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THE FALLING PLANETOID

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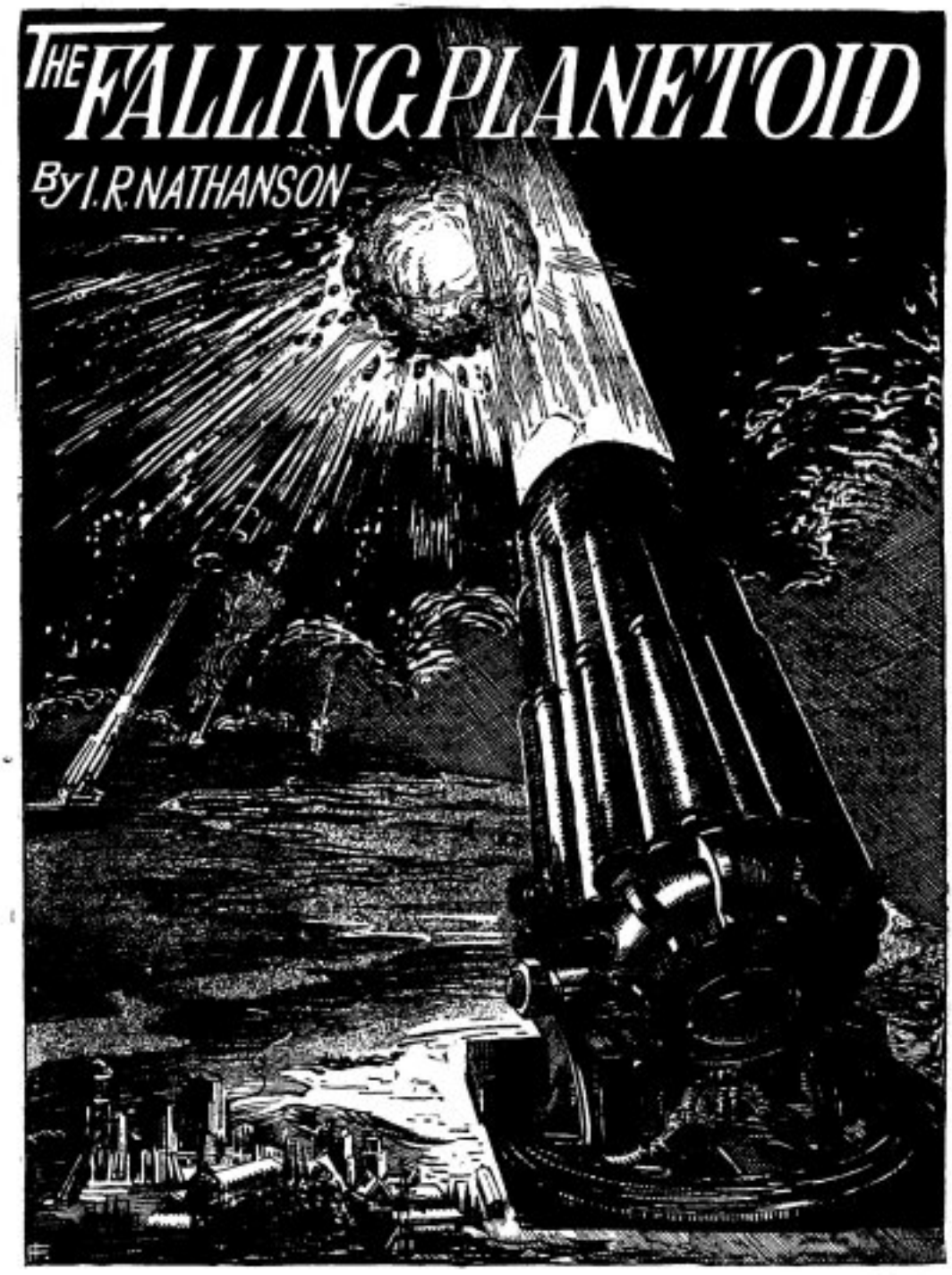

(Illustration by Terry)

Millions of plunging hits and their immense bursting charges had bitten into the surface of the planetoid, and caused it to be surrounded by a halo of dust and fragments of the body.

THE world was in a state of consternation, its people consumed with a frenzy of fear. A dreadful calamity, such as had never before been experienced, was threatening to snuff out the lives of incalculable thousands of people and

was endangering the very stability of the Earth itself. Stark, fearful tragedy, from which there seemed no escape, confronted the entire globe, for it came from outside the earth's confines, and seemed, therefore, to be beyond the control of man—a strange wandering planetoid was about to fall to the earth!

