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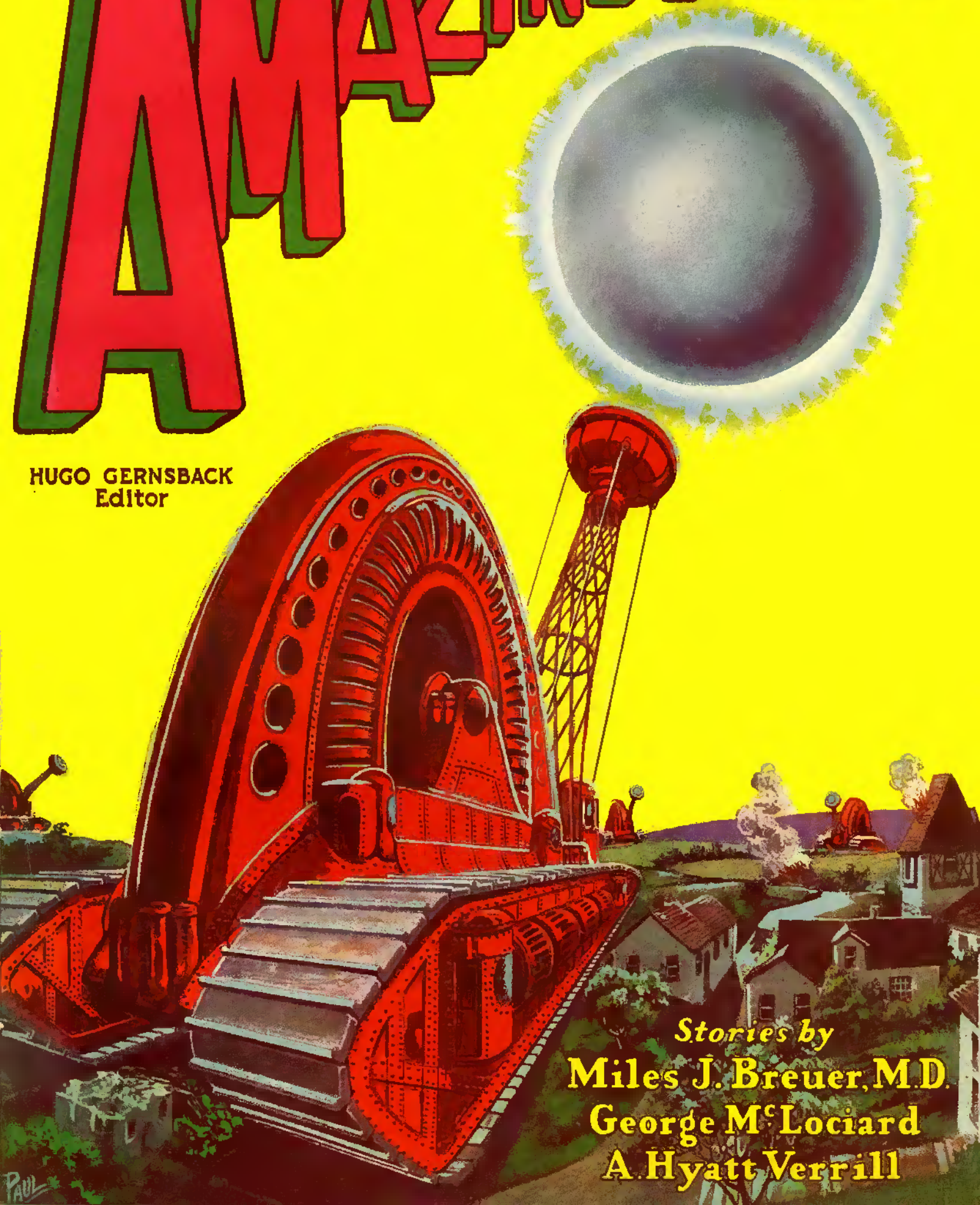

HUGO GERNSBACK
Editor

Stories by
Miles J. Breuer, M.D.
George McLociard
A. Hyatt Verrill

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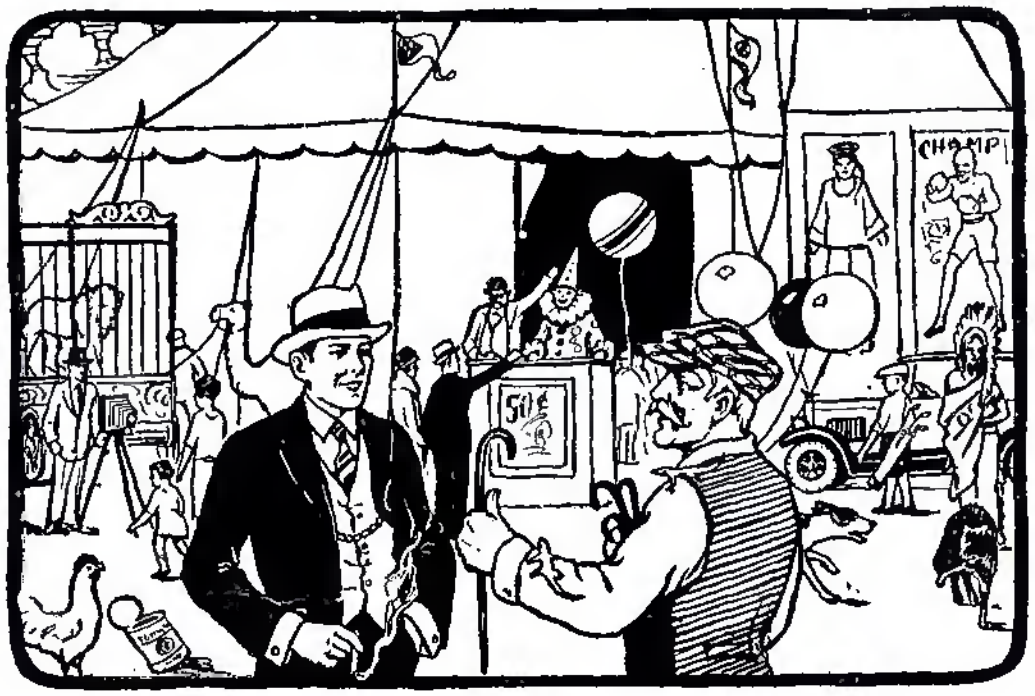

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12. Swanson King Portable Phonograph.
13. New Haven Banjo Clock.
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In addition to the Studebaker Sedan, the Chevrolet Sedan, the Victor Orthophonic Victrola, the Shetland Pony and the many other valuable prizes—besides Hundreds of Dollars in Cash—I am also going to give $550.00 in Cash for Promptness. It will pay you to act at once. Any winner may have cash instead of the prize won and in case of ties, duplicate prizes will be awarded. There are no tricks or illusions of any kind and neatness or handwriting do not count. You will not be asked to write in any squares, add up any figures, build words, or solve any additional puzzles of any kind. Get busy right away. Find 5 objects starting with the letter "C," fill in the coupon below and send it to me just as soon as possible. EVERYBODY REWARDED. Address

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AMAZING STORIES

April, 1929
Vol. 4, No. 1

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Our Cover

this month depicts a scene from the story entitled, "The Revolt of the Atoms," by V. Orlovsky, in which is shown a group of electro-magnetic engines, built to combat the atomic energy released—a fiery vortex—which is causing great destruction throughout the world.

