

By
Isaac R. Nathanson
Author of "The Conquest of the Earth."

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MOREY,



Dr. Daily and a number of his friends and colleagues stood in his observation tower until the last possible moment, observing and taking notes.

The Passing Star

“IF one could turn backward the inexorable march of time, as one would unroll a cinema film, back to an inconceivably remote period of time some ten billions of years ago, and like a god could review the cosmic drama of that little bit of the universe, in which our world began its existence, he would see an utterly different strange state of things. If with infinite time to spare, such a one could take up a station, from which to behold the unfolding cosmic panorama of that far period when our Solar System had its beginning, he would have to take station far out over the present system, far from the sun, in order to obtain a comprehensive view of the cosmic births as they would take place.

“Taking up his station, and with breathless interest speeding up the passage of

time, this hypothetical being would behold our sun swelled to immense proportions, a flaming mass of incandescent matter moving rapidly through space. He would look in vain for our earth and its companion the moon, or the other planets. And if he looked away and cast his gaze into far-off space, he would see a star, flaming like our sun, immensely far, but its disk plainly visible. He would see this other sun approaching ever closer in its brilliance rivaling ours, and rushing headlong by in an opposite direction, passing our sun as one ship passes another in the night.

“As our godlike beholder looked, fascinated, he would see the vast bulk of our sun pulled into an elongated sphere, the raising of tremendous tides; he would see frightful solar storms and huge eruptions on a cosmic scale beyond the ken of mortal eye. Suddenly one of these mighty tidal eruptions, combined with the great disruptive forces within the sun—evidenced by the disruptive prominences still occurring at the present time—growing ever more violent, caused enormous prominences to shoot out with a fearful explosion, out, out into far-off space at a speed which carried the flaming mass of matter toward the other star beyond the sun’s recall; while from the opposite side of his bulging body and at the same time, another tidal mass was hurled forth—and Neptune and Uranus were born. Then as the tidal pull of the passing star continued, with appalling disturbances, and at its closest approach to our luminary, two more oppositely directed eruptions took place—and beautiful Saturn and mighty Jupiter came into being. Two more eruptions followed, of much lesser force; finally followed by two more—the last; and Mars and Earth, Venus and Mercury were born in the lap of time.

“And then, as our observer stood and looked, these immense detached arms, although small as compared to the main body of the sun, appearing at first as long knotted

spirals attached to the parent body and turning in the direction of the passing star, would gradually take on the spherical form of our planets. And thus before his eye the Solar System took the form, much as we know it now.

“As a ship that passes on, our beholder saw the passing star recede, and grow ever more dim in the remote fastnesses of space. But its mission of cosmic cross-fertilization, its parental influence in causing our sun to give birth to our family of planets was accomplished. And millions; and millions of years rolled by—billions of years; and still such a one would see not a sign of the promised life to come on that little speck we call our earth. And though he unrolled the entire roll of time clear to our own epoch, never again would he see another star approach our sun so closely as in that abysmally remote time, so long, long ago.”

THE lecturer had finished. His youthful face was flushed, his eyes feverishly bright. His subject had been on cosmogony and the origin of the earth, as propounded by Jeans, and particularly on the “Planetesimal Hypothesis” of Chamberlin and Moulton. The closing sentences were spoken in low intense tones, gradually dying out in a dramatic silence that seemed to disappear into the very walls of the lecture room. A few seconds of quiet, as if the listeners were both to leave, and then everyone scattered.

For a long time the young lecturer, an enthusiastic instructor in the science of astronomy, remained motionless at his desk, deeply absorbed in thought. Dr. Bernard Daily was one of those thinkers who could not think coldly and dispassionately. He felt what he thought. He was fascinated by the subjects of astronomy and cosmogony; and he was especially fascinated by the subject of his lecture just finished.

Over and over in his mind he retraced

his recently spoken words. He was immensely liked by the student body and known as an inspiring speaker. His thoughts dwelt on some of his well-rounded phrases. Had he made everything perfectly clear? Did he impress this and that particular point sufficiently on his hearers? Or was he overenthusiastic? What did they think? Did he awaken an echo in the minds of that large group of students who had listened, apparently so attentively? He wondered! What were they thinking of behind those impassable faces? Were they really interested; were they really serious; did they give the same weight to the subject that he gave to it? No, he was forced to believe to himself.

He could still see the immobile faces of those young men and women, could feel their eyes focused on him, as they were listening well enough but with no deep interest or deep feeling. It was part of their school work; that was all. Not one face, not one pair of eyes betrayed by look or sign anything extraordinary in their interest. In vain he had looked about him, at the quiet faces, for one burning sign, searching for one student who deeply understood. If only one face had flashed an answering understanding, he would have felt repaid. Sadly he shook his head. These, to him, transcendently interesting subjects were but temporary with them. The round of their daily amusements, their school sports and social life—these were the things that really mattered to them. Everything else was at the best but a temporary escape from boredom. It was his marvelous gift of oratory which had held them; they were listening more to the pleasing sound of his voice and well chosen words than to anything else. The vast deep thoughts to which his words gave voice, their permanent significance—what did that mean to them? Out of the classroom, out of mind.

Sadly his thoughts turned to his own life; the past and present. His widowed

mother, slaving and sacrificing, his youthful, sensitive school years, burning with the passion for seeing and understanding. Then came his student days at the university, his wretched poverty, his self-denial; the working at odd jobs, serving at table, often going without breakfast in order to have just enough to carry through; while all the time his soul was on fire with suppressed desires, unbounded ambition. Then came a scholarship, meager but sufficient with strict self-denial. The day of graduation came; the coveted diploma was in his hand. With what trepidation and misgiving he had faced the end of his college work. Would he get a position; where would he get placed, would he get placed at all? There were not many places in his chosen field. Besides he was so impractical and unworldly. He had written many applications with no result, and was in despair. How anxiously he had awaited the answer to one particular application. They had asked him to include his photograph! As if that should have mattered. Were they selecting instructors for their faces? What had that to do with the teaching ability and knowledge of the applicant? Did the world choose Shakespeare or Newton or Lincoln because of their faces? How ironical and senseless it had struck him. He still remembered the rage that rose up in his heart against his fate, against those narrow-skulled men, who had the making of the minds of student youth in their unkindly hands.

With what hope and gladness he had come for an interview and was accepted. "Twelve hundred dollars the first year." After all those years of hard work! His sister at her stenographic work, easily acquired, earned more than that. It was like a dash of cold water in his face. But he could not retrace his years of school and college work, and besides he wouldn't, if he could, for he loved his science and his profession. Did his kind ever work for money? Perhaps that is why they have always

been taken advantage of.

Well, what did that matter? Let the world live its own life; he would live his. In the end, who knows who would get the most out of life; his kind or those others? Who can say?