Had this been any ordinary meteorite, it would not have been a matter for such terrible alarm. In the past giant meteorites weighing many tons have been known to strike unpopulated sections of the world, their scarred and pitted masses bearing clear evidence of their extra-terrestrial origin. Small pieces of meteorites may be seen by the interested student in almost every science museum.

In at least two well-known places, one may see the shattering results of the impact caused by a large mass plunging with dreadful velocity deep into the earth. Meteor Crater, near Canyon Diablo, Arizona, is the silent tomb of a giant meteorite that probably went bowling along its course around the sun till, coming within the gravitational grasp of our planet, it was diverted toward us at a terrific speed. The stupendous crash occurred long before the white man settled in the New World. None but the eye of the primitive Indian witnessed the earth-shattering fall. Earth and sky must have been lit up with a blinding glare as the terrific impact cut in the sand and rock a crater 570 feet deep and measuring 3 miles around the rim. In an instant the meteor had displaced more than 200,000,000 tons of rock.

More recently, a like catastrophe occurred in the Yeniseik district of north-central Siberia. On the morning of July 30, 1908, natives saw a fiery body shooting across the sky and heard a violent detonation. As a result a forest area 30 miles in diameter was blown to pieces. The charred and overturned stumps of trees for many miles around bore mute testimony to the presence of some devastating force. An entire herd of reindeer known to have lived in that territory was never seen again, so completely was the center of the devastated area blotted out of existence. Fortunate indeed was it that this fall occurred in a wild, unsettled region. Had it struck some large city or thickly populated territory, the loss of life and property would have been appalling.

The meteorites that fell, in these two cases, however, were relatively small. The body which was now about to fall on the earth was fully a hundred miles in diameter, weighed probably quadrillions of tons, and scientists had estimated that it would fall with a velocity of five miles per second. No one could foresee what part of the earth it would strike—hence the widespread terror!

IT was only a few months since this startling knowledge had exploded the prevailing peace of the world and destroyed its accustomed sense of security. The dreadfully disturbing discovery was made simultaneously by three different observatories in three different lands. There could, therefore, be no question of its authenticity. The most prominent astronomers, mathematicians and other scientists had thoroughly checked the results time and again. There was no way to escape the terrifying conclusion, and at last the entire civilized world was forced to accept it as incontrovertible. Vast numbers of these planetoids, also known as asteroids, move in elliptical courses around the sun. Nearly all of their ascertained orbits lie between Mars and Jupiter. They vary in their degrees of eccentricity and inclination, and range in size from bodies a few miles in diameter to Ceres, the largest, which has a diameter of 477 miles. Over a thousand of their orbits are known.

Through some cause which will perhaps always remain unknown, this planetoid which was threatening the world with such dire results had approached too

close and had become caught in the earth's gravitational net. It is even probable that it wandered into our solar system from the great beyond. At any rate, its true origin has never been determined. In its journey through space it had approached within 120,000 miles of the earth, and having come within our planet's sphere of control, it was "captured," thus becoming another satellite of the earth and a beautiful addition in our heavens. But it soon became known that our new captive was not a true satellite at all, for it was moving in a highly unstable path, in a gradually decreasing spiral, which pointed to the center of our earth as its ultimate goal.

Although it was ambling along around the earth at a leisurely pace—as celestial velocities go—of only about .80 of a mile per second, it was known that a minimum velocity of 0.82 miles per second was necessary to keep it in a permanent orbit. Its momentum, therefore, was not sufficient to keep it going on indefinitely as a satellite of the system. Slowly but surely it was approaching the earth. It was determined that its successive revolutions about our planet would have tipped the balance between the gravitational and centrifugal forces. At the expiration of that period it would commence a dreadful fall toward the Earth with increasingly swift velocity, that would ultimately cause it to crash into us at the frightful speed of five miles a second.

THE result of such a shock to our globe was paralyzing to contemplate. Many had said that a body of such diameter, if it struck a populous state like New York or Ohio, or a country like England or France, would not only destroy everything within that area, instantaneously snuffing out millions of lives, but would also by its terrific impact pulverize and melt thousands of square miles beyond the immediate point where it fell, shattering and wiping out a great area in an enormously wide circle. The shock at the moment of impact would be so terrific that the whole Earth would feel it as though there had been a thousand earthquakes all rolled into one.

