There were papers on the desk, a litter of papers scrawled over, in the careless writing of indifferent students, with the symbols of chemistry and long mathematical computations. The man at the desk pushed them aside to rest his lean, lined face on one thin hand. The other arm, ending at the wrist, was on the desk before him.

Students of a great university had long since ceased to speculate about the missing hand. The result of an experiment, they knew—a hand that was a mass of lifeless cells, amputated quickly that the living arm might be saved—but that was some several years ago, ancient history to those who came and went through Professor Eddinger's class room.

And now Professor Eddinger was weary—weary and old, he told himself—as he closed his eyes to shut out the sight of the interminable papers and the stubby wrist that had ended forever his experiments and the delicate manipulations which only he could do.

He reached slowly for a buzzing phone, but his eyes brightened at the voice that came to him.

"I've got it—I've got it!" The words were almost incoherent. "This is Avery, Professor—Avery! You must come at once. You will share in it; I owe it all to you ... you will be the first to see ... I am sending a taxi for you—"

Professor Eddinger's tired eyes crinkled to a smile. Enthusiasm like this was rare among his youngsters. But Avery—with the face of a poet, a dreamer's eyes and the mind of a scientist—good boy, Avery!—a long time since he had seen him—had him in his own laboratory for two years....

"What's this all about?" he asked.

"No—no!" said a voice; "I can't tell you—it is too big—greater than the induction motor—greater than the electric light—it is the greatest thing in the world. The taxi should be there now—you must come—"

A knock at the office door where a voice said, "Car for Professor Eddinger," confirmed the excited words.

"I'll come," said the Professor, "right away."

He pondered, as the car whirled him across the city, on what this greatest thing in the world might be. And he hoped with gentle skepticism that the enthusiasm was warranted. A young man opened the car door as they stopped. His face was flushed, Eddinger noted, hair pushed back in disarray, his shirt torn open at the throat.

"Wait here," he told the driver and took the Professor by the arm to hurry him into a dilapidated building.

"Not much of a laboratory," he said, "but we'll have better, you and I; we'll have better—"

The room seemed bare with its meager equipment, but it was neat, as became the best student of Professor Eddinger. Rows of reagent bottles stood on the shelves, but the tables were a litter of misplaced instruments and broken glassware where trembling hands had fumbled in heedless excitement.

"Glad to see you again, Avery." The gentle voice of Professor Eddinger had lost its tired tone. "It's been two years you've been working, I judge. Now what is this great discovery, boy? What have you found?"

The younger man, in whose face the color came and went, and whose eyes were shining from dark hollows that marked long days and sleepless nights, still clung to the other's arm.

"It's real," he said; "it's great! It means fortune and fame, and you're in on that, Professor. The old master," he said and clapped a hand affectionately upon a thin shoulder; "I owe it all to you. And now I have—I have learned.... No, you shall see for yourself. Wait—"

He crossed quickly to a table. On it was an apparatus; the eyes of the older man widened as he saw it. It was intricate—a maze of tubing. There was a glass bulb above—the generator of a cathode ray, obviously—and electro-magnets below and on each side. Beneath was a crude sphere of heavy lead—a retort, it might be—and from this there passed two massive, insulated cables. The understanding eyes of the Professor followed them, one to a terminal on a great insulating block upon the floor, the other to a similarly protected terminal of carbon some feet above it in the air.

The trembling fingers of the young man made some few adjustments, then he left the instrument to take his place by an electric switch. "Stand back," he warned, and closed the switch.

There was a gentle hissing from within glass tubes, the faint glow of a blue-green light. And that was all, until—with a crash like the ripping crackle of lightning, a white flame arced between the terminals of the heavy cables. It hissed ceaselessly through

the air where now the tang of ozone was apparent. The carbon blocks glowed with a brilliant incandescence when the flame ceased with the motion of a hand where Avery pulled a switch.

The man's voice was quiet now. "You do not know, yet, what you have seen, but there was a tremendous potential there—an amperage I can't measure with my limited facilities." He waved a deprecating hand about the ill-furnished laboratory. "But you have seen—" His voice trembled and failed at the forming of the words.

"—The disintegration of the atom," said Professor Eddinger quietly, "and the release of power unlimited. Did you use thorium?" he inquired.

