PLANET STORIES

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STRANGE ADVENTURES ON OTHER WORLDS
—THE UNIVERSE OF FUTURE CENTURIES

EXILES OF THE THREE RED MOONS
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The Cosmic Juggernaut

By
JOHN RUSSELL FEARN

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No being may play God. Valno, benevolent Lord of Ixonia, tried. He tampered with Creation's basic law to avoid the cosmic chaos of a world gone wild. . . . Here is a truly momentous story; the strange record of a second Genesis.

I

Zios Valno emerged from the darkness of the phototelescopic room with a frown on his big, ugly face. Ugly, that is, from ordinary standards; by the rest of his race he was considered rather handsome. Massively built, his body was perched on two blocks of legs, and comprised a barrel of a chest, pillar-like neck, and the huge, intelligent head common to this entire race of Ixonians.

"Well, was I right?"

Valno came to a sudden halt in his meditative walking and looked up sharply. In the midst of the weird, complex machinery that formed this master laboratory, stood Jus—the chief astronomer. His deeply sunk green eyes regarded the ruler anxiously.

"Quite right," Valno assented, still frowning. "It is of course quite unbelievable—that a distant star should break away from an unknown spot in the cosmos and start to move toward this system of ours. . . ." He shrugged. "But there it is! We must take immediate steps to protect ourselves."

In those words Valno voiced the inherent fatalism of his race, their cold, calculating scientific knowledge, their almost entire lack of fear, destroyed through years of solving the unknown. Only ignorance of the unknown can produce fear: without it, there is none.

"Protection against such a body as that will be none too simple," Jus observed gravely. "It is a high temperatured star, measures well over a million miles in diameter. In fact, it is almost the twin of our own sun. Therein we face considerable danger. Nothing we can devise in time can prevent this invader from passing close to our sun, close enough to disrupt portions of his mass. Even create a solar system . . ." he finished, pondering.

"Another one!" Valno's face took on a new expression. "But we—"

Jus smiled a little. "We know science, yes, but we do not even yet understand Nature. At any moment—even as we see now—she may decide to create another system and wipe out an old one. . . . Ours! We live in a system of five worlds, our own planet being the second nearest to the Sun. Of these five worlds only ours has life which may reasonably be called intelligent. Our Sun, at present, is only eighty million miles from us. . . . But beyond the area of our system is empty space for untold light-years, clear to the First and Second Galaxies. Do you not see that this invader, which will probably miss the orbits of our three outer worlds, will smash this one, and the one nearest the Sun, into mere rocks and asteroids?"

Valno nodded slowly. "Yes; and such an event is even more likely in view of the fact that our world is the heaviest of all, has diameter of over 8,000 miles and materials of extreme density. Between our world and the Sun many things may happen."

"Will happen," the astronomer corrected gravely.

Valno turned slowly, still meditating. In silence he walked to the window and stared out over the sunlit mass of the super-scientific city of which he was the master. Its immense bulk was so solid, so silently eloquent of centuries of achievement and scientific progress, he could not properly bring his mind into focus with this sudden new catastrophe hurtling toward them through infinity.

"We have how long?" he asked presently, without turning.

"A year maybe; perhaps a trifle more. A year isn't going to be long enough to save us."

"I do not agree with you. In a year we can do many things. We have mechanical computators which will be able to chart out for us exactly what will occur when this invader strikes. We can know beforehand, mathematically, exactly how our system will react, which portions of our world—if any—will be torn asunder, exactly what path the invader will take on its trip, the strains and gravitational fields involved— Everything."

"True, but what good will that do us? Even a child can see that this invader will upset our Sun. How do we propose to go on living during and after such a catastrophe?"

Valno did not answer the question. He fell to thought for a while, then said, "Seventy-five per cent of stars, runaways or otherwise, possess certain radiations and emanations that definitely affect different forms of life. We proved long ago that our own life came into being through active radiations at the birth of our system. Naturally we were not present to view it—but our germ of life was born of conflicting radiations between some such invader as this and our present Sun. Through the days of heat and plasma the germ of life remained. Later it sprouted. Here again the same thing may happen, on worlds as yet unborn. If such a thing does come to pass, and we can survive this disaster, we may have the opportunity to watch an evolution. That, my friend, would be of profound interest."

"Admitted," Jus said dryly, "but you still evade the vital point. How do we survive?"

Valno considered for a space, then he smiled reassuringly.

"There will be a way, Jus; have no fear of that. While I devise a plan I want you to find out what dominating life radiations this invader possesses, then we can determine if there is a chance of future life on unknown worlds to come. While you do that I will be in the Computing Room. Give orders that I am not to be disturbed."

The astronomer nodded gravely. "Very well. I will bring you my findings the moment I am finished. I only hope you can devise a way to save us."

"There is always a way," Valno smiled, and went out.

After stimulating his brain with a charge of radiations, Valno repaired to his Computing Room and locked himself in. Seating himself in a specially designed chair he fingered the switches that controlled the banks of machinery on every side of him.

Not for nothing was the Computing Room called the Brain of Ixonia. In truth it was. Machinery of bewildering complexity, all of it operating from a basis of pure mathematics, built up flawless prognostications of future time with a sureness and accuracy forbidden to a natural brain.

Actually the machinery forecasted Time, patterned the future as far ahead as desired. Nor was the process so profound as it appeared. The Ixonians firmly believed, and had proved, that Nature is not a random concurrence of atoms flung hither and yon, but an ordered pattern, a mosaic—every molecule, every Universe, fitting into its exact place. Thereby mathematically, the change of even one molecule must have predictable consequences. To this end worked the mazed, infinitely delicate machinery of the Computing Room.

Valno thrust a switch. The floodlights expired. He moved more switches, then from his almost horizontal position in the chair he was able to watch on the vast screen imbedded in the metal roof, the composite impressions of all the calculating projectors focused into one moving whole.

He saw again the basis of the whole computation—the glowing, bright invader from the infinite deeps of space, a steadily moving swelling point amidst the First Galaxy, a point that had already the evidences of a disk. Then the machinery for accruing this known fact-basis

took up the load, passed its computations on to a multiplier, which in turn mingled with the mixing device for sorting out the right predictable path amidst myriads of possible future time lines.

Valno sat immovable, watching fixedly. The invader visibly came sweeping inwards in a gigantic arc, speeded up by the machines to thousands of times the speed of light. The whole Ixonian system came into view, all five planets swinging majestically round their blue-white million and a half mile wide Sun.