Even though the rest of the world beyond the affected area were spared, such a large body catapulting into the Earth would carve a deep crater thousands of square miles in extent. An eruption of molten matter and deadly gases would follow that might engulf whole continents. Conceivably, it might even cause such a vast explosion as to detonate the Earth and rend our entire planet asunder. Many men of authority stated that the best that could be hoped for was that the collision would occur in a remote part of the land or sea, so that humanity at large would have to bear only the devastating after-shock, which, however, would certainly be felt in every nook and cranny of the planet.

Ironically enough, there was no telling just where the falling body would hit. The celestial mechanics involved were of such a complex nature that accurate predictions were rendered impossible. It was, so to speak, a gigantic lottery of life or death—no city, state or nation could say whether it would be demolished or spared. Therein lay the mental torture! There was no use in trying to evade the enemy, no way to take precautions against the approaching doom. When the final terrifying fall should commence in its accelerating swiftness, there would be no time to flee, nor any place on earth or under its surface in which any man could be sure of safety.

AT first incredulous, humanity passed on to consternation, and then to paralyzing fear. From fear came a dreadful apathy toward all social activities. Stark, unescapable doom stared everyone in the face. To all, from the highest to the lowest, from the humble laborer earning his bread by the sweat of his brow to the princes and potentates of the earth, came

the threat of imminent extermination. There could be no choice or selection, no minimizing of the danger. No one knew whose turn it would be; no one could delegate the danger nor buy himself off. Face to face with this inevitable cosmic blow, all stood perfectly equal, in a way to satisfy completely the framers of any democratic constitution or magna charta. There would be no class distinction.

The only mitigating element was the assurance, spread abroad by kindly scientists, that whoever was caught in the direct path of the striking planetoid would never know it; from the vicissitudes and struggles of this life, with its multitudinous cares and tribulations, to everlasting unconsciousness there would be no gradual transition... Life would be instantly extinguished.

But just as soldiers become accustomed to the oncoming of screeching shells, so did a terrified humanity gradually become accustomed to the knowledge of the approaching calamity. Resignation and indifference after a while became widespread, bearing witness to the resiliency of the human soul, to man's youthfulness in the world, and to the fact that underneath the surface he is still a splendid savage. "Live while you can" became the common slogan. Let the devil take those wicked ones who are doomed to die, and let the Good Lord enbosom the righteous souls who are also doomed to die. What was there that could be done about it anyway? Nothing! And what if a few score millions did die, as seemed inevitable? It was no worse than a great war or pestilence. Such was the reasoning of the more stoical, who, although they had become steeled to the danger, still hoped they would not be of those hapless few score millions.

Then, again, Borne took solace in the thought that perhaps the menace would strike a deep ocean, or a desert, or other uninhabited area, in which case the principal effect might perhaps be an inundating tidal wave, from which only a relatively small part of the world would suffer; or, at the worst, large numbers of buildings might collapse from a distant but devastating shock. Who knows? So why worry? "Hope springs eternal in the human breast"

Sad but true to relate, there were a few misanthropic individuals who drew some wicked comfort from speculating on this most dreadful of lotteries. Some dastardly irreconcilables in Germany, still smarting from the defeat of 1918, hoped that perhaps the falling body would just miss their country on its way to France. And benighted evil-wishers in the latter country, who refused to forget past enmities, opined that a thickly-populated country like Germany was no better than any other—they wouldn't know what struck them, anyway. And communistically minded wretches in "godless Russia" declared openly that they wouldn't shed a tear if Johnny Bull's Island were smeared off the map altogether; while in turn the same wishes were thrice-heaped upon such evil-looking bolsheviks by some resentful Celestials of the good Chinese Republic, as a punishment for taking part of Manchuria away from them.

There were also a few envious people here and there who "hoped not," but, well, if it had to come at all, gruesomely preferred to picture a few square miles destroyed, with Wall Street right in the center. And some cruel spirits there were, who even felt that several score millions more or less of Oriental peoples in this world would soon be made up by them anyway; while, on the other band, there were equally cruel-minded Orientals who returned the compliments with interest in regard to certain domineering Occidentals. A few fanatics openly preached that it would serve all depraved humanity right; it was going to be a punishment for all its sins, past and present—and assuredly would prevent many from sinning again in the future.