In Our Next Issue:

THE DIABOLICAL DRUG, by Clare Winger Harris. We hear a great deal in the press about the preservation and lengthening of life, for which all sorts of means are proposed. This topic is used as a basis for this engrossing story, which shows a very astonishing possible psychological effect of a drug of that kind. Written in the author's fascinating manner, the tale is well worth reading.

THE ENGLISH AT THE NORTH POLE, by Jules Verne. Combined with much general science, Jules Verne tells us, in this story, and its sequel, much about the Polar regions, the formation of icebergs, and the movements of the ice. But in his own inimitable style, he never forgets to make his stories more absorbing by weaving into it, adventure, hardship and human interest.

THE GAS-WEED, by Stanton A. Coblentz. This story, by the author of "The Sunken World," depicts a strange invasion of the United States, where the attack spreads so that it threatens the world. It is not always an army or warfare of the most destructive kind that is most dangerous. It was a strange thing that menaced the world, and strangely difficult to combat. It is a story unusually rich in its scientific interest, and also excellent as a bit of fiction.

THE MOON STROLLERS, by J. Rogers Ullrich. Here is one of the best Moon stories which we have seen in a long time. It certainly is one of the most accurate ones scientifically. In it are shown the latest scientific discoveries. It shows what a Lunar expedition would require when it landed upon the Moon and how the explorers would get about on our satellite, which has practically no air, and whose temperature at all times is very near the absolute zero.

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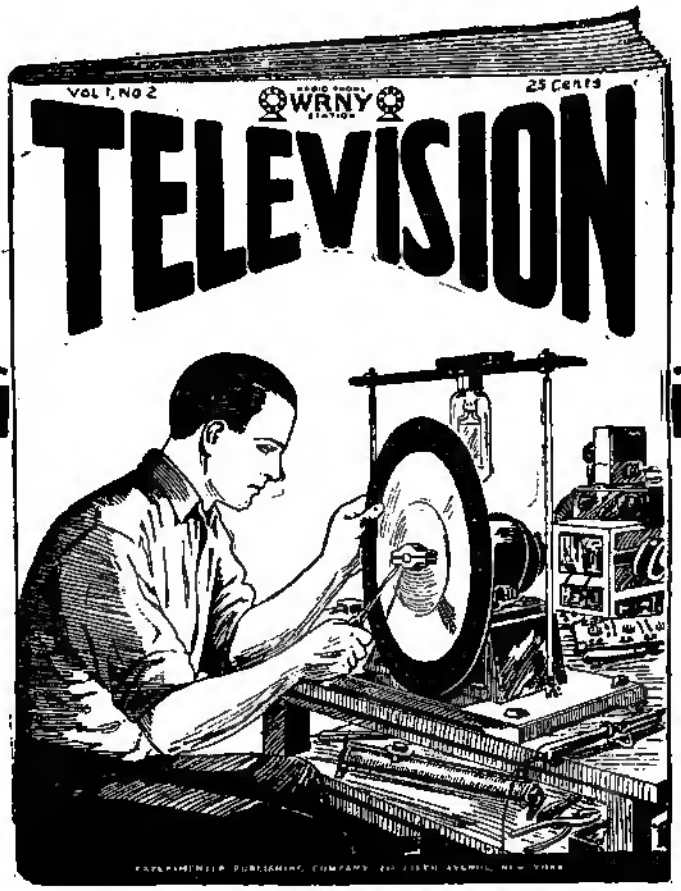

In This New Issue

Complete Instructions For Building a Television Receiver

There can be no question but that Television is here to stay. Like radio, its sudden popularity came practically overnight. It has taken a decided grip on public opinion and bids fair to sweep the entire country in a never-before-witnessed blaze of enthusiasm.

So, fans! Dig out the old soldering iron, the bus bar and the rest of your paraphernalia and get to work on the latest hobby. Build yourself a Television Receiver.

Of course, Television is far from perfected. It is still in a most elementary stage. There is little use in trying to gloss over the truth. But a start has been made and it remains for the "fans" to do their share, as in radio, in helping to develop the new art.

In the last issue of TELEVISION there are full instructions from which you ambitious enthusiasts can construct an efficient experimental set. With this set you will be able to receive some of the Television programs now being broadcast. Experimenting will continually improve reception. Get your copy of this new issue today! Start to work on your Televisor tonight! Be the first in your neighborhood to have a Television set. The old "fan days" are here again. Don't miss the fun!

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VOLUME 4

AMAZING STORIES

THE MAGAZINE OF SCIENTIFICTION

APRIL, 1929 No. 1

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Extravagant Fiction Today - - - - - - - - - Cold Fact To-morrow

THE AMAZING EINSTEIN

By HUGO GERNSBACK

ONE of the most amazing phenomena of this age undoubtedly is Professor Albert Einstein. It is quite certain that he will go down in history as a man as great or perhaps greater than Newton, Faraday and other equally famous scientists.

When Einstein's work is spoken of by the man in the street, something quite nebulous usually permeates such conversation, and the public in general contemplates anything about or by Einstein with wonder and awe. This is generally true when anything new and untried makes its first appearance.

When Clerk Maxwell, for instance, first published his electro-magnetic theory, it was no more of a theory than the Einstein theory of today. Maxwell was the first one to call attention to the fact that light and electricity were not only co-related, but that they were practically one and the same thing. It was many years before his theory was demonstrated practically. Indeed, not until Heinrich Hertz had made his epoch-making discovery in 1887 did we have a practical demonstration.

As a result of Maxwell's theory and Hertz's experiments, we have today radio—something, possibly, that not even Maxwell foresaw; probably he would not have believed it possible if anyone had told him.

The same thing is true of the Einstein Theory of Relativity, as well as of his latest contribution to science: his new "field-theory," whereby he brings gravitation and electro-magnetism into the same fold. (It should be noted here that Einstein, in his new theory, does not maintain that gravitation and electro-magnetism are one and the same thing.) The truth of this has been suspected for many years, by many scientists, but no experimental proof has come forward. Einstein does, however, bring the day nearer when this will be possible. We are still a long way from the goal, but it would seem that it will not be many years now before the dreams of many scientifiction writers will have come true.