Bernard Daily went to work; he applied himself with zeal, with indefatigable interest. He had his life's work before him. He had been teaching four years at the university now. It was hard, exacting work, but he loved it. One cannot be too particular; one must make the best of everything.

He was immensely liked by his friends and colleagues. Slightly above medium height, well built, with a shock of chestnut, almost reddish, hair; grey blue dreamy eyes that seemed to see little, yet saw everything; a smiling mouth with somewhat full lips, showing beautiful white teeth; a pleasant, kindly, scholarly face.

For a long time he sat absorbed in deep reverie brooding, dreaming, thinking. His was the type of mind that lives a large part of the waking hours subjectively, forever living in a beautiful inner world. Finally he roused himself, sighed deeply, and walked down the hall to his office, which he shared with another colleague.

For several hours he worked steadily at his desk until it grew dark. Then recollecting that he had had no evening meal, he put everything in order and went out.

It was a marvelous night, soft and balmy; the first week in June. There was no moon, and overhead the sky was ablaze with the scintillating stars. Occasionally a meteor shot its fiery streak across the firmament. He walked along, scarcely thinking of where he was going.

He was in love. This did not bring him happiness. It only made him discontented and wretched. Yes, he was in love, his whole body vibrated to the blessed feeling; charged with tender inexpressible longing. But was it to be

a requited love? He hardly believed it himself. He blamed himself for encouraging his feeling. There was such a tremendous difference in their social positions. Economic barriers can be so forbidding. He reflected on his wretched income, increased from year to year, but at what a pitiful rate. His poor mother stricken with arthritis, taking so many of those hard-earned dollars. If only she could be cured.

But he was young, scarcely thirty, and the wine of exuberant life was coursing through his healthy veins. The beautiful night intoxicated him; there was so much to do, so much to live for; and as he walked and walked, breathing deeply of the balmy air deliciously laden with the perfume of growing things, his oppressive thoughts fell off him, and he thrilled to the joy of living. Happiness had been for him the illusive wisp—but he would get it yet. The dreamer!

He decided to turn his steps in the direction of Ellen Wakefield's home; forgot that his mother was waiting patiently for him, his meal growing cold. But he was not hungry anyway. And besides, a greater hunger drove him on.

She met him on the patio, in her dear gracious way. Sweet Ellen. Lithe and graceful, suffused with the inimitable bloom of youth, which nothing can replace. Four and twenty years lent a charming air of self-possession. She had an adorable way of throwing up her little well shaped head in greeting. Her voice was clear and musical.

"Well, what brings you here this evening?" There was a gentle banter in her tone. She delighted in teasing him.

He reddened slightly. Their first greetings always made him feel like a big boy, but his shyness quickly disappeared.

"Not much to do, so just dropped in for a chat," he answered.

"But there are so many stars out this evening, such a wonderful night for study,"

she bantered.

“There are two shining orbs before me, which I prefer to look at just now.” He looked at her ardently.

“I was speaking only of heavenly ones.”

“So was I. Come, let us take a stroll.”

They walked along in silence for some time. With a woman’s divination, she saw and understood perfectly his hidden feelings for her; but, with an equally subtle, womanly way, she obscured her true feelings from him, so that he was never sure. He was enthralled in her company, yet ill at ease. Her slightest touch thrilled him, yet he was vaguely troubled by her self-possessed aloofness. He could not make her out. He did not dare assume anything more than an attitude of friendly distance.

In a quiet spot of her estate, they sat down. They felt each other’s presence like a burning aura.

“Tell me about your day’s work,” she urged. “Did you lecture today; and what was the subject? I’d love to hear about it.”

He needed no urging. The young astronomer was always ready to discourse on his favorite theme. Particularly to Ellen. He went over the main parts of his lecture, and as he spoke he grew more and more intense, as was usual with him. She listened silently and attentively, interrupting him here and there with a question. When he had finished describing the hypothetical origin of our Solar System, on which he had lectured, she asked him:

“What is there to prevent another star from passing close to our system once more; and what would happen if such a thing came to pass?”

“Nothing to prevent it,” he answered. “It is a rare cosmic event, entirely within the realm of possibility; but not in our time, or as far as one can tell, for ages upon ages to come. Even the nearest star known, Alpha Centauri,

in the southern hemisphere, is entirely too far away; in fact, so far away, that its light traveling at the inconceivable speed of over 186,000 miles a second, takes four and a third years to reach our earth. At the ordinary speeds at which celestial bodies move, Alpha Centauri, even if it did move in our direction, which it does not, would never reach us in a thousand generations. The chances of two stars colliding, or even of a close approach, sufficient to exert a direct influence on each other, are exceedingly rare in sidereal space, although not impossible. Most likely the novae, or new stars, are the result of such catastrophes, causing them to blaze out so suddenly. But this occurrence is so rare that the average law of chances renders such a possibility very slight—in fact, only once in about ten billions of years. Sufficiently rare for our future generations to carry on undisturbed,” he smilingly added.

“No, our sun and his family are so far removed from any outside body likely to produce disturbance, that we are practically alone in the depths of space. And although in the infinitude of space there exist millions and billions and trillions of bodies inconceivably large and inconceivably small, yet space is nearly empty, its flaming suns but far and scattered pinpoints in an endless void; and each pinpoint removed so far from each other as to be totally isolated.”

BERNARD left Ellen late that evening, his heart hungry as ever, but with an unexplainable happy feeling. His research work took him to the observatory, where, throughout the long night he would sweep the unfathomable reaches of the sky with the great telescope at his disposal. Here he was in his element; and he soon lost himself in his work. Photography, spectroscopical analysis, complicated mathematical computations left no room for other thought. The work was joy to him.

He turned to study a certain faint star which puzzled him. For some time past this star had been under his observation. Careful study of stellar charts and photographs had indicated an unexplained sudden increase in its apparent brightness, small but considerable, as stellar magnitude goes.

As the night drew to a close, he was comparing a spectroscopic photograph of this star with an identical one taken previously, and which he had not examined before. The reader is no doubt acquainted with the meaning of the shifting bands of light as revealed in the spectroscope. In addition to revealing the elements existing in the body under observation, the spectrum with the Fraunhofer lines indicates the velocity of the body, and whether it is approaching or receding from the observer.

Casually Dr. Daily took the two spectrographs and began to compare them. He was not quite satisfied. He attached his spectroscope to the great refractor. As he studied intently, he gave a sudden start. With a tense interest he looked again. Could there be some mistake? No. He himself had most carefully and with the utmost precision set the apparatus. Everything was accurate to an infinitesimal degree; of that he was sure. The spectroscopic analysis of this very faint star clearly indicated that it was approaching the earth at the unheard of velocity of over 1100 kilometers, or about 700 miles a second—a 'runaway' star! He could scarcely believe his eyes. How was it that it had escaped detection before? Surely there must be some mistake.