Perturbations began. The conflicting gravitational fields set Ixonia and his neighbors reeling crazily. Asta, nearest the Sun, split into fragments and went careening away into the void, hurled by nameless forces. Fissures of titanic size split Ixonia from end to end.

Impassively, Valno took note of these happenings, then watched in alarmed amazement as the invading Sun, by far heavier than the normal one, took that body in its terrific momentumal drive and tore away with it into space, hooked it in invisible chains.

It traveled a distance of over 4,000 million miles before it finally broke loose, but in doing so it ruptured, gave forth spouting filaments of searing matter that painted the cosmos in momentary ribbons of blinding flame. . . .

The view switched back to Ixonia as Valno shifted a button. The planet had split in twain. One half, glowing red, had shrunk amazingly. In its close approach to the invader its satellite electrons had been stripped off by the terrific heat, condensing it by nearly a thousand miles of diameter—but the original weight was still there, packed into a dense mass that would rapidly cool with the drastic removal of the luminary.

The remaining half of Ixonia, some 4,000 miles across, had escaped condensation, and like its riven half, was reeling in a wild orbit held in the field of the remaining three scorched, but otherwise unharmed, planets.

"Worlds—to come," Valno muttered. "Eight of them—four small, four big—then one small one again of considerable weight. Half of our own Ixonia. And Asta!" He smiled wryly. "A mere far-flung group of asteroids between inner and outer worlds. So *that* is our destiny."

He fell silent again, watched for a while the flaming ball that would one day condense into the outermost planet of the new system; then shifting the controls he looked for the remaining three worlds of his own system. They were still there, their low type life gone from their burned surfaces. Only their orbits had changed—had become vastly wide round the incredibly distant Sun.

Valno switched off. The machines became silent. For several minutes he sat thinking, began to talk aloud again.

"It is conceivable that this invader is the self-same star that brought *our* system into being. On its second arrival it will bring this new system to life. What then is to prevent it coming again, and yet again? Each time wreaking havoc, dissipating its flaming energy so slowly that it can make four or five return trips before it becomes a dead star. Even then, as a neutronium mass, it can still create frightful upheavals every time it comes round. . . . An interloper that must be tamed!" he finished with decision.

Rising from the chair he went across to a smaller calculator and set a cosmic scale chart in position. Linking the machine to its huge, mechanically intelligent brothers he switched on the power and watched keenly as the tracery needle gave an exact predicted path of the interloper through space.

The needle moved through an arc, zig-zagged weirdly at the moment of its conflict with the Sun, then passed on into the depths of space. But space is finite, yet unbounded. Moving practically unimpeded through the void, its path carrying it beyond the huge gravitational pulls of the greater stars, the voyager pursued a comparatively straight path, a frictionless journey through the ether of space-time.

A straight path, and yet of necessity a circle, bringing it in time in a huge circular orbit that fell only little short of the total circumference of the universe, back to its starting point.

Valno tensed as he watched the predicted orbit; his gaze fixed on the intersecting lines. The cosmos, moving with a like speed round an imaginary universal hub, came back to the same point at identically the same time as the star. Such an occurrence could not be otherwise. Time and space move with ordered precision, repeat their order after unguessable generations. Only intelligence progresses; the order of matter remains almost the same. Matter gives place to energy; energy re-forms into matter.

"The paths cross!" Valno breathed tensely. "Unguessably far in the future! Three thousand million years!" He broke off, musing over the figure. "Exactly the same time since *our* system came into being. . . . Almost. Then genesis of life does repeat, again and again—"

He turned sharply at a rattling on the door. Pressing a switch at his elbow he released the electrically controlled bolt. Jus came in, metallic sheets of records in his hand.

"The calculations on the invader's radiations," he said calmly, putting them down. "They react on only one composition—carbon."

Valno nodded quickly. "Never mind that for the moment; I'll go into them later. I've been busy too, Jus. . . ." He explained in detail exactly what he had seen and done. When he had finished the astronomer was serious.

"Then this interloper—to whom we might well give the name of 'Genesis'—will constantly reappear at intervals, always with the same train of disasters?" he asked.

"Unless we trap him," Valno answered broodingly. "Three thousand million years in the future he will come again. This time we are obviously too late, but on that other occasion. . . ."

"But how?" Jus demanded.

"As yet I don't know; I must think it out. For the moment there is something else I must do. I must determine at exactly what point this world of ours is going to break. One portion of it will break off into a considerable sized but dense asteroid of about 3,000 miles diameter—will form the outermost of a system of worlds as yet unborn. If that point of fracture can in some manner be determined—"

He ceased talking suddenly and turned aside to the calculator again. Skilfully he made adjustments to the mechanism, altered its predicting mechanical core to a different ratio—that of measurements, stresses and strains, weight, mass, temperature, pressure—all the possibilities likely to assail the planet. Then he stood back and watched silently with Jus by his side as the apparatus hummed and clicked with rhythmic precision.

Fifteen minutes later it lowered wafer-thin metal sheets on long, gleaming arms, sheets that were smothered in abstruse calculations.

Valno snatched them up anxiously.

"See!" he cried eagerly. "Our world breaks asunder almost dead across the equatorial belt—one piece hurtles away from the moving Sun, and the other toward it. The one hurtling toward it is restrained from following by the gravitational pulls of the remaining planets. It is 4,000 miles wide, but loses 1,000 miles of surface area by the action of heat and condensation.

It becomes plasmic and forms into a globe. The other half retains its former size of 4,000 miles diameter and is formed into a globe through the passage of ages and fairly rapid revolution."

Jus said nothing, though he nodded. He had not the remotest idea what his ruler was driving at. To him, Genesis meant the destruction of his world and the race; prescience was not one of his strong talents.

Valno went on scanning the chart. "You observe, Jus? The condensed half is left with no revolution. It turns one face perpetually sunward, has only the very slightest libration from side to side, follows a vast orbit round the moved Sun which takes nearly three hundred years to complete. But with the half we intend to use it will be very different. The cataclysm will impart to it a revolution of some 3 hours 14 minutes, lengthening to some 10 hours before the time comes for Genesis to return. That, my friend, is ideal!"

Without giving the astronomer an opportunity to comment he turned quickly and picked up the record he had brought in, charted in the main from spectroscopic analysis.