If, as has been suspected, gravitation and electro-magnetism are really one and the same thing, or that they are closely related, as for instance light and electricity, then it will be possible indeed to build the fantastic machines which our scientifiction prophets have told us of for many years.

If a practical solution of the problem is found, it will then be possible to suspend or nullify gravitation at will, and the most astonishing, as well as "impossible" things may happen.

There is little question but that man will be freed from all slavery when it becomes possible to make practically anything weightless. Just think for a second what it will mean to transportation, to be able to take a vessel of the size of the *Leviathan*, and with a little power, make it weightless; then by means of a moderate-sized propeller, it will be possible to float such a monster through the air with a five horsepower engine at several hundred miles per hour, with little expenditure of energy for driving the propeller.

It will be possible to assemble and complete a skyscraper a thousand miles away from its home city, and then move it through the air when the building is completed, to be placed in its final resting place after the foundation work and its basement and sub-basements have been made ready.

Possibly one of the most astonishing things will have happened when space-flyers, or indeed the future terrestrial flyers, will carry no more fuel, but will derive their power direct from sunlight. We know today that sunlight is power. We know its relation to electricity and magnetism, and Einstein now points the way towards the relation of electro-magnetism to gravitation.

The thought, therefore, arises that sunlight itself will be used as a fuel, not only to propel our giant aircraft of the future, but to give us power with which to nullify the gravitation of the vessel itself, when it can be propelled by means of propellers, aided by an astonishingly small amount of power.

Just as electricity today generates power, heat, cold, light, and what not, so sunlight will probably do it in the future, except that sunlight will cost nothing, whereas electricity today is obtained by a very wasteful method. Aside from water power, the usual electrical current is manufactured by burning coal, which generates steam, which in turn generates electricity. This frightful waste, as we have it today, is so great that we only obtain ten per cent. of the energy from the original coal.

With sunlight, once we find the solution, it probably will be a good deal different, and while we will probably never get anything for nothing, it seems likely that we will not have the tremendous waste which we have today, and the expense of obtaining electric current and its derivatives will be greatly diminished. In the meanwhile, let us rejoice in the latest accomplishment of Einstein and let us hope and pray that experimental proof of his theory will be forthcoming soon.

Mr. Hugo Gernsback speaks every Tuesday at 9.30 P. M. from WRNY (297 meters) and W2XAF. (30.91 meters) on various scientific subjects.

The REVOLT of the ATOMS

By V. Orlovsky

PROFESSOR Flinder was in very bad humor. In spite of his customary self-control, he felt that, he was in no position to hold himself together, to consciously and soundly lead his thoughts through the channels of clear, logical and correct inferences. Their harmonious flow through the gray convolutions of his brain always afforded him immense pleasure. But to-day, he was unable to direct the flow along the calm and sound channel; this, of course, affected his mood to such an extent, that even his favorite cigar seemed bitter and tasteless.

Indeed, there were reasons for it.

In the first place, this morning Flinder discovered, in his working cabinet adjoining the laboratory, the absence of several of his documents pertaining to his work. The theft had been committed at night with incredible and almost incomprehensible boldness. The laboratory was situated in the garden, in a separate building, in the rear of the large detached building in which he resided. The windows were protected with iron grating and from them radiated a net of wires connected with the burglar alarm system, not mentioning the special night-watchmen, old non-commissioned officers. The result was that the wires were cut, the grating had apparently been cut through the corners with the oxy-hydrogen blowpipe, or something of that kind, and the window-panes had been cut out and removed.

The room was topsy-turvy. Two table-drawers were pulled out and their contents were littered all over the floor. The thieves, it seemed, were pressed for time, for they had left the others undisturbed. But worst of all was the breaking open of the fireproof safe and the emptying of one of its compartments.

Something must have frightened the night intruders, routing them into flight before they had succeeded in completing their work, for they left many traces behind: a handkerchief bespattered with dirt and ashes; drops of blood at the safe, apparently from excoriations on the hands; and scraps of newspapers of the preceding day. There were no tracks to be found in the garden. The Police Commissioner and a detective summoned by the professor, nodded their heads approvingly, inspected and examined everything, put what was of interest into their brief-cases, and left, to return shortly with a police dog. The hound jumped out through the window, leading his guides towards the stone wall, in which they found a large hole covered up with bushes. From there he led them into the garden and then into one of the crowded streets of Berlin. In a word, everything turned out to be just as it always happens in similar cases, but Flinder could not overcome the grief and excitement, even when the agents of the Police Department assured him that everything, so far, was progressing in their favor.

Having examined the remaining papers and documents, he discovered the absence of several which contained rough outlines of his recent work. Others embodied data which he kept secret, and which served him as connecting links for his future work.

He knew with certainty who stood behind this affair. It was quite clear that it was directed by one who knew his business thoroughly. For the past few years in Nancy, France, they were conducting experiments similar to his own. The little, dry, old man with that penetrating look in his deep-set eyes, gray tuft of hair on his forehead and sharp beard, whose photographs Flinder was examining with curiosity and animosity, in the *"L'Illustration,"* directed this work and was stretching his avid and tenacious fingers in his direction. These two rivals had never met in their life, yet they hated each other with all the depth of feeling, of which each was capable in his own way.

Which of the two would be the first to harness this power and direct it by his own will, depended, to a great degree on the issue of the silent struggle between two nations, that struggle which, in fact has not ceased for a single moment, even after the cannon had ceased to roar and human flesh had ceased to be shot to pieces.