It was approaching day, and he quit further work. He went home, his mind aflame with his discovery. Eleven hundred kilometers a second! His discovery, if true, would create a furor in the scientific world. He could scarcely wait till the following night to resume his work.

When the time came he was at his post in the observatory, eagerly going over his

work. He turned the telescope on that sector of the sky in a hunt for that speck of a star, at the precise spot indicated in his charts. He set about taking over again a new set of spectrographs with infinite care and precision. Only a limited number of the faint stars had ever been spectroscopically examined, and this particular one was not one of those, or he would have heard of its enormous radial velocity.

It took all night to get a clear imprint of the star's spectrum, so faint was the light. And he had to wait till the end of the following night for a companion photograph and other verifications. Eagerly he scanned the result. There could now be no doubt about it. He was dumbfounded. He brought all his skill and knowledge, which were of a high order, to bear on the subject. Prematurely announced, such a stellar velocity, unless indisputably verified by all the scientific means at his command, would only spell ridicule and loss of prestige. He must tell no one for the present; but he confided his discovery to Ellen, with whom he discussed the unusual phenomenon.

The parallax of this faint star had never been determined. And Dr. Daily's minute study of the star charts failed to show appreciable proper motion, or translation across the line of sight. So he set himself to the difficult task of measuring the distance of the approaching star, the better to make sure of its rate of movement. The astronomical computations involved were exhausting in the extreme, and would take lots of time. He did not think of his discovery as anything more than a sidereal freak, an interesting discovery to announce, the fastest star on record, of no possible material consequence to the world.

After weeks and weeks of hard labor, and with every means at his command, he finally succeeded in measuring the distance, of this runaway star. When he held the result in his hand, his heart gave a great leap. He was

almost frightened by the revelation. This star, so faint as to be scarcely visible, was only a mere four hundred billion miles away. It was a small star, as stars go, about one fourth the size of our sun; but at the rate it was approaching the Solar System, it would arrive within close proximity in about sixteen years. Preposterous! He must go over his figures once more. If true, the consequences to life on earth were unforeseeable. This almost infinitely rare event, the close approach of two stars—had the law of averages in the case if our sun struck the fatal gong once more?

THREE months afterwards Dr. Bernard Daily announced his famous discovery to an incredulous world. Over and over again his great mathematical genius had verified his first startling discovery. He was absolutely positive.

His announcement, couched in clear scientific terms, backed up with a wealth of mathematical calculations which only the initiate with a large amount of study could understand, brought before a startled world the imminence of a cosmic disaster to our earth in the not very distant future—a mere sixteen years away. A huge, flaming body, a star smaller than our sun, but over 300,000 times the size of the earth, was hurtling toward our system at a frightful velocity. And after allowing the largest possible margin of error in his calculations, it must approach within a comparatively few million miles; in fact, if it did not actually collide, would pass right through our Solar System. Visible now, in a few years it would all too soon become the most brilliant star in the heavens, growing ever closer and brighter, until its close approach would scorch the earth with its deadly heat if it did not totally annihilate it and create terrestrial and solar disturbances, the magnitude of which no mortal mind could foretell.

That these disturbances would be great

and destructive, Dr. Daily was sure. There might be immense, engulfing tides, terrific earthquakes, destroying heat, appalling gravitational and electrical disturbances, not to mention unknown, perhaps fatal, magnetic storms and irradiations from the conflicting sun and the star—quite possibly actual collision and total annihilation. He counseled the entire world to drop every human activity and commence the immediate construction of vast, deep underground chambers, enormously reinforced, and sufficient to house humanity and their immediate and future necessities. So that if spared utter destruction, humanity should have the chance of saving themselves from the consuming heat and other destructive forces by taking refuge at the crucial time within these places prepared beforehand. For such a titanic undertaking there was none too much time; otherwise, assuredly, the end of the world would come. He closed with an urgent appeal to all.

The first shock of his published announcement, to which the newspapers gave scary headlines, combined with facetious subheadings, imparting to the announcement a ridiculous light, was followed by a number of withering criticisms from the more erudite quarters; and then was promptly forgotten. “Just a young professor seeking notoriety by yellow journal methods.” “Unworthy of a so-called scientist.” “An impossible happening.” “A visionary’s bad dream.” Such were some of the comments on Dr. Daily’s epochal announcement. It furnished an excellent theme for witty epigrams and funny cartoons. And the man in the street found good-natured amusement and evolved many jokes on the subject.

Dr. Bernard Daily was deeply hurt. Convinced as he was of the accuracy of his prediction, he was infuriated by the senseless daily drivel of the public, which prevented a serious view of his enormously important announcement. He smarted from the public

scoffs and sneers; and worse still, it was all taken as a huge joke. True, he was unknown. A well-known authority might perhaps have received a respectful hearing. Even his colleagues in the astronomical world smiled indulgently and took no immediate pains to verify his figures. That was what hurt most. It was entirely opposed to all their knowledge. How expect them to take such a view seriously? It would take lots of work to verify, his figures, and "they had no time for foolishness." Some generously granted his good faith. "Just the premature announcement of an overenthusiastic young astronomer."

Great discoveries have often suffered a like fate, and before the general acceptance, like as not have broken the heart of the originator. With many of our most far-reaching ideas, it has almost seemed as if generation upon generation tried their level best not to see them, until the divining rod of genius pointed the way—then everybody absorbs them. For strange as it may seem, the obvious is often overlooked.

The temporary stir that the warning announcement caused soon disappeared. Our youthful astronomer, unknown and unsupported, felt very bitter about it. Well, they would soon, all too soon, find out for themselves. He dwelt with malicious glee at the discomfiture of his scoffing critics when the truth would finally come out. Another year, or two at the most. The star was approaching rapidly. Any competent astronomer could verify that, if he would only take the trouble; and it would not be long before it changed greatly in apparent brightness. Then the astronomical world would pounce upon it and redeem his outraged prestige.

BUT there was one person who did believe in him and his discovery. Ellen would have believed anything he told her.

The Wakefields were an enormously

wealthy family. Ellen's father died two years ago, and her brother, having an immense business of his own to take care of, left the directorship of her father's far-flung enterprises to her. And well she did her job, for one so young. She was her father's daughter unmistakably and she managed to keep a firm grasp on the helm.

She had given up the insipid round of petty social activities to which her daily life had been bound as if with invisible strings. She became bored with the daily frivolities, the small talk, the pretense of straining after useful activities in arts and charities. She had tired of the men of her circle, with their egoistic chattering about themselves and their affairs, their veiled bragging. Well she knew what occupied the minds of these worthy young men; their business, their sports, their insatiable search for pleasure to escape the boredom of idle hours. They wanted her. They laid themselves and their worldly possessions, by which they set so much store, at her feet.

