths above, where was an infinite freedom, a calm, eternal silence.

Wearily, Lanier walked away, an ache in his heart, a choking tightness in his throat. Very soon he stood again on the hills above the valley, contemplating the ruins of Stockton. The morning sunlight there was brilliant, and over the broken city lay a quietness, a tranquility, that was like a protecting cloak. There was no smoke or sign of life.

But the people would return, Lanier thought. Word of the collapse of the outside metal giants would have spread swiftly, and already the cautious soldiers would be advancing, slowly, doubtfully. And later, others, single, adventuring spirits, small groups, crowds of hundreds. They would drift back to the ruined city and there would be puffing of steam-shovels and clatter of riveters and sawing and hammering and all sounds of building. They would come back...

Away to the east, far up the valley, there was a crying of bugles.

THE END