The other looked at him in amazement. Then: "I should have known you would understand," he said humbly. "And you know what it means"—again his voice rose—"power without end to do the work of the world—great vessels driven a lifetime on a mere ounce of matter—a revolution in transportation—in living...." He paused. "The liberation of mankind," he added, and his voice was reverent. "This will do the work of the world: it will make a new heaven and a new earth! Oh, I have dreamed dreams," he exclaimed, "I have seen visions. And it has been given to me—me!—to liberate man from the curse of Adam ... the sweat of his brow.... I can't realize it even yet. I—I am not worthy...."

He raised his eyes slowly in the silence to gaze in wondering astonishment at the older man. There was no answering light, no exaltation on the lined face. Only sadness in the tired eyes that looked at him and through him as if focused upon something in a dim future—or past.

"Don't you see?" asked the wondering man. "The freedom of men—the liberation of a race. No more poverty, no endless, grinding labor." His young eyes, too, were looking into the future, a future of blinding light. "Culture," he said, "instead of heart-breaking toil, a chance to grow mentally, spiritually; it is another world, a new life—" And again he asked: "Surely, you see?"

"I see," said the other; "I see—plainly."

"The new world," said Avery. "It—it dazzles me; it rings like music in my ears."

"I see no new world," was the slow response.

The young face was plainly perplexed. "Don't you believe?" he stammered. "After you have seen ... I thought you would have the vision, would help me emancipate the world, save it—" His voice failed.

"Men have a way of crucifying their saviors," said the tired voice.

The inventor was suddenly indignant. "You are blind," he said harshly; "it is too big for you. And I would have had you stand beside me in the great work.... I shall announce it alone.... There will be laboratories—enormous!—and factories. My invention will be perfected, simplified, compressed. A generator will be made—thousands of horsepower to do the work of a city, free thousands of men—made so small you can hold it in one hand."

The sensitive face was proudly alight, proud and a trifle arrogant. The exaltation of his coming power was strong upon him.

"Yes," said Professor Eddinger, "in one hand." And he raised his right arm that he might see where the end of a sleeve was empty.

"I am sorry," said the inventor abruptly; "I didn't mean ... but you will excuse me now; there is so much to be done—" But the thin figure of Professor Eddinger had crossed to the far table to examine the apparatus there.

"Crude," he said beneath his breath, "crude—but efficient!"

In the silence a rat had appeared in the distant corner. The Professor nodded as he saw it. The animal stopped as the man's eyes came upon it; then sat squirrellike on one of the shelves as it ate a crumb of food. Some morsel from a hurried lunch of Avery's, the Professor reflected—poor Avery! Yes, there was much to be done.

He spoke as much to himself as to the man who was now beside him. "It enters here," he said and peered downward toward the lead bulb. He placed a finger on the side of the metal. "About here, I should think.... Have you a drill? And a bit of quartz?"

The inventor's eyes were puzzled, but the assurance of his old instructor claimed obedience. He produced a small drill and a fragment like broken glass. And he started visibly as the one hand worked awkwardly to make a small hole in the side of the lead. But he withdrew his own restraining hand, and he watched in mystified silence while the quartz was fitted to make a tiny window and the thin figure stooped to sight as if aiming the opening toward a far corner where a brown rat sat upright in earnest munching of a dry crust.

The Professor drew Avery with him as he retreated noiselessly from the instrument. "Will you close the switch," he whispered.

The young man hesitated, bewildered, at this unexpected demonstration, and the Professor himself reached with his one hand for the black lever. Again the arc crashed into life, to hold for a brief instant until Professor Eddinger opened the switch.

"Well," demanded Avery, "what's all the show? Do you think you are teaching me anything—about my own instrument?" There was hurt pride and jealous resentment in his voice.

"See," said Professor Eddinger quietly. And his one thin hand pointed to a far shelf, where, in the shadow, was a huddle of brown fur and a bit of crust. It fell as they watched, and the "plop" of the soft body upon the floor sounded loud in the silent room.

"The law of compensation," said Professor Eddinger. "Two sides to the medal! Darkness and light—good and evil—life ... and death!"

The young man was stammering. "What do you mean?—a death ray evolved?" And: "What of it?" he demanded; "what of it? What's that got to do with it?"

"A death ray," the other agreed. "You have dreamed, Avery—one must in order to create—but it is only a dream. You dreamed of life—a fuller life—for the world, but you would have given them, as you have just seen, death."

The face of Avery was white as wax; his eyes glared savagely from dark hollows.