She had met Bern Daily at some university affair. From the very first she had been impressed with his rare personality, his shy, gentle manner. He was so utterly different. There was something about him, something about his vaguely dreaming eyes, burning with subdued fire, which drew her to him. He seemed to be interested in everything but himself. And when he spoke his eyes gradually lost their dreamy look, and flashed and sparkled, revealing his racing thoughts and burning enthusiasms. Ellen had never met anyone like him before; it was as if one were coming up with a colorful, invigorating mountain stream, whose waters flash and tumble gorgeously by.

She knew of his financial limitations, but in her wise little head she also knew of his spiritual illimitability. She was head over heels in love with him. And in her calm, determined way, she set about leading him cleverly and unobtrusively straight along the

path she planned—to her heart. It did not take long to make sure of him, but she wanted to make sure of herself too.

It was a beautiful day in midsummer, and Ellen was waiting for Bern's arrival. They had planned a picnic among the hills. When he came up they shook hands; she could not control a slight blush, and averted her face. She was nettled with herself; he was the only person who could make her blush. "Dear, how stupid," she thought—"wonder if he saw anything?"

They drove away, delighted and happy. Occasionally she stole a sidelong glance at her companion. They spoke very little; they were under a spell. Presently arrived at their destination, they alighted and went afoot.

"Have you been studying your approaching star?" she asked.

"I have it under my daily observation. It is coming constantly nearer, at about a five degree angle to the plane of the ecliptic. In about two more months it should become decidedly visible to the naked eye."

"Has anyone else made the same observation?"

"Not that I know of. But they will soon; they cannot help it. I should not be surprised if announcements came from several quarters any day."

"What I cannot understand," she remarked, "is why no one has taken the trouble to check up on you?"

"I am obscure and unknown," he answered. "And I admit my discovery has a great deal of the bizarre and appearance of the unreal about it. It is entirely against all former experience and direct knowledge. If this approaching star were moving tangentially to our system, its unprecedented proper motion would have been detected on the star charts perhaps long before this; but its movement is directly in our line of sight, and not easily detected at its great distance unless studied

spectroscopically; and, of course, extremely few of the stars have been thoroughly studied and analyzed, and their distance determined. It is a laborious, generally an impossible task. Had I merely declared its excessive velocity, beyond being interesting, nothing especially would have been thought of it, because there are known to be a number of 'runaway' stars. But my definite insistence that this particular star is so comparatively close and headed straight for a possible head-on collision, along with what seemed like fantastic urgings to honeycomb the earth with expensive shelters—all this was too much for them. Therefore, nobody bothers about it. History is full of the world refusing to accept a radical discovery until long afterward, or until it is forced upon it. The resistance to new ideas is simply immense."

He continued: "Yes, right down to this very day, our most epochal discoveries had to fight for their life to see the dawn of day. Many marvelous things, commonplace today, were reviled and spat upon yesterday, as it were. Why, one still hears of good people deciding evolution with the ballot—and the voters are similarly serious about it."

"Tell me, Bern: do you still think the coming danger fatal?"

"If not fatal, certainly very serious. I have no doubt of it," he answered.

"Somehow, it doesn't seem right," she said. "This beautiful world, life, civilization, the ages old efforts of mankind—that everything could come to nothing. Surely, there must be something—"

"But the universe does not work that way, Ellen. The forces of existence are blind and purposeless. Purpose, feeling and thinking are but animal attributes—human if you prefer. Any other concept is inevitably human and has no basis in fact. If man has existed thus far on this good old earth, it has just been his good fortune. The immensities of the Cosmos do not consult him as to his destiny."

“And these shelters you recommend: would they be effective; would we be justified in such colossal undertakings?”

“Yes. Unless we are irresistibly overwhelmed, they would at least give mankind a fighting chance for life.”

For a long time they remained silent, resting on a projecting ledge, and watching the setting sun dip behind the hills. They were sitting close to each other, their shoulders almost touching, looking straight ahead. He leaned slightly sideways, their shoulders touched. A delicious thrill went through their bodies. She leaned ever so slightly toward him, and felt his arm circling around, his warm hand resting on her arm. Gently he drew her to him. She rested her head on his shoulder; their faces touched; a long ecstatic kiss. Two hearts, two souls were united.

A FEW months later, announcements appeared in scientific journals the world over, bearing out, in the main, the observations of our young astronomer; but none of the alarmist features were expressed. The consensus of the scientific world, as expressed by the eminent American astronomer, Professor William Spencer Smith, was that there was no cause for alarm. It was true, the star in question was of the runaway kind, a so-called K-type dwarf star, and its course would bring it closer to the earth than any star had ever been. However, the margin of error was too great for accurate prediction, and the chances were that nothing would come of it. At the most, there would be magnetic disturbances, which might temporarily inconvenience radio reception and the like. There was nothing to fear. The newspapers quoted a few brief paragraphs of these observations, hidden among the mass of local news and advertisements, and few thought any more about the matter.

But our young astronomer did. His

marvelously skillful eye, his skillful hand and the genius of his acute mathematical mind saw further and better and more accurately. The problems involved were of an order to tax the greatest resources of science. The exact location of one body relative to another has been solved rigorously only in the case of two bodies. Beyond the two body problem, the mathematics become so difficult as to have proved heretofore unsolvable. And it was the supreme genius of Dr. Daily which enabled him to narrow down the limit of possible error in his calculations. Not for one moment did he doubt himself. And as time rolled by and the approaching star commenced to grow brighter and brighter, it became more and more easy for him to confirm his original findings.

The happy day came when Dr. Bernard Daily and Ellen Wakefield were married. A quiet affair solemnized at Ellen's palatial home. A three months' honeymoon followed: magnificent days, enchanting nights; two well matched souls thrilled to each other.

Upon their return home, Dr. Daily took up his scientific career with greater enthusiasm than ever.

To lend greater opportunity to his efforts, as well as the increased dignity which it implied, Dr. Daily had greatly desired a full professorship at the university, which was not easily obtainable, regardless of innate ability. But a large endowment to the university on Ellen's part brought eventual recognition of his fitness, in the form of the coveted chair, which his mere genius would perhaps have been late in obtaining.

About this time he began to make plans for building large underground quarters, which his wife's great wealth now enabled him to do. He urged his immediate circle to do likewise, but they only smiled, and refused to share his calamitous views. They looked upon him as somewhat of a “crank,” a trifle “odd.”

The world went on about its business: industry, politics, international rivalry,

humanity going about their humble tasks—the swarming ant heap, unaware of the crushing foot poised above it.