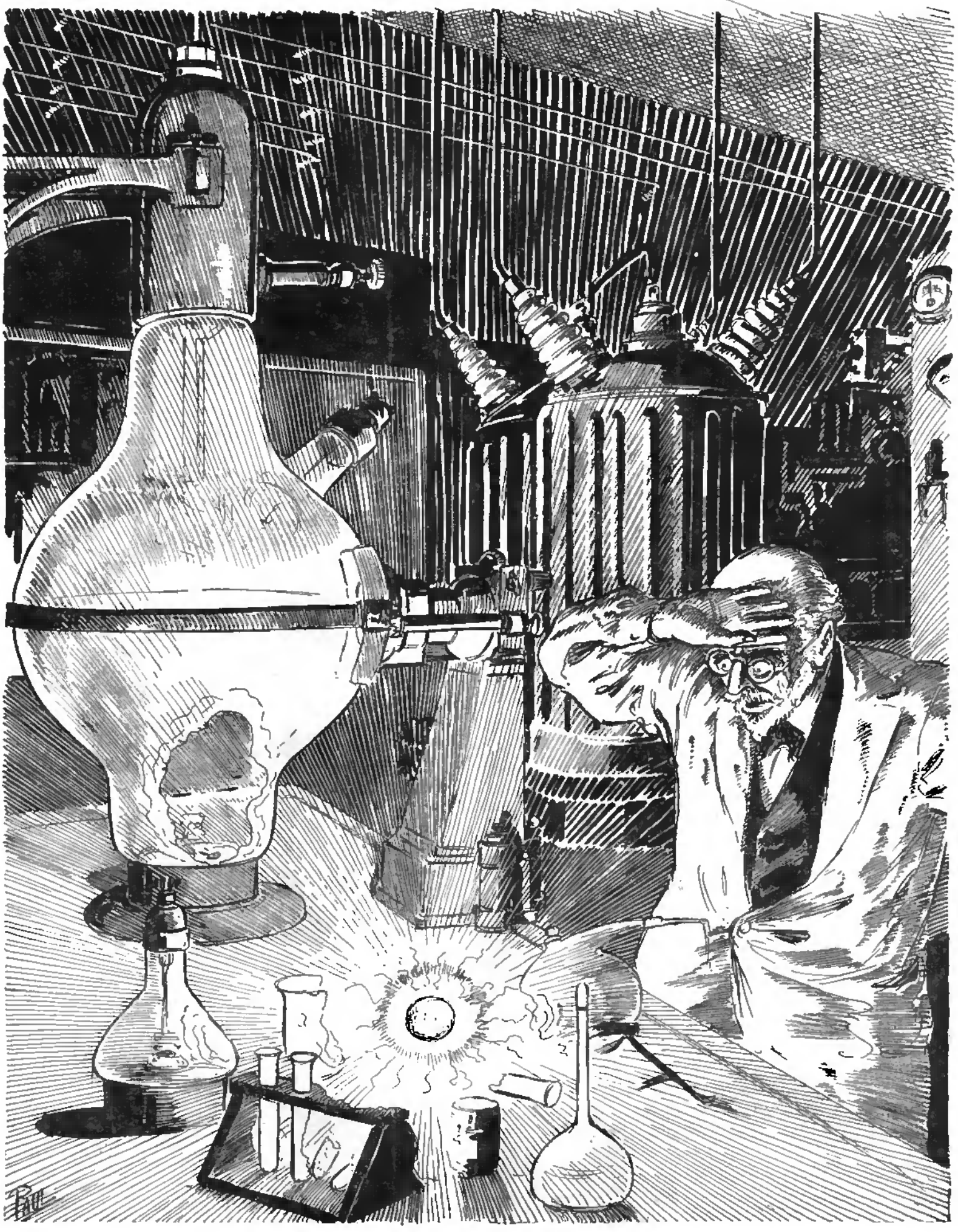
In to-day's conflict, his opponent had the upper hand, a circumstance sufficient to spoil his best mood.

In addition, there was another unpleasant feature connected with this affair. Danger threatened from another side. For the past two years, a young Russian engineer commissioned here by Russia, had worked as a scientific collaborator in Flinder's laboratory, commissioned by this amazing country, where only recently they had been feeding on human flesh and where people were dropping dead from hunger on the streets of the cities. This same country is now interested in electrification, in breaking up the atom, in the study of the nerve system and what not—which lines of work, according to Flinder, were not at all suited to savages and

THE present story comes to us from Russia and it is an extremely absorbing narrative based on excellent science. For the past decade, scientists predicted that if man ever harnessed atomic energy, things would probably begin to happen. They pointed out that the key to atomic energy was like the fulminate cap of a charge of dynamite. Dynamite is harmless and can be handled and sawed without danger. It requires the explosion of the little detonating fuse to set it off.

Scientists in the past have pointed out that if we discovered the key to atomic energy, we might very likely blow up the earth itself. A later school of scientists, however, disclaimed this entirely and they maintain that there is no such danger.

In any event, the present story is based on sound science and it makes exciting and interesting reading.



The red-hot tube burst with a whir; the fragments of glass scattered all over the floor; a cloud of steam rose with a buzz from under the fiery ball, while the ball, agitated and rocked, moved aside and perched upon the marble table, slightly quivering, as if the scant power it contained, was pulsating.

cannibals. At first, Deriugin, the Russian collaborator, displayed no qualities entitling him to any greater consideration than that given to his fellow-workers. In fact, he appeared rather to be possessed of a dull mind, or, at least, a mind not likely to lead him to the fore in this particular field. He worked along the lines of chemistry and radioactivity and, although this was in close contact with the research work of the professor, it never provoked any alarm in the latter's mind.

Of late, however, it began to dawn upon Flinder that Deriugin knew more than he was willing to show; in fact, more than he was supposed to know. This, of course, was impossible to ascertain with any definiteness; nevertheless, after carefully observing the nature of some of his experiments not directly connected with his work, the professor began to divine the curious mind, persistent and bold, which was striving to fathom the great mystery. The glitter, which this somewhat round-shouldered man could not always extinguish, and which continued to glow in the depth of his eyes at lectures or during the hours of practice, whenever the subject of the breaking up of the atom came up, filled Flinder with discomfort and alarm.

Perhaps, there was more danger in this young man than in the little old man from Nancy. Something was happening right here, under his very eyes. And the thought of ridding himself of the uncomfortable collaborator began to occupy the professor's mind.

Eitel, the professor's son, who was serving as a volunteer in the cavalry division of the Reichswehr, detested Deriugin with all the passion of his heavy and sad hatred. He had been telling his father, that if he were in his father's place, he would have sent this "Moscow spy" to all the devils, or, at least, he would keep him from the laboratory at a distance of a cannon shot. Flinder was beginning to agree with his son's contentions, now. But, after all, one must have some plausible excuse.

And all this is hardly calculated to serve as a cure for depressed spirits, not to mention the fact that the newspapers had been offering food for the most somber reflections every day. Those fellows beyond the Rhine, lost all control over themselves; they permitted themselves to go to the very limit. They continued to slap the back of the vanquished adversary, until it made Flinder clutch his fists and gasp for breath.

"Well, so be it," he thought. "He laughs best, who laughs last—and this is their own adage. We shall see who will do the laughing. Flinder will give to Germany, that mighty, indomitable power, which he feels will soon flow in powerful torrents into his laboratory. We shall see! Yes, we shall see!"

Flinder pushed his unfinished cigar into the ash-tray with such disgust and anger, that a heap of ashes scattered over the table, and he left the room.

IT was dinner time, a meal which was observed with great precision in his home. At the window, drumming with his fingers on the glass, stood a tall young man in military uniform.

"Hello, father!" said the young man as he greeted his parent. "I met your red-headed Moscovy idiot again. When are you going to get rid of him? I just can't look at him without disgust. He invariably spoils my temper, this Asiatic . . ."

The professor silently shrugged his shoulders.