"Reacts on carbon," he murmured. "That is not very surprising; our own life is basically carbon. We came into being by that very process. Genesis stirred life into our world. It alone, with its peculiar radiations, was responsible for the phenomenon of life's creation, whereas life's ultimate progress is left to the less efficient stimulus of our own Sun's radiations. In itself it is not capable of producing life, only sustaining it."

"Does that help us?" asked the astronomer, rather testily.

"Not particularly," Valno answered, "but at least we may be sure that the life which will come to those other worlds will be carbon like ourselves. That means that if we are to ever restore light and warmth to our particular shattered system we shall have to steal their Sun and destroy them. That is neither just nor necessary: I have a better plan—but it can only be put into effect when Genesis makes its next trip, countless ages in the future. That is what I am counting on."

"And in the interval?"

"In the interval we shall be deep inside the uncondensed half of our world, sleeping. We shall awaken when the first radiations of returning Genesis strike the light-reaction cells we shall place near our abode. You will notice"—he picked up the record—"that here is a dominant wavelength of invisible light, evidently peculiar to Genesis and more penetrating than any possessed by the fixed stars. Maybe it is a cosmic ray; we do not know. What we do know is that it can make its presence felt on a sensitive cell long before Genesis itself is even visible in our strongest telescopes. That very fact will give us perhaps three or four years in which to prepare for its coming."

"And then?"

The ruler smiled speculatively. "Then, my friend, we set to work to trap this unwelcome visitor, bend it to our own needs, use the forces of the cosmos not only to save the life that will then be flourishing on at present unborn worlds, but also to provide our Sun-desolated system with light and heat once more."

"I still don't see—" the astronomer began helplessly, but Valno waved a hand.

"You will when the time comes. Now leave me, please, while I compute further. Tonight I will broadcast our plans to our people."

Jus hesitated for a moment, then shrugged. Silently he went out, left Valno studying the records.

"It can be done," he muttered, clenching his fist. "More— It *must* be done!"

II

When nightfall had settled over the vast city, when it was ablaze with a myriad floodlights of industry and pleasure, Valno's powerful voice made itself heard in every quarter, broadcast over every radio ether line from his central headquarters.

The intellectuals heard it; so did the workers. Man, woman and child of Ixonia heard him. Some listened with interest, others with alarm; still others forsook their receiving apparatus to venture outside and stare at the coldly winging stars, pick out that solitary white invader, still little different than an ordinary star to the naked eye. This was "Genesis," they had been told. Because of it they were to sacrifice progress and contentment for milennia to come; were to suspend every activity until, if Valno's plan went through, they would awaken to a newer conquest and the snaring of this interloper who would forever threaten life until it was tamed by the forces of science.

". . . and we have but a year," were Valno's concluding words, booming through every street and edifice. "In that year we shall remove all our treasures to an underground city, the building of which will commence tomorrow. Half of our world will part company with the other half but there is no reason to anticipate tragedy. Mathematical prognosticators cannot lie. All of you, workers and intellectuals, will report to me tomorrow. Normal work must cease. We are like a people facing war—war with a cosmic invader. Tomorrow we begin our defensive. For tonight—do as you will."

With that he broke the contact. The throngs of people broke up, went about their interrupted pursuits, but at sunrise they reported at Valno's headquarters in a vast multitude, without a single absentee. Loyalty, scientific progress, made them faithful to Valno no matter what personal wishes they had to forego.

He promptly assigned newly prepared graphs to the geologists, graphs which gave to within a mile the exact point at which Ixonia would fissure when subjected to the attack of Genesis. The geologists, aided by the engineers, set about the task of finding the most suitable parts of the planet in which to sink the first shafts of the underground city. It took exactly a week. After that, progress was rapid.

Possessing machinery of infinitely advanced design, having a race wherein even a laborer was a man of high intelligence, the entire mass of people worked with a perfect coordination, gouging out one-half of their world in a series of shafts reaching down for nearly twenty miles, at the base of which superpowerful drilling machines began the more difficult work of carving out the enormous cavern which was to house an entire new underground city.

As it took shape, further armies of men and women began to denude the surface city of everything it possessed. Night and day the dozens of shaft cages came and went ceaselessly, carrying the accumulated knowledge of centuries to the new resting place.

Behind it all, mostly unseen but in touch with everything through X-ray television, penetrating the miles of rock, Valno and Jus kept constant watch, saw as the months passed by that they would be in time, that the life of everybody was assured.

"The rest will be simple," Valno commented in satisfaction, turning from the scanning screens. "I have already made the necessary arrangements with the engineers for the installation of the light cell devices. The city itself will be pressure, air, and light proof. Once

we are all sealed within it the master valves will be controlled from our headquarters, of course. Air will be eliminated, the nearest point of pure vacua obtained, and to all intents and purposes we shall die. The rest you know.

"Suspended animation is, in truth, artificial death. Heart beats and respiration cease, but the brain, though sleeping, can immediately take up the threads and govern the body once more when air and warmth return. The light cells will do that.

"Twenty of them are being placed at varied quarters on the surface of our half world, shielded by transparent domes. Being small, it is unlikely that all of them will be destroyed in the cataclysm. We need only one; out of twenty at least one will survive. They connect to the underground city, of course. The instant the invisible light of Genesis operates upon them on its next visit, they will transmit a signal below, actuate machines, which in turn will start up the robots who will set the air and warmth devices to work. You understand?"

"You are sure," Jus asked, "that these cells won't operate on *this* occasion and spoil everything?"

"Quite sure. They cannot become effective for at least twenty years after the cataclysm. Latent energy."

Jus smiled. "I see. It is a pity we cannot live forever and obviate the necessity of bridging the gap in time."

"Death we have still to conquer," Valno murmured. "We are doing the next best thing. When we awaken we will turn our attention to greater achievements."

He turned back to the screen and surveyed the spreading, ordered immensity it mirrored; the colossal city lit by floodlights. Work was still going on—ordered units of men and women moved ceaselessly about their appointed tasks.

And as they worked Genesis swept ever nearer and nearer through the cosmos. Already the first disturbances were becoming evident. Ixonia did not possess a great deal of ocean, but what there was began to agitate violently under the first pluckings of the new gravitational field.

Tidal waves, vast and tremendous, crashed inwards upon land that was devoid of all signs of life. The surface city was 300 miles distant from the nearest ocean—and by the time the surface disturbances reached devastating proportions even the city was empty, a deserted monument to a people of profound wisdom. The only other traces of their work lay at twenty points on the surface—stout 2-foot high domes of meshed metal glass nearly a foot thick, yet so flawlessly cast no possible radiation could experience any divergence in striking the precious alarm cell in the case beneath. Valno had left nothing to chance.