For aeons and aeons life on earth had gone on; therefore for aeons and aeons life would go on. Life here, in the main, and cosmically speaking, always has been sheltered and pampered from its very genesis. For millions of years from that first dim beginning in that long dissolved past, when a fortunate combination of elements and conditions joined together to start the precious plastic stuff of life on its long journey down the corridors of time, the vital spark or sparks have been protected and fostered until life has become the most commonplace thing on earth. Protoplasm, the stuff of life, the most unstable of all created things, has been able to continue and develop, increase and multiply in myriads of forms, because everything was just right for it. Atmosphere, water, narrow limits of temperature, undisturbed cosmic conditions; a complete host of other favorable factors. The greatest terrestrial catastrophes merely succeed in wiping out a small portion of the seething, swarming life on earth. Always there was enough and more than enough to carry on; until today the entire surface of the globe and the air above it is surfeited with life in some form or another; its greatest danger, the implacable struggle of one with the other.

To the masses of mankind, so it has always been; therefore, it always will be. At the crucial moment, the inexorable laws of celestial mechanics would decide everything; life or death, perhaps the very disappearance of our mother earth in a mass of flaming vapor.

SIX years had gone by. High in the northern skies a brilliant star was casting its malevolent light on the earth. It had become the most brilliant star in the heavens, outshining in brightness even the planet Venus at her brightest. And month by month it was

growing perceptibly brighter.

The scientific world tardily recognized and acknowledged the dangerously near approach of the passing star, as predicted by Dr. Daily, and redeemed his wounded prestige. The new star became a subject of daily interest, and astronomy was given space in the dailies and periodicals beyond its customary obscurity.

Dr. Bernard Daily and his wife built themselves large underground quarters beneath her rich estate.

“Unless our earth is smashed to smithereens,” he remarked to Ellen, “I want at least a fighting chance for myself and loved ones to survive.”

“And what, in your opinion, are the greatest dangers to be feared?” Ellen asked him.

“Barring cataclysmal forces, against which no humanly possible precautions will prevail,” he answered, “the things I fear most are consuming heat, engulfing tidal waves, dreadful earthquakes, and perhaps poisonous gases.”

He planned their subterranean refuge at a depth of thirty feet. It was tremendously reinforced with steel and concrete, designed to withstand enormous strains and displacements. It was large, comfortable and airy, equipped with air purifiers and powerful apparatus for cooling, heating and lighting. Artesian wells, ingeniously connected, would provide an ample supply of pure water. In short, he provided all possible means of safety as well as comfort. He also built a small tower, cupola shaped, low down over the ground, for observation purposes. This tower was connected with underground quarters and was constructed of enormously strong and insulated walls, with small glass windows of great thickness. The cost of the whole thing reached high figures; and the building operations became an object of great curiosity.

“We may only have to occupy these

quarters for a few days, or perhaps for a few weeks," he remarked to Ellen, "but the great cost may well prove our salvation."

The approaching star grew steadily brighter, until its disk could be made out with any field glass. It was the first time in the experience of man that a star's actual disk could be seen. For even the nearest stars are so far away that our most powerful means are hopelessly inadequate for the human eye to see their real disk.

IT was in the year 1941, ten years after Dr. Daily first announced his discovery of the approaching star. It had now grown so bright as to cast a very hazy, pale reddish light on moonless nights. As yet there were no disturbances felt of any appreciable kind, except that the aurora borealis was more brilliant than ever known, and astronomers detected faint irregularities in the outer planets. The world was reassured.

Many able minds, however, saw the danger. Almost every astronomer, as well as physicist, mathematician and scientist of note had long ago fully wakened to the impending disaster. They thoroughly concurred in Dr. Daily's forecasts, and were unstinted, if belated, in his praise. It is indeed a happy sign of our times that a great prophet does not always have to die to be appreciated. They joined with him in loud, ominous warnings.

But except for a few here and there, no concerted action was taken. Everyone procrastinated. Many openly scoffed and poo-pooed the idea; while the masses at large, if they thought about it at all, shrugged their shoulders and took it for granted that if there really were great danger threatening the world, the government and other influential authorities would take the proper steps. There is something touching in the faith of the masses for their leaders and rulers. Besides, this very brilliant star was beautiful to behold. It appeared harmless enough. And many held

it was not for man to meddle with nor attempt to interfere in the inscrutable ways of Providence.

Certain timid ones were frightened. And there were the superstitious, the charlatans, and the fanatics; and the religious exhorters, who loudly called on sinning humanity to repent and be saved in the next world. A few extremists gave away their meager belongings in anticipation of the coming uselessness of all things. Some comical scenes were enacted, as well as some that were pathetic, largely laughable in their childishness. There was also a noticeable increase in the number of weddings. And not a few news lines were written about the whole thing in a light and flippant tone, and the comic papers and cartoonists did not neglect this opportunity. The ability or desire to laugh is seldom neglected. Perhaps it is one of the saving graces.

And one could scarcely blame the people for their calm view of the situation. The general intelligence was far above that of the Middle Ages when the sight of a flaming comet in the heavens or an eclipse threw the populace into fear and trembling; the people were far above taking any stock in predictions of the end of the world. The rarest thing in all the heavens—the close passing of two stars—was not anything in the experience of man to fear. Besides, the building of vast underground structures sufficient to house the masses, even for a short time, was not an undertaking for individuals. Neither can the inertia, the mechanism of society, complicated and strained as it is, be easily and totally switched headlong into undertakings of such magnitude, altogether different from outside of the accustomed activities of the daily life. The dire necessity must be palpable and great, indeed.

But the ever rising insistence of the most eminent scientific authorities could no longer be ignored. The approaching body was

now so near that it was possible to obtain quite accurate measurements of its size, its direction and rate of motion; and to determine within comparatively close limits the exact spot in space through which it would enter and pass the solar system. It was still over one hundred billion miles away—unbelievably close for a star. It was about 535,000 miles in diameter; and such was its hugeness that it would take over 300,000 bodies like the earth to equal its bulk. It required scarcely a scientific mind to realize what the close proximity, even for a short time of such a huge body, comparable in size and temperature to our sun, would mean. There was no room for doubt among those familiar with the technical intricacies of the problem. Allowing for all possible margins of error, the results of its approach at the very best, were uncertain and dangerous in the extreme.

These earnest, able men throughout the world urged the governmental authorities to take immediate steps toward all humanly possible means of protection. Even as it was, there was scarcely enough time to complete such vast undertakings in the short remaining period of five years.

Dr. Daily, as the guest of honor, was the principal speaker before a large intelligent audience in New York City. He passionately exhorted everyone to take immediate action. He pictured in lurid terms the possible consequence of the coming event, and the dreadful penalties of further delay.

But such is the perversity of the social organism, such is the peculiarity of the human mind, such is the reliance placed on certain leaders and governmental authorities, that time dragged on, and priceless months were wasted in fruitless discussion and political wrangling.