BE that as it may, as historians we may ignore such evil ebullitions of the mind. Wicked-minded mortals there always have been, who, like Haman, might in all probability get what they have wished unto others. Fortunately, a kind providence baa made the average man less bad. The milk of human kindness, plus ages of untold suffering, has instilled in his mind and heart a compassionate regard for the suffering of others. And, unless misled, man is more of a builder than a destroyer; more of a lover than a hater—otherwise the world of mankind would not have stumbled along to where it is today.

The world at large was frightened, it is true.

While it was only natural for everyone to hope his particular part of the world would be spared, the average man and woman felt horror-struck, and engaged in an anticipatory sympathy for those unknown unfortunates who were to be annihilated without a chance to escape.

Man in his helplessness turned to prayer. For ages he had done so. Now of all times he needed prayer. In every land, in every clime, among all peoples, prayers were offered in church and mosque and synagogue, and the prayer-presses of China ground ceaselessly. Poor, mortal Homo sapiens! In the last analysis, he is as helpless as a creeping ant in the presence of things cosmic!

CHAPTER II
The Conclave

A GREAT conclave of distinguished scientists and statesmen was scheduled to meet at Geneva, Switzerland. The best minds of the world were to gather in solemn session to discuss ways and means to avert the coming calamity, or, at least to investigate its severity. The conclave was called on the initiative of The International Association of Scientists, of which Professor Henri Anders Amiel, of France, was the distinguished president. The greatest leaders in all walks of life were invited to take part in the deliberations.

When the meeting opened, there was gathered under one roof the most brilliant array of men and women in the history of the world. Eminent scientists, great statesmen, practical engineers and inventors, profound mathematicians, labor leaders, financiers and captains of industry, princes and bankers, heads of the church, and others—all met in a great common interest.

Was there a possible way out? Could something be done after all? Questioning minds sought an answer; a clamoring public demanded assurances of relief.

A working body, with the fullest of powers, composed of the greatest astronomers, scientists, inventors, and others whose special knowledge might prove valuable, was appointed by the International congress that was formed. It was to meet continuously, in order to devise, if possible, a means of avoiding the disaster. Every aspect of the problem was turned over to committees of specialists. No stone was to be left unturned. The members of this special body were given assurance of unlimited support, financial and otherwise. A hopeful world looked to these for guidance; if they could work out a saving solution, they would be enshrined in the hearts of their fellow-men forever.

For months these good and able men met and worked indefatigably. They strove with all their might and main and to the best of their ability to arrive at some solution that might offer hope. In vain they planned and figured. In vain they considered the problem from every possible angle. They were forced to admit that they could devise no plan which would meet the dreadful emergency.

Poor mankind! As if any great, saving conceptions of life and achievement could be born that way! As if any great, lasting, revolutionary idea was ever created by a group

or groups of men in Congress assembled! The inspiration, the creative genius, the lightning flash of intuition, that would call into being an idea for the solution of such a monumental problem as these men were called upon to solve—this is born of the individual alone! What great idea, what epochal invention, discovery, or solution has ever been contributed by a public gathering, even of the so-called best minds of the time, or in any laboratorial organization, regardless of team work? Improvements—yes; refinements—yes. Accidental by-products—occasionally. New discoveries—very few. A great, epochal idea—seldom, if ever! The great, saving flash of genius does not arrive that way! And talent, no matter how great, is not genius.

THE assembly of scientists continued to meet and persevered in their efforts. They invited the entire world to offer suggestions. Fortune and honor beyond compare awaited him or her who could present the right solution, or any reasonable plan. The various committees were swamped with plans and suggestions which came by the carload from the ends of the earth. Some of the ideas were elaborate, some very simple, some indicated a profound understanding of the intricacies of the problem. Most were not worthy of even a moment's consideration. A number had a semblance of sense, but most were fantastic and at bottom sheer nonsense. And along with many well-meaning but foolish suggestions, there came a good deal of severe criticism, spiced with unwarranted ugly hints of graft, and much contumely and ridicule, as was to be expected.

Many a good and worthy man on these committees smarted under the lash of these ill-conceived missives. They even received sharp reproofs from fatalists and religious fanatics who took them severely to task for meddling with the "ways of the Lord," with "things that are not within the province of man"; and from ignorant writers who demanded to know why it took such a long time to solve the problem.