Deep down underground the powerful X-ray vision machines penetrated the twenty miles of rock to the surface and captured a perfect image of what was transpiring there. The entire race of Ixonia watched their screens in awe-struck amazement, stupefied by the titanic forces of Nature unleashed.

To Valno nothing he saw occasioned much surprise. It was exactly as the calculators had envisioned it. As Genesis and the Sun became opposing forces they ripped Ixonia relentlessly between their two fields of force, tore the planet in half amidst the boilings and thunderings of released inner energies. Fire, incredible bolts of electric discharge, crumbling, hurtling rocks, were the hellish lines at sunder point.

The cleavage took only ten minutes, and in that time the populated half was hurled far away from the raging suns into the comparatively cool darkness whither the other three

planets had also been vomited.

The other half, flung in the opposite direction, underwent rapid and astounding changes. It glowed white hot in passing between the two luminaries, thereby escaping being pulled into either of them by almost balancing gravitational fields. But its surface was heated to a point that could only have been in millions of degrees. For a few minutes it became a veritable baby Sun—then suddenly its 4,000 mile mass compressed violently amidst a livid spurt of released energy as the satellite electrons forming the atoms of its outer crust were torn free by the furious blasting. It went reeling and swinging drunkenly on a wild orbit, clutched now in the grip of its swinging fellow planets.

Genesis, holding the Sun immovably, moved onwards, until in their mad journey they blasted the remaining planet Asta into a million splintering, hurtling rocks. Still Genesis and the Sun traveled onward, until at last the strain became beyond tolerance.

Then came cosmic birth. Writhing streamers of superheated gas ejected from the tortured Sun, born of all the hellish fury of unimaginable forces. The colossal prominences broke up into spinning, whirling globes of incandescence, hurtled across the blackness of infinity. . . . First four gigantic masses at the end of the streamer, then four smaller ones at the root.

Out and out the furthest ones went, nearly reaching the crazy orbit of the hot condensed world, but within a few million miles of it the outermost one stopped, chained even at that distance by the Sun's superior gravitation.

The inconceivable fury of birth began to lessen from that moment onwards as the flogged Sun found a new balance and position, as Genesis went spinning onwards into the infinite on its eternal path.

The creakings and strainings in the underground city slowly abated. True to calculation the vastly thick supports and pressure resisting walls round the city had held. The entire race murmured a low sigh of relief, then attention swung to the normal television screens as Valno's resolute face suddenly appeared.

"Well, my friends, you have seen the birth of a system—seen exactly how our own system once came into being. In three thousand million years Genesis will return; the same upheavals would recur were it not for the fact that we shall master this interloper once and for all. Until then, our work is done. In six hours we shall be at rest. Prepare!"

The warning came as no surprise. The people were all ready for the decision, waiting in their homes, in the machine rooms, in the various controlling offices. They knew exactly what would happen. It would, in effect, be nothing more than sleep, but with the one difference that they would skip epochs and pick up the thread where they had dropped it.

Nothing would grow old or collapse in the way of buildings, but certain of the machinery, particularly that which relied on infinitely delicate metal, would be bound by its very nature to undergo a deterioration through such a vast spell of time. That was one of the unavoidable issues.

Valno, accompanied only by Jus, stood in the broad controlling room at headquarters. He turned to the city communicator.

"Close the valves!"

Immediately at every quarter of the city armies of laborers set to work with the switches ruling the valve engines. In an hour there was hardly a trace of atmosphere remaining. The city began to become heavy with drifting excesses of carbon dioxide. Valno gave the final order. "Consume carbon dioxide. Release energy suspension machines."

From the center of the city the workers released robot attendants. They would continue to work after the flesh and blood men had fallen asleep.

Cold, biting air began to creep through the city—or so it seemed to be at first. Actually it was not air but an electric current swiftly lowering the temperature, evaporating all residue of carbon dioxide and water vapor. At the same time it performed its basic work of halting the action of the heart and brain, stilling the circulation of the blood.

One after another men and women dropped at their posts, heads reeling in infinite, giddy darkness. It penetrated everywhere with its lethal stabbing cold; its frigid, biting airlessness.

Valno dropped heavily; Jus followed suit.

In half an hour not a soul stirred, the populace lay prone in every quarter of the city, in every building, in every street. The robots alone still moved. They extinguished the lights, tested the perfection of the awakening cell apparatus, then they too returned to their posts and became rigid and silent.

Darkness—false death—closed the mighty city and its people until Genesis should return.

Valno stirred slowly. The black abyss in which his mind had been immersed for unnumbered ages began to take on the slow stirrings of life. Memories—ambitions—plans. They floated gradually into his consciousness, built up into understandable form.

He was breathing; his heart was beating steadily. Warmth and light were around him. With an effort he opened his eyes, raised himself on one elbow. In silence he watched a small army of robots moving efficiently amongst the vast machines, busy at their tasks of controlling the air and temperature regulators.

"It seems but yesterday," he muttered. "Yet no less than three thousand million years can have elapsed. Genesis is returning."

He got up stiffly, flexed his limbs, then returned as Jus came quietly forward. He bowed a little as beheld his ruler.

"Greetings, Valno. I have been revived now for nearly an hour. The vision screens reveal the people reviving everywhere, resuming their interrupted tasks. Many things have happened in the interval. Our plans were not entirely perfect; here and there certain machines have broken up. The sensitive inner core of our calculators, for instance. Their metal, of necessity, was extremely malleable. With the passage of time it has broken up, passed away. Then again, several inner vacuum tubes—"

Valno interrupted him. "Such occurrences are not of vital import in any case. The vacuum tubes can be repaired; so far as the calculators go, they will not be needed again. I planned everything before we passed into sleep. It is unnecessary to view the outcome of my figuring by the Computing Room machinery; figures cannot lie. Anything else?"

"Yes. There are scenes in the observatory you ought to see."

"I'll join you immediately."

Valno turned to the stimulating apparatus, absorbed a given quantum of radiations, then accompanied the astronomer through a maze of warm, brightly lit passages to the observatory. In silence Jus motioned to the mirrors of the X-ray telescope reflector. The lights dimmed. The two stood in silence, surveying the scene presented to them.