It is a strange commentary on human nature, this blind worship of the fool who succeeds, this worship of the hands that pull the strings of industry and government. Our

great educators, our profound thinkers, our great creative minds, these have very little to say when it comes to political and immediate action.

But public demand finally made itself felt. Governmental authorities and influential organizations throughout the world held gatherings to decide what action, if any, to take. Our President called a special meeting of Congress. Ways and means were debated; opinions were freely expressed; speeches clogged the Congressional records.

Some venturesome spirits suggested the conscription of wealth and labor. This was promptly hushed by influential lobbies. Many were opposed to the tremendous taxes it would bring. The cost would run into untold billions, would dislocate the entire industrial machine, they insisted. No doubt it would.

Congressman George B. Stone, of Alabama, in a great vituperative speech, which received wide publicity, violently opposed any such matters contemplated. He spoke in part as follows:

“I am utterly opposed to allowing our practical common, sense to be stamped by a lot of hair brained visionaries and stargazers. They had better stay at their textbooks and schoolmasters’ rods. ‘The shoemaker should stick to his last.’ My fellow citizens: Have you any idea what such an undertaking would cost? The entire world would go bankrupt. I am uncompromisingly opposed to pouring hundreds of billions of dollars into holes underground. For a long time these theorizing, impractical schoolmasters have been predicting this calamity—and still we are here. It is a source of amazement to me, the impracticability of these scientific men, who profess to know so much; their lack of foresight and their juvenile judgment, these people with whom rests the education of our youth.

“I don’t believe any such thing as they fear will ever happen. For generations our

fathers lived on this good old earth, and with God's will we and our descendants will continue to do so. I am for passing a law prohibiting, under pain of severe penalty, the preaching of such things, which needlessly frighten the public."

Such expressions of opinion were given leading place in the channels of communication to allay the public anxiety. And as many judge the importance of news largely by the size of the headlines and the space allotted, the world felt soothed and assured.

However, various committees were appointed to study and investigate the possible danger, and report at another meeting of Congress. Nowhere in all the wide world was definite action decided. Perhaps no one is to blame for vacillation under the circumstance. From the appearance of things, there did not seem any occasion for voting billions and billions. It was perhaps too much to expect the world to drop everything and rush off into such vast, costly undertakings on the advice of men, whose figures were not understood by the man in the street.

EARLY in the thirteenth year, a miniature sun illumined the nightly sky. Its tiny globe was plainly visible and dazzled the eye. The deep darkness of night had disappeared, and in its place a somber twilight brooded over the face of the earth. On clear nights, when the full moon was out, the combined light of the moon and star cast a weird, ghostly light, which dispelled the mantle of darkness, and cast an unreal reflection.

Immense spots appeared on the sun, and solar storms of great intensity were observed. One vast eruption was seen to throw out a mass of ionized gas to the height of fourteen million miles. Radio and wireless were rendered almost useless.

And then the thing happened which suddenly awoke popular fear. Overnight

everyone was galvanized into action. A terrific storm, or rather, a series of storms and cyclones swept the earth with such intensity as to appall and frighten everyone. There was tremendous loss of life and property.

There was a sharp angry demand from the people everywhere. Nothing very serious as yet had happened. Very likely the star had little to do with these disasters. But everyone was thoroughly frightened. Overnight general calm and apathy turned to anxiety and alarm. Things began to move rapidly.

With the advent of calm, sunny weather, inertia turned to frenzied activity. The whole civilized world organized itself on an immense scale, building underground shelters for frightened humanity. Cost was forgotten. Woe be to anyone who henceforth interfered by word or act. Where a few years before there were only scoffs and sneers for the few farseeing ones, now it was as much as your life was worth to oppose the common zeal. Such is the inconsistency of man.

Dr. Daily and other scientists found themselves raised to supreme eminence, and the public pathetically and helplessly looked to them for guidance and salvation.

The whole civilized world became an immense underground beehive in preparation for the dreaded event. The industrial and scientific forces of the world were now organized and geared to one purpose. In a day, as it were, the entire structure of society became adjusted to the new state of things. One would have imagined it were in preparation for some interworld war on an appalling scale. There was now not a day to spare. In fact it was extremely doubtful whether the operations could be carried through in time to succor all humanity. Too many ominous signs of approaching disaster began to make themselves felt; at first barely perceptible, but more and more in the form of unusually terrific tempests, earthquakes and electrical displays.

Contrary to many expectations, threatened humanity behaved extraordinarily well under these circumstances, giving a supreme test of its true greatness. Throughout the civilized globe order was never better, nor crime at lower ebb. People vied with one another in their efforts to alleviate suffering and in charitable work. There was more sympathy and common courtesy. And there was an enormous increase of religious devotion; places of worship were never so well attended. Instead of the reign of the beast, the kindly spirit of true man pervaded. It would altogether seem that, whereas, the man-made cataclysms of war and strife have always let loose the most wicked and cruel instincts, in this case, in the face of the frowning anger of an almighty Providence, all the forces of evil bowed their heads in humbleness and religious resignation.

The world state of mind was a strange complex. There were, of course, the superstitious people, who saw signs of good or evil omen in every breath of wind. They made the weird interpretations of the most commonplace things. They placed much store by their dreams. Then there were the fearful people, who by a strange fatality, seemed to delight in picturing the most harrowing conditions. And, of course, there were the sentimental people, who became a great annoyance to themselves and to others. Many who had not seen each other for years nor thought of one another in the slightest degree suddenly became possessed of an immense urge to become friendly. Many that had been sinned against, suddenly found themselves the objects of solicitous attention; there were outbursts of belated charity; many found it quite easy to shed copious tears on any and every occasion; and there was a tremendous attendance at all funerals. And the impecunious were glad to be relieved of all responsibility. Scoffers and fearless people there were, as always; and the mockers too;

yes, and even the malicious, who secretly took a wicked delight in that their enemies and haughty superiors would all end up together without distinction. Then there were the lighthearted ones, the irrepressible spirits, who see something funny in everything, whose gaiety and mirth become at times a blessed leaven and at other times anathema. And the gloomy people, and the excitable people, the ridiculous ones and the plain foolish ones. Religion took on new significance, and many who had not seen the inside of a place of worship found themselves in frequent attendance. The ultra religious people became legion. Indeed, many strange sects and beliefs arose during that time; many queer cults and practices appeared. And let not the reader imagine that there were no wicked beings; a certain number of evil spirits there always have been under all circumstances. Yet, the masses at large, the world as a whole, behaved remarkably well.

OBSERVERS throughout the world plotted the exact course of the passing star. It was rapidly nearing the outer confines of our system, at a slight angle to the ecliptic, and its great mass was causing great perturbations in the orbits of the outer planets, although only to a slight extent in that of the earth; Pluto in particular, our outermost planet and closest to the star, was being pulled from its normal orbit into that of an elongated ellipse.