The great deliberations at Geneva went on, but nothing came of them. And, finally, nobody expected anything to come of them. Hope of a successful solution dwindled daily till it reached the vanishing point. The world resigned itself to its fate, and took refuge in religious devotion.

The greatest ideas are not always conceived in "the greatest minds." Nor is there any general consensus as to what constitutes a "greatest mind." Minds made famous by public acclaim are not necessarily the greatest. The very greatest idea may flash across the firmament of mankind unheralded and unsung, and may long remain unknown to all but him who gives it birth.

In the city of Vienna there lived an obscure engineer by the name of Franz Heinrich Grimm. His birthplace and former home was Essen, Germany; from which city his family moved before the World War. He was a man well past 45, and possessed of an acute mathematical mind. He had been an artillery specialist, and was a profound student of the science of ballistics. During the great war he had been an engineer in the mammoth Skoda Works, and helped design many of the large howitzers which were used with such destructive effect against the Allies in the earlier phases of the war. After the armistice, when these works were dismantled by the Allies, he continued as an engineer in the greatly shrunken armament industry of Austria. Though poorly paid, it was the only source of livelihood which the impoverished condition of the little nation could offer to a man of his experience and prestige.

FRANZ GRIMM was an undersized, puny-looking man, with thin, pinched features, sandy hair, and weak watery eyes behind thick spectacles. He was of quiet, self-effacing demeanor, and gave one the impression of

being apologetic for his presumption in living in this world. He had had a very unhappy childhood, full of hardships, and the wretched early years of his life had left a permanent mark on him—physically, at least. But inside his thin bony body beat a great warm heart; and behind his massive forehead operated a titanic mind, which needed only recognition to produce mighty results.

He had not been invited to the great congress of scientists and others; and if he had been, the chances are he would have lacked sufficient funds of his own to go. Very few knew of him, and still fewer recognized his innate abilities. Even his neighbors and closest friends would have considered it a huge joke had anyone suggested that he be sent to the great gathering in Geneva. And perhaps it was a good thing he was unknown and left out.

Full well he knew the deadly danger which menaced the entire globe. He shrank in shuddering horror at the mere thought of the possible consequences. He had been following closely the deliberations going on at Geneva, yet did not in the least feel that he should have been invited to help—in fact, this did not even occur to him. He was too self-effacing and modest to expect it. Who was he to rub shoulders with those important men? Nevertheless, his soul hummed and burned with the great problem.

As an engineer who had specialized in artillery and the science of ballistics, it was but natural that his mind should endeavor to attack the problem from that angle. For a long time he went about completely self-absorbed and preoccupied, paying little heed to what went on, about him, the creative thinker in deep travail. Gradually an idea began to shape itself and to grow within the recesses of his mind. And then, with the lightning flash of intuitive genius, he saw the solution! For days and weeks he labored, with little food and sleep, oblivious to all else. And in the small, scantily-furnished room of his modest home, unknown to the world, he suddenly saw the answer to the problem. Then he fell into a dreamless sleep for twenty-four hours, exhausted but happy.

The working out of the details, though these were many and difficult, calling for the greatest ingenuity, was a mere matter of time and labor. It all resolved itself into a problem of celestial mechanics, and its verification by means of well-known principles of ballistics, applied from the earth with a marvelous force, in a unique way, and on a gigantic scale.

THE problem as Franz Grimm saw it was as follows: The falling planetoid was 105 miles in diameter, a body composed of over three quadrillion cubic yards of matter, whose density was such that its total mass or weight was roughly about ten quadrillion tons—an amount represented by the figure 10 followed by 15 ciphers. It was revolving about the earth at the comparatively low velocity of 0.80 of a mile per second, in an almost circular, yet spiral, orbit whose mean radius was 120,000 miles from the earth. The minimum velocity required for the planetoid to keep in the closed ellipse necessary to the stable orbit of a true satellite was 0.820 of a mile per second. But due to its low speed, which was just a trifle below the point of stability, it was gradually being drawn nearer and nearer to the earth's surface in a slowly decreasing spiral. And it was only a matter of a limited time when the critical point would be reached, when its final fall would commence, its earthward speed accelerating at a faster and faster rate, till it should strike the earth with dreadful force.