At the table, Eitel began telling his father, who was listening very absent-mindedly, about his service, about the horses at the squadron-stables and about his fellow-soldiers, and he spoke with high esteem of his Colonel.

"By the way, he spoke of you with great respect; he said that Germany is much indebted to you and is expecting still more from you."

The professor smiled. Queer though it was, yet it was pleasant to hear such recognition of his merits from the lips of a Hussar Colonel.

"But, what I was going to ask you, father," he continued, "is to give me a general outline of your latest work. It seems to me that every Tom, Dick and Harry in our Casino knows more about it than I do."

Flinder smiled again.

"I think you are right, my son. I shall do my best to enlighten you. . . . Do you realize that man's greatest problem on Earth is the struggle for energy, which he draws from nature in manifold forms?"

The Hussar shook his head.

"Each new explosive, each newly constructed machine, is a new, more convenient, cheaper, or more expedient method of pumping out new energy from the earth—that energy which moves our ships and trains, works our factories and mills, carries in the air our airplanes, drives our dirigibles, and hurls our projectiles over ranges of scores of miles. But the supply of the Earth's coal is constantly diminishing; besides they have taken our coal away from us; nor have we oil. . . . At the same time inexhaustible sources of energy are scattered all about us in abundance."

"Where are they?"

"Everywhere; in this piece of iron lying on the table; in the puddles of filthy water in the streets; in the road-dust beneath our feet—wherever you turn your eyes."

"I do not understand."

"Well—do you know what an atom is?"

Eitel smiled.

"I have heard something about it. I think it is something very small."

"That's right," said the professor with an involuntary smile, "and in those infinitesimally small bricks, of which all bodies of the universe are made, all those colossal supplies of energy are stored. Atoms consist of concentrated, condensed electricity. They resemble an endless mass of miniature, tightly coiled springs, or, better still, little charges of powerful explosive matter. And when we learn to release the detent of those springs, to explode those charges and to control them and their energy, we will usher in a new era in the history of mankind; we shall enlist in our work the dormant power that lies about us; we shall flood the world with cheap and inexhaustible energy; we shall free mankind from the curse of unequal and strength-sapping toil; we shall direct it into new channels; we . . ."

"We shall first feed up our war weapons with that new power and dictate our terms to Paris and Lon-

don . . ." interrupted Eitel, standing in the center of the room, with glittering eyes, threatening with his fists some region in space.

II

FLINDER turned on the current and shut the door of the laboratory behind him. A flood of light illumined the familiar picture, at once arresting one's attention with the serenity and peacefulness of a working atmosphere. Wires in rigid lines stretched all over the walls; porcelain insulators, like ivory fingers, protruded here and there and between them; on the tables and shelves sparkled glass utensils; brass parts of the apparatus glittered in yellow reflections; a marble switch board with its appliances and colored lamps, added a cold, yet solemn appearance to the spacious room.

Upon a large marble-top table, at the rear wall, stood a mechanical appliance, from which the work was to start. Flinder stopped before it with a feeling of inward satisfaction and throbbing expectation. Everything he saw before him was the reflection and incarnation of his thoughts. Each lever, each screw, each contact of the wires—everything to the minutest detail —was carefully considered, weighed and computed. This new apparatus was entirely his brain-child. To the ordinary method of breaking-up of atoms, by means of bombarding them with grains of helium, that are discharged by radioactive matter, he added the action of the electromagnetic field of high tension. This enhanced the speed of flight and the power of explosion of the miniature charges. And to-day he intended to test the influence of some admixtures upon activated nitrogen, admixtures that are dissolved in the tube with gas and represent minutest molecules.

He examined carefully the scheme of arrangement of the appliances and focused the microscope over the fluorescene stage over which the explosions were to register the path of the fragments of the atoms, and turned on the switch. A deep, heavy buzz of the transformer filled the room, as if a giant drone from out the wilderness of the night, beat his wings and whizzed upon the window-sill, shaking the concrete walls with his blows.

The professor turned off the light and looked into the microscope. There was the usual scene: like falling stars on a calm August night, flashes of racing atoms glimmered in the dark field, left and right, in the direction of the current; paths of light intersected the field of sight, crossing in places, indicating colliding, extinguishing and flashing up again, and strange seemed the silence in which this fiery rain was pouring down. Then, turning a small stop-cock, Flinder admitted into the tube of the apparatus a tiny cloud of dust, which was to serve as a stimulator and augmenter of the process. And at once the picture in the dark field changed. Into the pattern of fiery lines, broke in a volley of rays, scattering themselves in all directions like explosions of miniature charges. These were no longer integral; the atoms were being scattered into tens and hundreds of fragments by the force of the bombardment. Microscopic worlds were being destroyed, silently rumbled the catastrophies, one after another splashing flashes of rays followed one another.

And now dead silence reigned as before, broken only by the monotonous humming of the transformer.

Flinder almost doubted his own eyes. This meant, that the problem was solved at last. The key to the mysterious treasure was found; an unparalleled victory was won.

Impotently and slowly he dropped into his armchair, in a sense shocked by the achievement. After ten years of persistent work, he had apparently reached his goal. It was difficult for him to realize it all at once. He sat steeped in a confused state of semi-forgetfulness and semi-delirium.

The door clicked; apparently, Hinez, one of the assistants, finished his work and left. Flinder did not notice him. He remained under the influence of the excitement that possessed him, trying to visualize the dizzy perspectives that were being opened to mankind. An insignificant dot of matter will yield enough energy to drive ocean liners, and ponderous trains, for many hours. Millions of millions of horse-power! The end of the struggle for energy! We are the masters of energy!

Thus, for about a half an hour Flinder remained in his semi-dreaming state, which completely enthralled his mind. When he finally bent over the eyeglass of the microscope again, that which he saw there was so unexpected, that he uttered a cry.

He no longer saw the separate fiery lines or the volleys of rays; but the whole circle was enveloped in a raging sea of fire; flaming vortices circled and danced right and left and all along the current stream. Flinder instinctively grabbed hold of the current control lever and shut off the power. The transformers stopped and the dead silence that hovered in the room, filled his heart with a longing premonition.

The scene under the microscope had changed very little. The fiery sea continued its rage, but no longer in one direction: The whirls rotated, collided and scattered in all directions in utter chaos. Flinder stretched out his hand to the switch and lighted up the laboratory. Everything stood in its place: the apparatus, the retorts, the flasks and the insulators with their ivory fingers, and the switches stuck out from the walls and ceiling; the windows were darkened by night shadows and at the right stood a bright, reddish star, apparently, Arcturus. Everything about was simple, familiar and comprehensible.