"So—eight worlds," Valno mused, gazing at the new system. "Four large and four small—and between the orbits of these inner and outer groups lies the remains of Asta—" He broke off and looked more closely. "That third world there, Jus. From its appearance it might possess life."

"It does," the astronomer stated. "I've already viewed it at close quarters. Of all these planets it is the only one with intelligence upon it. Comparatively inferior intelligence. Educated bipeds. See!"

He fingered the vast controlling switchboard, spun the calibrated wheels that altered the telescope's focus. The third world suddenly leapt swiftly from a mere clouded ball to a world of land and water, clouds drifting lazily in its atmosphere.

"You see?" Jus murmured. "Cities—ocean-going vessels—airplanes. Here and there traces of war, an atavistic throwback. All the attributes of a civilization of the lower order. They understand radio; our spatial radio system is successful in picking up their electromagnetic waves. Naturally, their language is peculiar."

"The Language Expert will soon interpret it," Valno answered absently, thinking. "I would rather like to know the reactions of these queer people to Genesis when it comes."

"I will attend to it, Valno. In the meantime, the present facts concerning our system are these. We are four thousand five hundred million miles from the Sun; we spin now at a revolution of ten hours twelve minutes in relation to him. We make a circuit of him in five hundred years. The other worlds of our system, the outer three, have spins between fifteen and sixteen hours. Dead, of course, so far from the Sun. Atmosphere gone. They had life of only the lowest form, and for that very reason I do not see why some life spores may not remain, deep down. They would come back to life if we can ever get solar warmth again. After all, pure interstellar space is the most perfect coffin for life spores—eternal preservation."

Valno smiled. "If my calculations are correct, my friend, we *will* have a Sun again—that wanderer Genesis will be turned to good account. In fact we have *got* to have him. We cannot forever live down here, comfortable though we are at present. Our supplies of energy cannot last that long. Besides, we are a surface people, accustomed to blue skies, the wind, the rain. I presume Genesis is still beyond telescopic range?"

"Yes; but I know where to look for him. He is visible to the spectroscopic analysers, but not to the eye."

Valno turned actively. "The moment he comes into view advise me. In the meanwhile have the Language Expert keep close check on all radio messages exchanged on the third world. Tell him to record anything he thinks important. I'm anxious to judge the intellect of these people."

Jus inclined his head, then after a final glance at the mirror Valno turned and went swiftly out.

Once recovery was complete throughout the underground city Valno marshaled his people into action once more, set them to work on the building of machines that were vast even within the knowledge of Ixonia. Mammoth blast furnaces began to work ceaselessly, casting the molds for machinery that was incomprehensible, save to a chosen few—and the chosen few failed to reveal anything because each of them only understood a part. Valno alone understood the whole vast project.

Most of the time he studied the behavior of the condensed half of Ixonia, watched it proceeding on its 300-year circuit of the far distant Sun, noticed the intricacies of its orbit—then he studied its relationship to rapidly twirling Ixonia. He smiled at what he saw, smiled even more when his laboratory tests revealed that Ixonia possessed almost unlimited quantities of natural electric current, begotten undoubtedly of the time when for ages it had twirled on its leisurely way in comparatively close proximity to the now removed Sun.

"Force—planet sized force and power," Valno murmured. "It only needs to be harnessed; bend the power of energy to our own uses, and then—"

He broke off, surprised from his musing by the arrival of Jus. With his usual calmness the astronomer placed the small sound recorder on the bench and switched it on.

"Here, Valno, is an interpreted record of third world communications," he remarked. "It may be of interest. I rather fancy it is some kind of astronomical talk."

He stopped speaking as the mechanical speaker suddenly operated from the metal sound track spinning on its spools.

". . . and I say there will come a time, one day, when the very forces that brought our solar system into life will return! That is inevitable because space curves in a perfect circle. Only one thing can prevent the return of the force or the star that ejected filaments of gas from our Sun, and that is some distant catastrophe which would destroy this wanderer completely. That is a chance that can only be reckoned in multi millions to one. Stars, too, move in orbits. The universe is changeless, it constantly repeats its order. Therefore, one day, we shall need to face this grim possibility. It may be millions of years hence; it may be only a few years. As yet no man can say.

"That such a disaster occurred in the past is now beyond all question. We have the asteroids, the remains of a world far in precedence to ours. We have Pluto, a misfit on the remote edges of our solar system—a dense world, obviously afflicted at one time by vast heat which, from the present position of the Sun, could only have occurred by the presence of a hot body from outer space. Then again, we know today that the views first put forth in 1931 by Dr. Baade are correct—Pluto is not a broken fragment or satellite of Neptune; it is the outermost world of another group of worlds beyond visual range!

"A system, my friends, that at one time had a Sun. Maybe *our* Sun. We have proof of other worlds in the presence of the strange perturbations of Neptune, outlined by Professor Lowell, and quite unaccounted for by the mere size of Pluto alone. There are other worlds—beyond! But until we achieve telescopic power strong enough, we shall never find them.

"None the less, we can be assured that at one time these worlds had warmth. Pluto alone indicates that. What happened once can happen again, though I sincerely trust it will not be in the course of Man's evolution. If it is, then it means the end of—"

With a click the record suddenly finished. Jus smiled as he switched the instrument off.

"There was nothing else of importance, Valno. Clearly these third world people don't know yet how deadly accurate this astronomer of theirs is; probably he does not know himself. Pluto, eh? So that is what they call the condensed half of our world. I just wonder what they'll do when Genesis becomes visible to them? Which it will be before very long. It is already visible to us because of our nearer proximity to it—"

"It is!" Valno interrupted sharply, looking up. "Then we must get to work at once, swing Pluto round to act as a snare."

Jus gazed in astonishment. "Do *what*?" he cried.

Valno looked at him seriously for a moment.

"This Pluto, as the Third Worlders call him, is practically equal in weight to our own half world here, is he not?"

"Certainly, but less in size. Contracted."

"Exactly. For that reason it can be contracted to an even smaller size, turned into a veritable tight-packed core of neutrons."

"But how? And even if you accomplished it its weight would be just the same no matter how small you made it."

"Quite so—unless a battering ram of neutrons were projected at it after it had been contracted. Then its weight would increase very rapidly without much increase in size. Am I right?"

Jus nodded in bewilderment, spread his hands. "Where do you propose to get the power necessary for such a feat?"