If the velocity of the planetoid could be very slightly increased, and the path of its translation about the earth changed into a planetary ellipse while it was still on the almost neutral borderline—"on the fence," as it were—where its centrifugal force almost balanced the pull of the earth, there was still time to cause it to become a permanent

satellite of our planet instead of a terrible projectile. The mass of the planetoid, though huge, was after all not of planetary dimensions; and a comparatively small force—as celestial forces go—if properly applied at once would turn the trick; whereas in about four years, when with its present tendency it would have crossed the critical point, no humanly possible force which mankind could apply from our planet would avail, and there could be no escape from the dreadful calamity.

CHAPTER III
Grimm's Plan

WITH the exactness of the mathematical scientist and practical engineer, he drafted a complete set of working drawings of his plan. In brief—not to burden the layman with a highly mathematical mass of technical details—Grimm conceived a marvelously constructed cannon-like engine of unprecedented power, capable of hurling a mass of steel and explosives weighing 60 tons, in the form of a combination shot and rocket, which would leave the mouth of the engine with the enormous velocity of 15 miles a second—more than sufficient to carry it beyond the earth's gravitational recall. This rocket type shot he would charge with a recently devised explosive called *atomite*—the projectile to explode on contact, with unearthly force. To insure absolutely accurate control of the discharge, so that it would find its mark, he also devised a wonderful mechanism which synchronized the varying motions of the earth and the planetoid at the precise second in any point of the sky.

A ring of 50,000 of these mighty firing engines placed around the globe would be necessary to produce the desired effect. As the earth turned on its axis, each cannon, perfectly adjusted and synchronized, would fire obliquely in progressive succession and send the enormous projectiles speeding toward the distant planetoid. The reader may bear in mind the added difficulties involved in the superfine adjusting and timing, when it is remembered that for each shot to be effective it must be fired in an obliquely curving direction and along the planetoid's orbit, in order that the superior velocity of the projectiles might exert the proper push in the right direction. The effect of an individual impact and explosion of each shot as it would overtake and plunge into the planetoid along the line of its motion, though extremely powerful, would still be imperceptibly small on a body 105 miles in diameter; but a ceaseless stream of such missiles properly directed simultaneously would have their cumulative effect in gradually accelerating the velocity of its orbital translation and, what might be more important, in gradually shattering the mass. For if the planetoid could be broken up, the chances of serious damage would be decreased mathematically. Perhaps the body could even be blown into small fragments, if it could be kept in the sky long enough. But once the velocity of the planetoid were pushed above the critical point, the planetoid would forever become a harmless satellite.

When Franz Grimm had his plans and specifications complete down to the last figure, he sent them to the congress of scientists which was still at grips with the problem. In a modestly worded letter which he included, he apologized profusely for his inability, on account of lack of funds, to come to Geneva personally to describe his plans.

Though the august body of men deliberating la Geneva had been voted liberal funds by the international assembly, they had too many suggestions in their daily mall to consider seriously paying the traveling expenses of everyone who offered to come and explain personally some pet scheme. The plans and exactly worded specifications which Grimm sent should have caught any expert's

attention immediately as worthy of closer study. But as the overworked staff of secretaries could not all be sufficiently intelligent and selective, a full month went by before his precious package received the proper attention; and it might have been delayed still longer had it not been for a sharp-eyed young scientist who came across it while searching for something else.

IT did not take long for the trained minds of those who examined Grimm's plans to realize that here was something decidedly different—an arc-light in the dark! Funds were immediately wired to the impoverished engineer, with orders to come to Geneva at once.

He was dreadfully embarrassed and self-conscious throughout the meeting. His face was flushed; he was nervous and spoke in a timid and constrained voice. But his clear and beautiful drawings, his demonstrations, and the long lists of exact and carefully worked out (though complicated) mathematical equations spoke for him in thunderous accents. Like so many of the most important inventions. Its principles were at bottom quite simple. Within a few weeks his entire plans and figures were unanimously adopted. A full-size working model of one of the engines and a quantity of the powerful explosive, together with the special range-finding equipment, was immediately to be prepared and given an actual test. And throughout an anxious world the glad news was announced, that at last a definite practical plan had been evolved.

All that was necessary was its actual execution; and for this there would be required the sum of 400 billions of dollars.

The enormous tension was eased; a gloomy world became light-hearted! The day of the joyful announcement became an impromptu holiday, given over to laughter and merrymaking. Everyone went back to work happy, and the terrible tension was visibly relieved.