What was it, then, that had frightened him so? The foolish play of his high-strung nerves. Simply, looking down upon this phenomenon, still new to him, he recalled Deriugin's recent phrase, in the words of Aston: "The research work into the inner-atomic energy, is like playing with fire on top of a barrel of gun-powder." And it appeared to him, that this very minute the force he himself had just freed, would crush into fragments the laboratory and everything about it. What nonsense! Here he has stopped the work of the apparatus and nothing at all happened. Apparently, the process, once begun, continues by itself. So far, so good! The only question to be de-

cided on now is, how to utilize this new energy without wasting it without purpose?

He now examined the microscope. Under the object-glass gleamed a bright dot, discernible with the naked eye. Bending over closer, he convinced himself, to his great surprise, that the glass tube had melted away and the tiny pale-blue star quivered without the apparatus, at the brass mounting. An unpleasant chill again ran up his spine.

Mechanically he extended his hand to the glittering object, but withdrew it immediately; his fingers were burned as by a red-hot iron and his body was rocked as by a heavy blow.

And it suddenly appeared to him that the glittering dot was growing in size before his very eyes; that it was not a dot any more; that it had become a smal ball, the size of a pea. He wiped his eyes and looked up again; he felt the hair on his head rising and his forehead was covered with cold perspiration.

No longer responsible for his actions, Flinder grabbed a glass of water from the table and splashed it under the microscope. The red-hot tube burst with a whir; the fragments of glass scattered all over the floor; a cloud of steam rose with a buzz from under the fiery ball, while the ball, agitated and rocked, moved aside and perched upon the marble table, slightly quivering, as if the scant powef it contained, was pulsating.

It was quite clear now that it was growing from minute to minute, slowly but surely. Flinder suddenly became conscious of the fact that his lower jaw was jumping and the teeth were chattering. He stood motionless, his hands clutching the table, his face pale as death and his eyes widely bulged. Everything was clear now.

This was a catastrophe, the kind our Earth had not yet experienced. The breaking up of the atom, which he had caused in the minute volume of gas, had been so energetic, and the fragments were scattered with such force and rapidity, that, when colliding with the neighboring molecules, they, in turn, broke their constituent atoms, and now the process was spreading unchecked from one place to the other, liberating the dormant power and releasing light, heat and electric radiation.

He had set free the spark which was to cause a world conflagration! And there was nothing in all the world that could avert the destruction that was to follow. Nothing! Nothing! Certainly, we are powerless to exert any influence upon the process within those microcosms not yet known to us. None, whatever! And the world was not yet aware of anything; it did not dream that here, in the quiet of the laboratory, a catastrophe had taken place—that would ultimately reduce this globe into cosmic dust. Everybody was oblivious of the impending danger! They slept, walked, ate, worked, laughed and were occupied with a million trifling matters! Yet the shadow of death had swept over our Earth. . . .

And this he, Conrad Flinder had done; Conrad Flinder, the gray-bearded old man, to whose health the Hussar Colonel drank last night. He suddenly began to laugh, ever louder and louder, his teeth chattering, his lower jaw jumping up and down, as if it were suspended on a rubber string. He thrust himself at the door forcing it open, and rushed out in dishevelled condition. Running along the garden tracks, he rebounded from the trees, fell, rose and ran on toward the house, ceaselessly laughing. . . .

III

IN bold-type captions appeared the news of Professor Flinder's suicide in the morning newspapers. The newsboys announced this with piercing and shrieking voices, and waving their sheets, they tucked them under the arms of the passers-by. Deriugin had found out about the dreadful occurrence, while on his way to work. Flinder! Cool-headed, stone-calm Flinder, resembling a machine rather than a man!

The news stunned the engineer. He sensed in it an event more significant than could be deduced from the newspapers accounts, which ascribed the incident to a sudden attack of mental alienation. This, they deduced from the note left by the professor and from the unintelligible phrases written therein, which, in all probability, bore witness to the chaos of his last thoughts. "General destruction! . . . World conflagration! . . . Aston was right . . . I did it . . . It grows larger each second . . ." While this was merely a string of words, the incoherent phrases produced an overwhelming impression upon Deriugin. He was shaken with fear. In these words he read of an incredible and absurd menace, which suddenly appeared to him as a possibility. He quickened his pace, jostling his way through the human tide, toward the Institute where, at the very entrance to the laboratory, he met Hinez, the assistant.

"What happened?" he inquired of the assistant who stood before the locked door. The latter shrugged his shoulders.

"I know as much as you do, colleague. At any rate, this is a colossal loss to Germany—it is almost irreplaceable."

"A dreadful occurrence, indeed," returned the Russian, "but I am afraid that this is not the end of it. . . ."

"What do you mean to say?"

"It seems to me that something has happened in the laboratory. Have you any idea, colleague, what special work the professor was doing there yesterday?"

Hinez suspiciously looked up at the speaker and replied reluctantly:

"I believe he was making preparations to test the newly installed apparatus, which was to accelerate the breaking up of the atoms of several gases. . . ."

"Listen, Hinez," exclaimed Deriugin, his voice ringing with excitement, "I understand that my words seem strange to you, perhaps brazen, but the situation is too serious for us to fret about formalities. I have been watching the work of the professor for a long time and was very much interested in it. But now, I repeat, I am afraid that some mishap has occurred there."

Hinez silently shrugged his shoulders, yet, he too felt that he was becoming affected by an incomprehensible alarm.

They unlocked the door of the laboratory. In the assistant's room, a servant with a long iron rod, on one end of which a rag was tied, was cleaning the room. The servant welcomed the entering pair with a curt: *Guten Tag*. The two whisked through the room directly into the laboratory of the professor.

Hinez led the way. On the threshold of the large room he halted unwillingly and covered his eyes with his hand, blinded by the unexpected light. Behind him stood Deriugin; silent and pale as a ghost, he was contemplating the picture that lay before their eyes. Upon a large marble table, where the new adjustments were gathered, shone, with unbearable brightness, a fiery sphere the size of a man's head. It quivered, as if it pulsated. Upon its dazzling background, bluish veins crossed themselves and everything about it was covered with a bluish mist. At the place where the sphere had touched the surface of the table, a light sizzling and crackling was heard. The room was hot and suffocating, as it is before a big storm, and a sharp smell of ozone assailed the nostrils.

Hinez and Deriugin stood like a pair of statues, not daring to move from their places nor to remove their eyes from the strange phenomenon.

"Herr Hinez," exclaimed the surprised servant, who had followed them into the laboratory, "something is burning there!"

And before either of them had a chance to stop him, he ran over to the table and drove the end of his iron rod into the face of the fiery sphere.

A dry, loud crack followed. A dazzling spark, resembling a short lightning, flashed out at the end of the rod and the old man dropped backwards, spreading his hands and knocking his head against the hard floor. His body twisted up in spasms and remained motionless. All this took place, it seemed, within the twinkle of an eye. When Hinez rushed over to the old man, bending over him and trying to raise him up, he no longer breathed.