The star would pass within 22,000,000 miles of the earth. The gladdening news was announced to a willing world, that the superhuman efforts of mankind to save itself in case of a not too close approach had not been futile and wasted. However, there was still the greatest danger to life, if not to the earth itself; and it was desperately necessary to rush the works of shelter with the greatest possible energy, to the exclusion of everything else. The world was seething with human activity.

One day Dr. Daily ran into the living room where Ellen was sitting with their two children. He was extremely excited, his face flushed, a look of perturbation on his features.

“What have you discovered now: are we doomed after all?” she asked him.

“No, we are not doomed. I believe the world will be saved.” He spoke these words with great deliberation, as though he enjoyed uttering every word.

A flush of joy overspread Ellen’s features, as she flew into his arms. She knew her husband too well to credit the idea that he was speaking without definite knowledge.

“But I have made a serious discovery which my calculations before overlooked. There is going to be—a dreadful collision.”

“How, in what way? Have you discovered an error in your calculations after all?” she exclaimed in one breath.

“No there has been no error in my calculations. But there is going to be a fearful collision, and we are going to witness the sight and live to tell the tale.”

“Bernard, I don’t understand you.”

“There is going to be a collision in our solar system; but our earth is going to be spared. It is the planet Jupiter which is going to receive the full force of the collision.”

“And you mean—”

“I mean that I have just discovered something which somehow every observer, including myself, has overlooked. Jupiter’s orbit will bring him into the path of the star, and we shall witness an appalling catastrophe. The earth will clear in safety—though not unscathed. The disturbance and strain will be great, but we shall escape total destruction.”

Other observers also foresaw the same impending disaster. A strange inscrutable fate would bring the planet Jupiter, as he swung around in his orbit, directly in the way of the interloping star.

A great spectacle was visible in the skies on the night of July 25, 1947. The planet

Jupiter and the star were in conjunction. A collision of two heavenly bodies in full sight of the human eye was being staged. People held their breath, transfixed with fascination; their eyes glued to the sky.

Closer and closer the two bodies were seen to approach; the bright planet almost lost in the dazzle of what looked like a miniature sun. The celestial tragedy was imminent. Like a huge colossus, immense Jupiter, the sun’s largest son, stood astride the path of the onrushing, devouring star, as if to hurl defiance and shield with his body his weak little sister, the tiny Earth. A celestial sacrifice. Suddenly, a fearful, dazzling light, a mixture of crimson and blue white, filled the heavens. The intensity of the light was too great for the eye to bear. There was not a sound, but a paralyzing glare, which forced one to close his eyes.

As the night wore on, the intense glare died down. The approaching star, now brighter and larger than ever, was still there, but the giant planet was snuffed out like a candle. The impact of the rushing star had reduced Jupiter to an enormous mass of flaming, incandescent vapor. Shuddering humanity had a clear vision of what a collision to our earth would be, after beholding the fate of mighty Jupiter—a planet 317 times the mass of the earth.

THE final phase of the celestial drama was now here; the final fateful days which would decide life or death. The star was approaching with frightful rapidity. At the rate it was moving, it would cross the gap of Jupiter’s orbit and be at its closest approach in about eight days. Humanity waited in agonizing suspense.

An extraordinarily early spring had been followed by the hottest summer within the memory of man. The greatest solar activity ever recorded was observed. The earth was being pulled toward the star considerably out

of its orbit. The strain produced resulted in cataclysmal adjustments. An appalling series of earthquakes and tempests followed one another. In many places volcanoes, long quiescent, awoke to tremendous activity, and the first real rumblings of the approaching terror struck fear into everyone's heart.

The presence of such a large, extraneous body within the confines of the solar system, moving at such high velocity, was like a revolution in the equilibrium of the whole system. Ruled over by our sun since its very genesis, laws and forces that had gone undisturbed in their clocklike regularity for billions of years, were now set at nought—like the effects of a bombshell thrown into the midst of a well organized machine. Lucky it was the sun's mass predominated. Had the star been of almost equal mass or larger, no human knowledge could have foretold the results. As it was, cosmic disturbances were set up to an incalculable extent and the final consequences to life on earth would have to remain unknown.

The mutual attraction between our sun and the invader brought about inconceivable reactions between the two bodies. The tidal strains produced on the sun, together with its own eruptive tendencies, resulted in intense solar storms, which sent streamers far out into space, with their consequent effect on terrestrial conditions. A vastly increased radiation of ultraviolet rays from the sun as well as from the now distinctly felt rays of the star, reached the earth's surface. Without realizing it, large numbers died unexpectedly from overexposure, for an excess of these powerful rays may be inimical to life; and sharp warnings were issued to the public, counseling proper precautions. It was time to take shelter, and the masses were ordered underground in the places provided.

As the star neared its place of closest approach to the earth, the heat became unbearable. The temperature shot up and up,

until the entire earth became like a fiery furnace. The proximity of the star, as well as the increased activity of the sun, produced a temperature in which nothing on the surface of the earth could live.

And our little planet, caught between the vastly larger bodies of these two opposing forces, was pulled in opposite directions as if it would be rent asunder. The fury of nature continued at an ever increasing tempo.

All day long the blazing sun poured down its pitiless heat on a burning world. The forests, vegetation, habitations, and everything that was inflammable were in one dreadful conflagration. At night there was no surcease from the burning rays. Darkness had disappeared. As the sun set, the flaming star, now looming larger in appearance than the sun, rose in the sky; at first like a huge red globe, then it rose over the horizon with a reddish white dazzling glare. The sun by day; the star by night—there was no more night. For twenty-four hours of the day the earth was caught, as if between two fires on a roasting spit.

The tidal friction on the earth developed by the combined pull of the sun, the star and the moon produced a series of tides of such height and such extent, that it seemed as if the entire oceans would be pulled out of their beds to engulf the land. Ever increasing in height, as the star approached its closest, tidal waves broke over the shores of every continent, swamping and destroying coastal cities, and far inland.

Huddled in fear and trembling, with prayers on every lip, helpless humanity had sought refuge in the underground havens, which foresight had provided. There was not room for everybody. Every available foot was crowded to the limit. All activity of any kind had long since ceased; it was impossible to do anything but live and endure. There was no time to build additional quarters, and considerable numbers were forced to remain

outside, to perish in the burning holocaust, and the tides drowned multitudes in the subterranean shelters.