Overnight Franz Grimm became an international idol. His shrinking, modest soul was now overwhelmed by the acclaim of a whole world. Where before he had eaten his simple food and lived in humble quarters and pressed his own shiny trousers, with nobody caring whether he missed a meal or a dozen meals, he now became the object of solicitous attention on all sides. He was wined and dined; he was constantly interviewed; his every move and step were clicked off by numerous cameras and became a matter of world interest. Many marvelous, godlike qualities, as well as stories of significant events in his life were reported and gained circulation—things he himself never knew of! The poor man couldn't understand it all; he wasn't any different from before. Hair for hair and cell for cell he was the same being. Why all this fuss? He was overwhelmed and by no means pleased with the world's adulation and hero-worship.

THEN through the various news channels the public began to be apprised of the immense taxes that would have to be raised. People ceased their smiling and shook their heads dubiously. In the general rejoicing nobody had given any thought to the stupendous cost. The public was reminded that oftentimes in history the winning of great causes had meant mountains of gold and rivers of blood; but this time it meant mountains of gold only. When everyone at last realized the drain that the expenditure would make on his money, the general ardor began to cool. Perhaps it wasn't the best plan after all? What assurance was there it would prove efficacious?

For many priceless months, even though faced with unthinkable tragedy, the press and the public bickered and argued pro and con. The world was overridden with taxes

as it was, and such an increase as would he required was decidedly unpleasant to envisage. But, said the wise men, regardless of any criticisms and wishes to the contrary, there was no other way out; here was a saving plan—take it or leave it.

Then came a loud call from many quarters for immediate action regardless of cost. The steel manufacturers and power companies and makers of explosives could see no reason for dilly-dallying, and wholeheartedly endorsed the vast project. On the other hand, many were in favor of it, of course, but were against such enormous taxes—unless the money came from other sources than their own. And there were some loud-mouthed skeptics and critics who did not believe in the undertaking anyway. "It sounds too much like attempting to shoot the sky full of holes and going bankrupt in the bargain," as one popular journalist put it. There were even those who did not believe there was such a thing as the alleged falling planetoid at all—at least it looked harmless enough in the night skies. Perhaps the astronomers were mistaken!

But the astronomers were implacable in their constant and fearful prodding of the public. People were continually reminded in well-painted word pictures what such a crash would mean. And the never-falling accuracy of their predictions in the past generation had bred a wholesome respect for the exactness of their science.

An international congress extraordinary, attended by plenipotentiaries of the nations, with full power to draw up a tentative agreement, met in Washington. A definite understanding as to the share each nation should shoulder was to be discussed. Then commenced more interminable arguments and bargaining. Each delegation sought to prove their utter inability to pay beyond a certain amount. To judge from the newspaper accounts of the proceedings of these worthy men, one would have believed that nearly all the nations of the world would have to go into bankruptcy in order to buy their salvation. Reports and counter reports of financial experts on the amount of the ability to pay followed one another. No one would have believed there were so many indigent peoples on earth. And even though a satisfactory agreement were to come out of the congress, the delegates must then enlist the support of their peoples. Naturally each delegate with his ear to the ground and his eye to the future tried to make his nation's share as low as possible.

HOW long this bickering would have gone on nobody knows. Washington was a delightful place to be in—it was just at the beginning of the social Season. But the scientific world at last made it plain in terms no layman could fall to understand, that the zero hour had come; that unless actual work began immediately, all efforts would be futile. As it was, the resources of the entire globe would be strained to the utmost to complete the enormous undertaking within the minimum required time. There was not a day to spare.

A peremptory demand from the people at large, whose minds had begun to border on terror, settled the whole thing in a hurry. Ugly riots and ominous demonstrations occurred simultaneously in many cities of the world. It was evident that by further delay the public spirit would become demoralized, with who knows what frightful results. The statesmen and financiers came to a quick agreement, which the governments at home dared not refuse to ratify.

An international body was formed with headquarters in Geneva to direct the stupendous undertaking, with full power to carry it to a successful conclusion. There could be no question of private profit in such a matter. If necessary, material and equipment would be commandeered, and capital and

labor conscripted. That was definite.

CHAPTER IV
Victory

TWO years after active operations had begun, quantity production of the giant guns was under way. A full-sized model had long since been tested and found satisfactory in every way; the flight of the experimental projectiles and the results of their tremendous explosions as they landed on their distant object were closely observed by powerful telescopes. Now thousands of the mighty engines were complete and in place in a girdle around the planet, with more to follow. Mountainous quantities of the projectiles were ready, and unlimited quantities under construction. A visitor from some other planet chancing upon the earth would have thought we were preparing for some titanic war with another world.