"Dead!" confusedly announced the assistant, retreating unwillingly and turning back his head to his colleague. Deriugin, standing at the door, repeated mechanically one and the same phrase:

"I knew it. . . ! I knew it. . . !"

About ten minutes passed before the visitors regained a little of their composure. They carried out the body of the old man into the assistant's room, and tried every means to revive him, but all their attempts failed; the unfortunate man was dead.

"What is this anyhow?" demanded Hinez, at last, when he realized the futility of their efforts.

"This," repeated Deriugin, and the sound of his voice resembled the burst of thunder before a rainstorm, "this is a mutiny of the atoms, revolting against the man who dared to disturb them. . . ."

"You mean to say, that . . ." began Hinez with uncertainty.

"I believe," interrupted Deriugin harshly, "that the destruction of matter has begun and, in all probability, nothing in the whole world will be able to check it. This old man is the first victim of the millions that are to follow."

"But, why do you speak about a catastrophe, colleague? And even if what you expect to happen, does happen, it will not pass beyond the bounds of the laboratory and can be disposed of right here."

"Disposed of? And this I hear from you, assistant to Professor Flinder? Don't you realize that we are powerless when it comes to the element? Can we, in any way or with any thing influence the work that goes on within the atoms? Can we stop the growth of this fiery vortex?"

"Growth?" this new idea impelled Hinez to withdraw hastily into the main laboratory.

Indeed, this was quite apparent: the flaming sphere, in the last half hour, had increased about a fraction of an inch in diameter. Besides, it was becoming more and more difficult to breathe in the room. The air was all pregnant with electricity. The twinkling of little bluish lights upon all the prominent parts of the apparatus and other appliances, transformed the whole picture into a fairy-scene.

Deriugin and Hinez left the laboratory, shutting the door tightly behind them. Actions and measures to forestall an impending calamity began immediately. Hinez took upon himself the task of informing all the professors of the Institute of the actual prevailing condition; Deriugin, meanwhile, departed to see Eike, a friend of his and the editor of a leading newspaper. To find him was not an easy task. But about one o'clock in the afternoon, he found him in his editorial office. At first Eike was hesitant and undecided about going with him. Professional curiosity finally triumphed however.

They entered a machine that puffed at the street-door entrance, and whisked away in the direction of the Institute. On the Frankfurt Strasse they noticed a pillar of smoke standing almost motionless in the air. Along the streets, hissing, whistling and pealing their bells, hurried the fire-engines. Men in copper helmets, with hatchets in their hands, clung to the sides, like operatic warriors on the stage.

"There must be a fire somewhere," remarked Eike, flaming up again with the curiosity, which is so much part of a newspaper man.

"It's there . . ." insisted Deriugin with growing alarm. "We are late! It's there!"

His premonition did not deceive him. Their noses were soon assailed by a scorching sensation. Opposite the house in which Flinder lived, a large throng of people had assembled. From the garden, now and then, firemen were running to their engines; beyond the iron fence and between the trees, where the laboratory stood, tongues of flames danced and smoke rose and whirled, gradually being carried away into the street which was becoming enveloped in a thick and corrosive cloud.

In this hubbub, Eike immediately lost sight of Deriugin, so he decided to go around the burning house to the windy side to quietly view the scene of fire from there. Suddenly, from the side of the laboratory came loud shrieks from the firemen and the crowds of curious people who had broken into the garden. Eike threw himself in the direction of the shrieks and almost collided with Deriugin, who ran up at demoniacal speed.

"Look out! It has broken out into the open! Look out, Eike!" he shouted, waving everybody away with his hands.

At that moment, a gust of wind wafted a cloud of smoke upon the two, and the editor saw a sphere of fire, about eighteen inches in diameter, quivering and tossing, borne by the wind, directly towards the dumb-founded spectators.

"Save yourselves!" shouted someone in the crowd. "It's ball lightning!"

The crowd of people scattered in all directions. Eike remained on the spot, as if nailed to the ground, but only for a few fleeting seconds. Soon, he too, threw himself aside, as the flaming whirl, flying past and only a few feet away from him, breathed forth its sultry heat and blinded the eyes with its dazzling glitter. As it moved over the sand of the road, thousands of fiery sparks fell from it upon the earth and upon objects it met on its way.

Dazed and stunned, Eike fell down, stumbling over bumps. Lying there, his terror-filled eyes continued to follow the flight of the sphere.

He saw how the trees, with which the fiery sphere collided, caught fire; how a sudden gust of wind flung it upon a group of people that tried to cross its path; how a shower of fiery rays poured down upon them and, without having had a chance to even utter a cry, three of them dropped flat on the ground and remained motionless.

The last thing Eike succeeded in seeing was how the fiery globe reached the iron fence. A loud crackling was heard, as if a shock of lightning had passed between the iron bars and the fiery cloud, and in the next moment the sphere found itself on the outer side of the fence in which yawned a large opening, lined by torn and melted fragments of metal. The streets were filled with wild shoutings, stamping of feet, pealing of bells and loud cracklings.

IV

THE following two days were astonishing days. To some of the people who witnessed the strange events, it was perfectly clear that something unusual was occurring; it seemed clear that beginning with this day, the real agony of the Earth would lead up to imminent destruction. Yet, they did not seem to have made up their minds to speak about it in the open. Such a supposition seemed entirely too wild and absurd. Although in Eike's newspaper, on the day following the event, there appeared an article which quite carefully explained the significance of the events, the edition was immediately suppressed by order of the authorities, who found in the news nothing but a common newspaper-bait, capable of creating a panic and of causing an undesirable commotion. Those few, who succeeded in getting copies, simply shrugged their shoulders in wonderment; how could a respectable newspaper lower itself by running after cheap sensationalism?

On the other hand, there were other eye-witnesses and victims of the destruction caused by the flight of the fiery globe through the streets of Berlin. But their number was too small to be reckoned with—ten or fifteen souls altogether. The fires that occurred in several parts of the city were rapidly extinguished. Besides, upon reaching the eastern outskirts of the city, the sphere disappeared in the direction of Furstenwalde.

Nothing at all was heard about it for two days. It did not in the least resemble an elementary catastrophe. In a word, no one seemed to think the event either serious or significant.

Hinez, however, did not rest; like a poisoned beast he ran from one City Office to the other; he rushed to the Council of professors, to editorial offices, everywhere insisting, demanding, himself not knowing what. Nobody wanted to listen to him; they shrugged their shoulders and smiled in his face. Two—three professors of the Institute, indeed, shared his alarm and were certain that the affair was not yet finished. But not one was willing to stake his reputation or risk falling into a ridiculous position, if the whole affair should perchance turn out to be a false alarm.