"I propose to use this half world of ours as a natural dynamo. I have been experimenting recently, and as I anticipated it has huge stores of natural electricity at the north magnetic pole. To this pole swarm billions of tons of nickle iron, neutronic material of which the core of any world is fashioned. Now you see? Fields of force generated by this world's natural spinning against ether, or space-time, or whatever it may be termed."

"And you propose to tap this supply of terrific energy?"

"That is what our workers have been engaged upon recently—constructing the necessary machinery. We shall be able to use this energy exactly in whatever manner we wish, have an inexhaustible supply. At will we can project a beam of pure force, or of neutrons, or of compression. Our science is easily able to accomplish that."

"I know, but do you believe that dense matter can be compressed as easily as the more rarefied state?"

Valno gave a confident smile. "Of course! In the long run dense matter is not less compressible than rarefied matter, only its compression is more jerky. The apparent incompressibility of solids and liquids is due to the fact that the ridiculously small pressures science can produce are unable to get over the first jerk. With this new new system of infinite power we shall accomplish it—place a controlling shell of energy around Pluto, then move his as far toward approaching Genesis as possible. . . . Increase his weight until his mass is strong enough to drag Genesis aside toward him."

"Then?"

"I see nothing to stop Pluto becoming the neutronic core of Genesis. That, at least, is what my figures show."

Jus stood for a moment in silence, then he shook his head, doubtfully.

"Well, maybe you are right," he admitted, "but I would have liked it a great deal better if the Computing Room machinery had not collapsed. Then we could have seen for ourselves."

Valno laughed contemptuously. "Pessimism, Jus! Figures cannot lie. We would merely have seen what I have outlined."

The visible reappearance of Genesis in the firmament lent a spur to the activities of the Ixonians. The high pressure work already in force was increased two-fold; every member of the race was pressed into commission for the construction of the intricate machinery Valno had devised.

As fast as it was completed he and Jus took charge of the proceedings, accompanying armies of workers up the twenty mile shafts to Ixonia's cold, airless surface, directing operations from within their transparent, air tight tractor globes, capable of mobile movement across the torn, rocky wastes that had once been fair, sun-warmed countryside.

They set up their temporary headquarters at the north magnetic Pole, which, since Ixonia revolved almost on its side, directly faced the vastly distant Sun. Here the light was equivalent

to that of perhaps two full moons on Earth. Pluto, too, with his relatively high albedo, added his percentage of light, moving slowly across the star dusted sky like a distended satellite.

By degrees, directly over the north polar cap, a fantastically large projector was erected, rearing nearly 1,000 feet into the ebony dark, strengthened and supported by mammoth girders sunk deep into the rocks. . . . From it, penetrating down into the underworld city, led the myriad cables for its controls, all leading back to the special laboratory wherein were housed power magnets, transformers, incredibly complex induction coils, rectifiers, and numberless other devices essential for the tapping of the stupendous energy stored in Ixonia's very own being.

At last Valno was satisfied, returned below with his workers. A brief interval was granted for relaxation and stimulus, then he went direct to the power laboratory, accompanied by Jus and a sprinkling of the few more important members of his race.

Upon three sides of the power room were X-ray television mirrors, all giving different aspects of the magnetic pole. One viewed the projector, another charted Pluto's movement across a graded scale; still another was able to give a vantage point of any part of the heavens.

Moving to the control board, Valno raised his hand. Instantly forty attendant workers performed their tasks. Forty multiple switches slammed into position: engines thundered suddenly into life. Ixonia quaked to its depths with the abrupt impact of nameless, devastating energy probings.

His face rigidly set, his hands flitting swiftly over the major key control board, Valno began his task, his every move checked by Jus' tense voice as he watched the small mathematical machines that balanced the figures. One tiny slip in this sudden control of elemental forces would conceivably blast Ixonia asunder or else hurl it forever into the remotest wastes of outer space.

The din mounted; the electrical machinery became enveloped in a weird aura, a play of natural electric forces that was almost terrifying in its majestic promise of supernal power. Then, to the pre-calculated second, Valno's fingers suddenly raced across a higher set of control keys—the power note changed, was converted into an electromagnetic beam of unimaginable strength and resistance, that suddenly stabbed from the tower atop the magnetic pole and flashed out into space, invisible, traceable only by highly sensitive instruments, hurling itself directly at slowly moving Pluto.

The dense little world visibly staggered in its orbit under that sudden terrific impact from its neighbor—but only for a matter of seconds. Again the power changed. Along the electromagnetic beam surged another energy form—a binding, gripping globe of pure force, expanding as it hurdled the gap between worlds, until by the time it had reached Pluto its distension was over 3,000 miles diameter.

Within minutes the little world was ensnared within it, like a ball inside a soap bubble. Pluto ceased to obey the control of the distant Sun and instead wavered loosely at the behest of the magnetic shackles which held it.

Slowly, straining under the colossal load it was called upon to bear, the movable head of the projector began to turn. The electromagnetic beam and Pluto moved in consequence, starting the commencement of a vast circle across the heavens.

Valno's hands dropped from the switches. He snapped automatic controllers into position and sat back with a faint smile.

"So far we have succeeded," he announced in satisfaction. "Our planet, unfortunately, has no bracing supports to hold it while Pluto makes this arc across space. Not that it will matter particularly. Our calculations show that we cannot shift more than eighty thousand miles out of position; also we have a slightly heavier weight. Down here in this reenforced underground we shall come to no conceivable harm."

"What effect do you imagine Pluto's removal is going to have on that other system?" Jus asked. "My calculations did not embody that factor."

"Hardly any effect at all. It is not a major planet like its younger giant neighbors. I doubt if its removal will even be felt, though of course it will be noticed that it is moving in the sky." Valno turned to the Language Expert. "Resume contact with the Third Worlders and notify me of their impressions."

The Expert bowed and departed. Valno looked round the humming machinery.

"While we have to wait through the weeks for Pluto to turn in an arc far enough to bring him directly in the track of Genesis, we can begin the process of rejuvenation on our surface," he said. "Firstly we need the basis of our atmosphere and new oceans—oxygen and hydrogen. Later we will add the nitrogen, argon, and other gases. Release the valves on quarter pressure. The process must be slow and gradual."

He sat watching as the order was obeyed. The twin gases emerging from different giant storage cylinders began to filter up through the vast pipes to the surface. Once there the utter cold of space immediately froze them both into separate congealments. But by degrees, as Pluto drifted across the sky in the ether beam's grip, a solid carpet of basic atmosphere and water crept over the rocky, broken crags of Ixonia, ever expanding, held to the planet by its own gravitation.