The planetoid was perceptibly nearer. In one more year, according to careful calculations, it would approach the over-balancing danger line, when it would start inevitably on its final fall; then nothing within the power of mortal man could stop it. It shone brilliantly in the nightly sky, and was a beautiful object to behold. Its apparent diameter was about one-eighth that of the moon, and it was so bright it could be seen in the early evening. It acted indeed like a miniature moon in the sky, circling the earth every nine and a half days.

The final preparations were completed none too soon. Beginning on the morrow at midnight, the firing would commence. Each cannon was pointed to a predetermined dot in the sky, calculated with the utmost astronomical precision; and its enormous projectile, discharged at the correct split-second, timed to a hair, would go speeding toward its distant goal.

Promptly at midnight the terrific cannonading began. As the earth rotated on its axis, the discharges followed one another in perfect synchronism and in a continuous succession around the globe. The great gunlike engines were placed away from congested centers of population to avoid possible accidents and to minimize the enormous shocks of their discharges. The detonations were of such shattering power that the operating crews worked at great distances from the guns, setting off the discharges by electrical contact. Fifty thousand of these mighty propelling engines were finally in action, each firing at frequent intervals during certain hours; and the whole world followed the results with bated breath. At night countless watchers with glasses of every description crowded housetops, hills and every available elevation, and saw the exploding projectiles as they hit their objective. Many of the shells, of course, missed their mark and went traveling on into the immensities of space.

For over two years the constant bombardment of the distant celestial object went on without a let-up. Costs ran into even higher figures than the most careful estimates had foreseen. Into the devouring mouths of these cannon-engines went the results of billions upon billions of dollars worth of material and labor. The costs of the vast quantities of the rocket-like projectiles and their propelling charges, the huge cost of replacements, the immense explosions and the extreme accuracy required of these—together with the armies of people required in manning the engines, as well as transportation and other costs, were staggering. All of the earth’s industries were geared to this one purpose, and every other activity, except those that were absolutely necessary, was abandoned.

The first few months showed no appreciable results. Millions of plunging hits and their immense bursting charges had bitten into the surface of the planetoid and caused it

to be surrounded in a halo of dust and fragments. No doubt a good deal of its surface had been blasted away into the fastnesses of space never to return. Still, for a long time it was impossible to detect any change in its velocity and orbit, or in the size of the body. The people began to lose hope. There was even talk of giving up the costly project as futile, and becoming resigned to the inevitable.

But those in control knew they must continue; they had not lost faith in ultimate success. The steady cannonading went on, with increased numbers of engines in action day and night, without a let-up; through the weeks and the long months every cannon belched forth its spite against the threatening body; east and west, north and south, in every land, the rotating earth let loose its plunging projectiles. For like a dreadful nemesis which dogged our globe day and night, the dangerous planetoid had to be subdued, made captive and then blasted to pieces. And there was no power on earth to do it except the will and intelligence of man in using his limited control over matter and energy.

From every telescope available willing eyes, keen and intelligent, watched the results. And at last one day it came. From scores of observatories came the thrillingly joyful announcement that the crisis had been reached and passed! At last the cumulative effect of the millions upon millions of fifty-ton projectiles plunging against the planetoid with a velocity of many miles a second, and the still vaster force of their terrific explosions after they landed, began to respond to the immense artificial forces let loose resultant force of the aggregated blows, the giant planetoid began to respond to the immense artificial forces let loose against it; gradually, but at an ever increasing rate. It was overcoming its tendency to fall toward the earth's center. Finally, after two long years and two months, its speed was increased to 0.85 of a mile per second, and its orbit changed into a harmless ellipse. Henceforth the planetoid would continue throughout the ages as a true satellite of the earth and not as a destructive agent. Man lost his fear of the menace and the bombardment ceased....

Ten years have passed and now the world breathes easily. [The falling planetoid has now become a*] disc shining in the sky; a beautiful member of our Earth-Moon system. It moves peacefully in its steady course, at a high inclination within the moon's orbit, but under the complete control of our good old Mother Earth.

And the great cooperation of the nations of the world had taught a much-wanted lesson. The meeting of a common crisis by a united mankind has been met not without its stimulation on the general life. The world is stronger and the vast cost of the now happily-past danger has been more than made up and forgotten.

[* the ending seems messed up. Text similiar to this was mssing from the published story.]