Violent and tragic scenes were enacted. In their rage, when they found they could not find shelter in the underground places, many revenged themselves, where ever possible, on those who had opposed the building of these shelters. Rightly enough they felt they had been cheated of a chance to survive; and they made short shrift of their terror-stricken victims. Congressman George B. Stone, who had sought the underground shelters along with the rest, was discovered by his nearest neighbors; and despite his screams and entreaties, he was roughly forced outside by the mob, and his place was given to a young woman and her baby. And those that could not get in, sought whatever safety they could find in cellars and caves. But these proved pitifully inadequate when the final crisis approached.

Dr. Daily and a number of his friends and colleagues stood in his observation tower until the last possible moment, observing and taking notes. The star was at its closest approach. They knew it was passing within 22,000,000 miles of the earth, a searing, fiery mass; but it was impossible to see the sky. A great, fierce crimson glow was all that could be seen through the thick clouds which now enveloped everything.

Outside, it was like a boiling kettle. The terrific heat produced vast clouds of steam which covered the entire earth. Hurricanes, tornadoes, cyclones and wind storms blew with such destroying velocity, that buildings, trees, huge rocks and other objects flew through the air like pieces of paper. The wind force attained a velocity of nearly four hundred miles an hour, as indicated by Dr. Daily's instruments. Even steel and concrete structures were bent over and torn from their foundations. Nothing outside could live. There was one continuous

crash of thunder, and lightning bolts struck the earth in a constant bombardment. A deluge of water began to pour from the skies.

It became unsafe to stay any longer in the tower, for so constant and close were these lightning discharges, so great the avalanche of blowing missiles, that at any moment the tower might be shattered, despite its enormous strength. They withdrew deep underground to await the final letup of the furious elements.

And even the underground shelters were not altogether safe in all places. The tidal strain produced on the earth caused many settlements and faults. Such earthquakes as man had never known rocked every continent. Tremendous landslides occurred. And strong though these shelters were, a great number were crushed or rent open, and the unfortunate occupants were quickly consumed by the heat, asphyxiated by the deadly gases, or drowned by the constant cloudbursts which were inundating the earth. To add to the horror, volcanoes in many places, even in parts that had never known them, burst out with destructive violence, engulfing vast districts with molten lava and ashes; and burying many alive, who had sought shelter in the underground chambers. Many believed that the end of the world had come after all.

But mankind survived. Stored provisions, water aplenty, bearable temperature, purified air—these wisely provided in immensely strong subterranean retreats, saved nearly all from death. And adequate sanitary provision prevented disastrous epidemics. Aside from temporary personal discomforts, there was no suffering. Everything had been well organized and the retreats were well managed.

A WEEK later, Dr. Daily ascended his tower. Most of it was shattered, but one small wing was left intact; and he was able to obtain a view of the outside. The terrestrial strains and stresses had abated. Thick clouds still filled

the air to the very ground, destroying all visibility. The temperature was still high, and one continuous storm raged. Tests of the air revealed poisonous gases in unsafe volume, which perhaps reached the earth from the outer fringe of the star's eruptions, as well as those belched forth from the interior of the earth by the many active volcanoes. But the worst was over.

In two weeks more it was safe to leave the underground shelters; and a relieved humanity gingerly ventured forth.

It was a changed world they beheld. Familiar landmarks were unrecognizable. Rivers had altered their courses. The incessant downpour had created many large inland seas, and tremendous washouts. Upheavals had raised veritable mountains in valleys, where level ground had been before. Land had subsided here, and risen there. A continental island appeared in the middle of the Pacific. And whole mountain chains had been split asunder, creating marvelous scenic effects, which no man could now appreciate. Vegetation and animal life, except those carefully preserved underground, were destroyed; large forest areas were still burning, filling the air with smoke. Volcanoes and continued earthquakes lent a dreadful reality to a stricken world.

And if the natural topography of the globe was so altered, the handiwork of man suffered even more. Scarcely a house or building or bridge, or other structure was left standing. The world's work in five continents, the treasures of centuries of toil, was scattered over the face of the earth like chaff. Hardly one stone was left on another. The burning temperature, the tidal waves, the overwhelming air currents driving at hundreds of miles an hour, the lightning discharges, the steady avalanche of water from the sky, the earthquakes and volcanoes, even the tidal waves caused in the rock surface, all conspired to produce the most indescribable

chaos. It was a vastly great and fearful Sodom and Gomorrah on a world wide scale.

But a shattered and impoverished humanity was not ungrateful. All were thankful to have escaped with their lives. In the face of appalling calamity the human heart grows stout, and the soul rises to supreme heights. Therein lies the test of man's true greatness.

With the star's crossing to the same side as the sun, the welcome mantle of gradually returning nights assuaged a scorched world. Blessed night. Like a cooling drink to a parched throat. Once more a thankful world began to have healing, restful night.

Gradually the skies cleared, and the world was able to take stock of itself. In far-off space, on the other side of the sun, which now shone with accustomed cheer, the receding star was now happily beyond the confines of the Solar System. One could now look without misgiving at the brilliant spectacle it still presented in the sky. Although now shorn of its brilliance by its greater distance and the rays of the sun, it still dazzled the eye, especially in the evening. But day by day it gradually lost its brilliance as it sped on into the abysmal depths of space from whence it had forced itself on an unwilling world. The mighty mass of our sun had driven it considerably from its course, and drawn it around in a large swing, which headed it in a somewhat different direction.

Once more the earth settled down to its normal existence. And yet it was not normal. A number of important changes had occurred—changes which would endure into eternity. The passing of the star had straightened the earth's axis from its obliquity by eleven degrees, thus rendering our days and nights, as well as the seasons, more nearly equal. The axial rotation had also been increased, so that our days are now swifter and shorter; and measured by the old standard—twenty-two hours and eleven minutes long. Of

far-reaching importance also, was the fact that the star had pulled the orbit of the earth about a million miles further from the sun, and its tremendous passing velocity had set our planet spinning around the sun at a much greater rate, so that one revolution is now completed in three hundred and twelve days, by the old reckoning. It may, therefore, be said that man's days and years on earth have been increased. Another peculiar change of great interest is the slightly increased tilting of the plane of the ecliptic, while the moon's orbit has been displaced to a distance of 210,000 miles, bringing our satellite nearer, and more beautiful to behold. The absence of bright Jupiter and his interesting moons would, of course, be missed by all sky loving observers; and the removal of his vast bulk would

undoubtedly cause changes in the orbits of the rest of the planets, which astronomers would have to calculate and observe in the future.

For years a busy humanity was engaged in its herculean task of rehabilitation. So many far-reaching changes had taken place. It was certain that for long there would be no room or time for bickering and strife. Like a fire swept city that is rebuilt, it was now possible to rebuild civilization on a finer and more generous scale. All the cobwebs and muck and dirt and rubbish had been swept out and destroyed, along with the semi useful and unnecessary. The passing star proved itself not altogether an unmixed evil. A greater humanity and a vastly more splendid civilization reared itself on the ruins of the old world.