Later, when this carpet covered the globe—perhaps a task of years at its slow, careful rate of progress—would come the other gases. Then, as Valno hoped, a free mingling under the warmth of a new Sun. A new world. . . .

For three months Pluto continued its traveling, crossing over from the side of the Sun to the opposite side of the heavens. Then the force beam was gradually extended, forcing the dense planet further and further away into space at constantly mounting velocity, following a course timed exactly to cross the path of approaching Genesis at a distance of 80,000,000 miles, Ixonia's former distance from the Sun before the cataclysm.

Valno and Jus watched the progress of their captive with untiring vigilance, found considerable amusement in the recorded translations of Third World broadcasts that were occasionally brought to them by the Language Expert.

"The Third Worlders have actually come to the conclusion that intelligent life is guiding the destinies of Pluto," Valno remarked with a smile, switching the machine on for Jus' benefit. "Their imagination is profounder than I thought! They will be interesting indeed to watch as they evolve. Listen to this—"

". . . and three months ago Pluto suddenly behaved like a madman's world! It ceased to continue in its normal orbit; instead it moved rapidly across the heavens and then started to recede from us! Now it is scarcely visible. It cannot be that it has been drawn by that deadly approaching star from space, otherwise other small bodies would have been affected too. Our only assumption is that life of an incredibly high scientific order exists somewhere beyond Pluto.

"Yet, even if that be so, it does not make our position any the less grave. In eighteen months that fast approaching star will pass close by our Sun. Creation will repeat itself. Unimaginable disasters will overtake us! Somehow—anyhow—we have got to have protection. Descend into the earth, build shelters, do everything that can be done. . . ."

"Foolish of them," Valno murmured, switching off. "They will have no need. In any case I doubt if they could save themselves. They are a remarkably childlike lot. So far, I understand, they have only penetrated about five miles into their world, and that only after vast and primitive labor. Five miles down would certainly not afford them much protection if Genesis did attack them. But it will not."

He turned and looked into the mirrors, at the dazzling point of the invader. It had lost the blue tinge of its earlier visitation; it was yellow now. Much of its vast heat had cooled in its long journey through the depths of space. To its left, infinitely smaller, far nearer to Ixonia as yet, Pluto was slowly moving amidst the background of stars, still held in the electromagnetic beam.

"Another hour, Valno, then the contraction process may begin," Jus commented.

Valno nodded, turned aside to the communicator and summoned his intellectuals to the power laboratory. Then with Jus by his side he made his way to it, took up his customary position at the switchboard with its triple mirrors, disconnected the robot guiding machinery and prepared himself.

"Everything in readiness?" he asked Jus, without turning.

"Everything. At Pluto's present distance of seventy million miles you may increase his gravitative field without it having any determinable effect on this planet—certainly not on the other Third World system. The only difference will be that instead of pursuing a five hundred year orbit round the existing Sun, we shall form into a new one around trapped Genesis, and of course receive the benefit of his light and warmth. Again, the vast distances separating Genesis and the other Sun will be amply sufficient to prevent any interplay of gravitational fields. A double-sunned system is manifestly inimical to intelligent life because of the erratic orbits of the planets it possesses. . . . Strange, too, that nearly all the galactic systems are infested with double-sunned systems."

"Is it?" Valno asked quietly. "If we assume that there have been other wandering stars like this, does it not seem likely that at some time or other a preponderant Sun would trap the invader, turn him into a white dwarf, and thereafter the gaseous Sun and the immensely heavy former wanderer would gravitate round one another? I do not believe that Genesis is the only wanderer; he is the first to be tamed, that's all, to be turned by scientific forces into a separate Sun. . . ."

"It's nearly time!" Jus interrupted.

Valno turned his attention back to the controls, began to finger them swiftly under Jus' quick orders. The beating rhythm of the engines changed suddenly as the shell of energy cast around Pluto began to narrow down, tightened itself into an inconceivably tough globe of power through which nothing material could possibly break.

No form of matter could stand that cramping, crushing power, steadily increasing, a vise made of elemental forces that squeezed the dead hulk of Pluto inwards and inwards upon its own core, forcing the uncounted myriads of electron orbits in its atoms to come nearer and nearer to their nuclei.

The engines whined under the increasing strain. With every yard that Pluto compressed the effort of pressure proportionately increased. But there was an infinity of power—the power of an entire planet whirling against the ether of space time.

Pluto became visibly smaller. The telescopic lenses were changed to hold it within visible range. It shrank again; once more the lenses changed. Then at last Jus gave a cry.

"That's the limit, Valno. Decreased to fifteen hundred miles from three thousand. You have a densely heavy world retaining all its original weight but only an approximate third of its original size."

Valno nodded complacently. "That's what I wanted. Now for the increase of weight. The balance-graphs are ready?"

Jus waved his hand to the delicate needles swinging in their vacuum cases. Operating from cosmic vibrations they were capable of deducing the weight of any given stellar body. At the moment the Pluto-needle was quarter of the way round the graded dial, whilst that of Genesis quivered at the exact center, giving an approximate weight of four thousand quadrillion tons, nearly balancing that of the distant Sun.

Tentatively, working with infinite care, Valno began to remove the force beam, weakened it by imperceptible degrees—and, as he had calculated, contracted Pluto continued on his way by natural momentum through the non-resisting emptiness, none the less slightly altering his former course to drift more surely and steadily toward approaching Genesis.

"The converters! Neutrons!" Valno snapped.

A new group of engines started into life, adding their droning to those of the still operating electromagnetic beam. The huge laboratory became a hell of sound as the vast converters grappled with the task of supplying a beam of pure neutrons. No eye saw what was going on in those complex engines of destruction; no eye dared to behold the assault of man-tamed forces on the basic laws of matter, the tearing out of neutrons from energy streams, which were in turn hurled onto the projector's electromagnetic beam.

In untold multimillions they flung across the gulf from the magnetic pole, slammed into tiny drifting Pluto in a battering ram. Others, drifting in space in invisible swarms, joined company, piled their incredibly heavy masses on the contracted world. Weight equaling that of sixty million tons to the cubic inch passed clean through Pluto's matter and went down into his core. His weight began to increase by leaps and bounds as his core became filled with ever increasing matter possessing no atomic space whatever.