"A rat!" he protested. "You have killed a rat ... and you say—you say—" He raised one trembling hand to his lips to hold them from forming the unspeakable words.

"A rat," said the Professor—"or a man ... or a million men."

"We will control it."

"All men will have it—the best and the worst ... and there is no defence."

"It will free the world—"

"It will destroy it."

"No!"—and the white-faced man was shouting now—"you don't understand—you can't see—"

The lean figure of the scientist straightened to its full height. His eyes met those of the younger man, silent now before him, but Avery knew the eyes never saw him; they were looking far off, following the wings of thought. In the stillness the man's words came harsh and commanding—

"Do you see the cities," he said, "crumbling to ruins under the cold stars? The fields? They are rank with wild growth, torn and gullied by the waters; a desolate land where

animals prowl. And the people—the people!—wandering bands, lower, as the years drag on, than the beasts themselves; the children dying, forgotten, in the forgotten lands; a people to whom the progress of our civilization is one with the ages past, for whom there is again the slow, toiling road toward the light.

"And somewhere, perhaps, a conquering race, the most brutal and callous of mankind, rioting in their sense of power and dragging themselves down to oblivion...."

His gaze came slowly back to the room and the figure of the man still fighting for his dream.

"They would not," said Avery hoarsely; "they'd use it for good."

"Would they?" asked Professor Eddinger. He spoke simply as one stating simple facts. "I love my fellow men," he said, "and I killed them in thousands in the last war—I, and my science, and my poison gas."

The figure of Avery slumped suddenly upon a chair; his face was buried in his hands. "And I would have been," he groaned, "the greatest man in the world."

"You shall be greater," said the Professor, "though only we shall know it—you and I.... You will save the world—from itself."

The figure, bowed and sunken in the chair, made no move; the man was heedless of the kindly hand upon his shoulder. His voice, when he spoke, was that of one afar off, speaking out of a great loneliness. "You don't understand," he said dully; "you can't—"

But Professor Eddinger, a cog in the wheels of a great educational machine, glanced at the watch on his wrist. Again his thin shoulders were stooped, his voice tired. "My classes," he said. "I must be going...."

In the gathering dusk Professor Eddinger locked carefully the door of his office. He crossed beyond his desk and fumbled with his one hand for his keys.

There was a cabinet to be opened, and he stared long in the dim light at the object he withdrew. He looked approvingly at the exquisite workmanship of an instrument where a generator of the cathode ray and an intricate maze of tubing surmounted electro-magnets and a round lead bulb. There were terminals for attaching heavy cables; it was a beautiful thing.... His useless arm moved to bring an imaginary hand before the window of quartz in the lead sphere.

"Power," he whispered and repeated Avery's words; "power, to build a city—or destroy a civilization ... and I hold it in one hand."

He replaced the apparatus in the safety of its case. "The saviors of mankind!" he said, and his tone was harsh and bitter.

But a smile, whimsical, kindly, crinkled his tired eyes as he turned to his desk and its usual litter of examination papers.

"It is something, Avery," he whispered to that distant man, "to belong in so distinguished a group."

A STAR THAT BREATHES

Beta Cephei, the mysterious Milky Way star which expands and contracts as though it were breathing, at last has a biography.

A summary of known facts concerning the star, interpreted in the light of recent observations at the Lick Observatory at the University of California was completed recently by H. S. Mendenhall, graduate student.

Mendenhall's interpretations were said to lend weight to the theory that Beta Cephei is contracting and expanding once in every four and one-half hours. This is such a terrific rate of speed from a terrestrial point of view that it appears to be moving toward and away from the earth at a velocity reaching a maximum of about nine and one-half miles per second.

Beta Cephei is a variable star in the Constellation Cepheus. It is best visible in the northern sky during July or August. Its distance from the earth is estimated roughly at 2,000,000,000,000,000 miles, and Mendenhall estimates its diameter at almost 2,000,000 miles, more than twice that of the sun.

In addition to the apparent velocity caused by contraction and expansion of its surface five times a day, Beta Cephei seems to have another motion. This was said by Mendenhall to be a rotation around some other star in a period of 20 years. Velocity of this rotation is something over three miles a second.

Variable stars are of particular interest to astronomers because the light from them pulsates regularly, flaring and dying as though fuel were replenished at regular intervals. The rate of this pulsation has been found to be a measure to the candle power of the star. Its distance then can be determined by contrasting its actual candle power with the apparent magnitude as seen from the earth.