Genesis, now no more than 5,000,000 miles distant from the snarer—not far as cosmic distances go—was already beginning to feel the gravitational fields reaching out toward him. His speed, by no means as fast on this occasion as on his earlier visit, was slowing slightly; he was moving a little to one side toward advancing Pluto.

Another hour passed. Pluto's weight was three quarters that of Genesis. Not a human sound was heard in the laboratory. Every face was a mask of intense strain, of watching and waiting for the consummation of this audacious effort to tame rampant Nature.

"In another hour and a half they will come into collision," Jus muttered tensely. "When that happens there will either be an effect of a double Sun, with Genesis going around Pluto, or else Pluto will become the core of Genesis by reason of his immensely dense material being absorbed by him."

"That is what I anticipate," Valno acknowledged. "Unfortunately, as you know, the Computing Room machinery is completely useless. Therefore we do not know in advance

what will transpire—but figures cannot lie," he finished with confidence. "They are bound to give the correct result."

"But sometimes even the result has far-reaching after effects," Jus murmured, frowning. "For some reason, I am uneasy."

Valno shrugged indifferently and glanced across at the Pluto balance-graph. It balanced; the weight of Pluto and Genesis were equal. He quickly issued instructions and the neutronic stream was cut off. The energy beam returned, again held Pluto in its grip, guiding it inevitably so there could not be the slightest chance of it missing Genesis by the barest margin.

Jus watched the screens, brooding. He watched the viciously bright globe of Genesis as he swung far out of his appointed course toward the far smaller, faintly gleaming heavy mass of Pluto.

"Even if there were some mistake," he murmured uneasily; "even if the impact were insufficient to halt Genesis and he went onwards through space, he would not again cross our path. His orbit has been forever changed. Pluto has pulled him to one side."

"Absurd thought!" Valno snapped, without turning. "There can be no mistake. Genesis will be our Sun; that is the purpose of our entire struggle. That, and to save the childish Third Worlders from absolute disaster."

Silence fell again, save for the droning engines. In the mirrors it was distinctly possible now to behold vast streaming tides of gaseous matter rising from the Plutonian side of Genesis. The attractive field was tearing savagely at his photosphere.

A frown crossed Valno's lofty brow. "Strange! Can it be—*another* solar system?" he asked quickly. "I had reckoned that the speed of approach would prevent such an occurrence—"

He stopped, staring blankly. Jus joined him. A titanic arm of incandescent flame spouted from Genesis, broke close to the surface, went whirling off in globes of superheated gas.

"More worlds to come," Jus breathed. "Creation has repeated itself for all your calculations, Valno. Before Genesis has been able to strike Pluto a system has been born—a system which may one day—"

He broke off and gripped the ruler's arm tightly. Pluto and Genesis were almost in coincidence . . . the distance between them shrank to zero. They collided—and with that collision something happened.

Genesis did not close round Pluto! It did not turn it instantly into an unthinkably heavy core of flaming, dense material; instead the wandering interloper exploded into a myriad blinding pieces that hurled themselves madly on all sides of the infinite.

Valno leapt to his feet in horror. "Shattered!" he screamed. "Our intended Sun blown into fragments—fragments to become dead hulks of the future. Oh, why did this have to happen? Why did I not foresee that the hurtling of Pluto into that body would cause such an uprush of interior matter as to stop Genesis holding together? The speed; the sudden change in temperature as ice-cold Pluto plunged. . . ."

He stopped, looking bleakly round the laboratory, listened to the now uselessly humming engines of the electro magnetic beam. In those few seconds all the strength seemed to go out of him.

"I failed," he muttered, bowing his head. "I—failed!"

"Not entirely," Jus said quietly. "Your figuring was superb; you calculated everything right up to the moment of impact. Beyond that you could not figure. Only the Computing Room

machinery could have done that. The result. . . . Well!" He shrugged significantly.

Valno looked at him steadily. "At least we saved that other system," he said in a low voice. "We've destroyed the interloper forever—but we have not given ourselves a Sun and surface life. All we can do is to go on living below. Those shattered fragments will become innumerable asteroids. That other system born of Genesis will never contain life; it is too far from any source of warmth."

He turned wearily from the control board and surveyed the vast sea of despondent faces around him. Then suddenly he looked up sharply at a sudden intrusive note clearly audible above the engines; the sound of a mighty thunderous roaring from somewhere above.

He twirled in surprise; then Jus shouted, "Look, Valno! Look!"

He jabbed a finger at the mirrors. They were glaring—eye-searing with brilliant fire. The projector tower had utterly vanished. In its place was a roaring fountain of staggering flame.

The thundering increased. The laboratory began to quake. Shouts of panic dinned above it.

"What's—what's happened?" Jus demanded helplessly.

Valno took a grip on himself. "The basic materials of our oceans and atmosphere," he muttered bitterly. "The oxygen and hydrogen, frozen up there on the surface. No trace of other gases as yet; that was to come later. The vibrations of heat from that terrific explosion in space somehow passed down our electromagnetic beam, ignited the oxygen and hydrogen, helped by the water vapor from our outlet ventilation shafts. Our planet is on fire!" he finished desperately, his voice rising. "Biting down through the rocks, down the gas shafts, down here. . . . To us!"

He could make himself heard no longer. The laboratory was a jammed mass of struggling figures. Science, dignity, years of defeating fear, went to the winds. The whole planet was in the grip of devouring flame.

Jus twirled round from the panic-stricken, stampeding mob and clutched his ruler by the arm.

"Valno, listen to me! Do something. There must be some way out of this! There must—"

"There is none," Valno answered him, shrugging resignedly. "In a few minutes the remaining traces of oxygen and hydrogen, frozen into innumerable subsurface cracks and crevices, will ignite. Then—"

He stopped talking and wheeled about as a fountain of white fire roared from the oxygen and hydrogen tanks. A split second and they spewed outwards in a deluge of shattered metal. Flame spouted into the laboratory, transformed it into an inferno, seized on the countless inflammable chemicals in their containers by the walls.

"So it ends," Valno said. "I—I can imagine those childish Third Worlders jumping for joy because they're saved. I can imagine them wondering what has brought a new star into being, wondering even more when it flickers out. Imagine them trying to discover whither Pluto went—"

He broke off and turned sharply so he might not see the shattering flame hurtling toward him—

[The end of *The Cosmic Juggernaut* by John Russell Fearn]