Deriugin did not show himself anywhere. He had apparently forgotten about the dreadful occurrence, while he worked continuously and feverishly over some research work in the laboratory of the Institute. He hadn't even shown up at the professor's funeral, at which all the flower of the scientific world of Berlin and Germany had gathered. So completely absorbed was he in his work.

For all that, Eitel had played a conspicuous part on that day, and strange it was to see his bright uniform in the background of black frocks of the professors and their colleagues. Here, for the first time, since that significant day, young Flinder met Hinez, now an absent-minded, ill and irresponsible person.

Eitel could not, for some time, explain to himself the meaning of the fantastic tales the young engineer had been telling him.

"You mean to say, that the air is burning over there?" he queried, bewildered, wiping his forehead.

"Not burning," nervously replied Hinez, twitching and twisting, as if on springs, "not burning, but destroying itself. Its atoms, broken up and exploded into their infinitesimally small bulkiness by your father, are drifting with their fragments, with such rapidity, that they are gradually destroying the neighboring atoms, thereby freeing the dormant energy that is hidden within them; they, scattered into hundreds of fragments, in their turn destroy new layers of gas, thus, a terrific gangrene is gradually hemming in more and more volumes of ether. . . ."

"Does this presage anything serious?" asked Eitel confusedly.

"This presages a world conflagration!"

"But isn't it possible to stop that wandering sphere, somehow? Extinguish its growing flame, or—whatever you call it?"

"That's just where the fear lies—it is impossible, absolutely impossible, at least, in the present state of science. This process is homogeneous with the phenomenon of radioactivity and upon them we can exert

no influence whatever. They are absolutely beyond our control."

The poor brain of the soldier was tangled hopelessly in the wild perspectives.

Hinez was right. On the same day, Friday evening, the first news was received from the east about the appearance of a large exhibition of ball lightning and, as described by an eyewitness, it moved in a direction towards the Polish border. The phenomenon resembled a fiery ball, five feet in diameter; it flew slowly with the wind, close to the ground. At night it emitted a dazzling bright radiance; in the daytime, it seemed like an incandescent flaming cloud. The nature of the strange appearance, doubtless, was electrical. Upon its approach, the work of the telephone and telegraph stations ceased completely; in places of weak insulation and upon the apparatus, sparks poured down in shower-like fashion; compass needles turned in all directions, as in time of severe magnetic storms.

In general, it was very difficult to pass any judgment upon the details, but from the information thus far received, it was deducible that a danger of an unknown nature was actually threatening. The path of the sphere's movement was a streak of growing destruction. Fields and meadows stretched in wide burned-down ribbons; wherever it encountered forests, fires flashed up and long red flames rose high into the sky. Several villages were completely wiped out.

To keep silent and conceal the truth was impossible. The Sunday newspapers were filled with alarming dispatches, articles and questions addressed to the scientific societies and individual specialists working in the fields of electro-chemistry and radioactivity.

Despite the fact that it was a holiday, a special meeting of all the professors of the Institute was called, and the most prominent representatives of scientific thought, that were in Berlin at that time, were also invited. Amongst them was Hinez—tired, emaciated and apparently grown older by many years. Deriugin, who had been working on some questions, on the solution of which now depended the fate of mankind, perhaps, was there also. The thought was wild and absurd; it sounded like a fairy-tale; yet, despite it, the chairman, opening the meeting, introduced that first. Never before had the walls of this meeting hall, within which a majestic spirit of sober discussions and cold understanding, always reigned, heard similar orations. The fantasy and the fairy-tale combined with reality; mathematic formulae and apocalyptic predictions were all blended into a strange chaos. But the most terrible thing of all was, that the meeting at once declared its complete incompetence for solving the problems they were confronted with. Man was impotent. The spirit he provoked turned against him and threatened complete annihilation. The meeting suddenly became pervaded with inexplicable alarm, and with a painful feeling of hopelessness; there seemed to be no way out of it.

Then Deriugin asked for the floor, and briefly summed up the situation on hand:

"The process is enlarging and growing. To wait till the obstinate work of the brain or a fortunate chance or accident will disclose to us a method or a means to stop it—is unthinkable. We must do now, at least, whatever is possible; we must check the further movements of the sphere—arrest it. . . ."

The hall reverberated with exclamations of wonderment, almost indignation, on the part of the assembled scientists. Some delegates openly declared that they had not come there to listen to the hollow prattle of dilettanti.

Deriugin, having waited till the noise subsided, asked that he be heard carefully till the end. And concentrated attention, a few minutes later, was the answer to his speech.

His project had the following salient points: to adjust upon a huge caterpillar-tractor, moving at a speed of 40 kilometers an hour, a powerful dynamo, fed by electric motors of several thousand horse-power. Its current should pass through the armature of the electro-magnet, thereby supplying the latter with colossal force. Four—five such colossal magnetos, in Deriugin's opinion, would suffice to cause the sphere to move against a moderately blowing wind to reach the magnet poles.

Of course, the execution of the project demanded a colossal effort and a large sum of money. Germany was not the only country where precautions were necessary. It was of paramount importance to organize a system of construction of electro-magnets in several points on the continent, because it was impossible to foretell whither the tide would toss the strange enemy in the near future. Besides, the work would have to be completed in the shortest possible time; else it might be too late. The operations seemed very difficult, indeed—almost beyond possibility of fulfilment—but upon them rested the fate of mankind. It was absolutely necessary to try.

All this was so evident, that it did not provoke any disputes or discussions. After a brief exchange of opinions, it was decided to appoint a commission to work out every detail of the project proposed by Deriugin.

In addition to that, the assembly decided to bring the case before the people and appeal to the government to immediately appropriate an adequate sum of money in order to carry out the work. Similar appeals were addressed to all the scientific societies and to the governments of the other countries, urging them to join in the common cause.

V

THREE weeks had passed. Old Europe was crumbling on every step. From one end to the other, by the will of the wind, hovered the flaming sphere, increasing steadily in size and sweeping away everything that was alive. Cities and villages were burning, forests were aflame, day and night enshrouded the sky with curling clouds and asphyxiating smoke. Meadows and fields in ever greater strips were becoming reduced into carbonized deserts, stretching in winding ribbons over the map of terror-stricken Europe.

Crossing the Polish border, the flaming sphere on the same day reached Torna and, passing over the fortress, it destroyed two forts, several batteries and

some large powder-depots. The city proper, remained on the safe side of the moving atomic whirl, but it suffered much from the explosions in the forts; the number of dead and wounded reached several hundreds.

The news of the Torna catastrophe reached Warsaw Saturday evening.

Sunday morning an enraged mob broke into the building of the German Consul General and ransacked it, due to a rumor that had passed amongst the people, that "the Germans were at the bottom of everything," and that the approaching disaster was intentionally precipitated upon Poland by Germany. In the churches, the bells were ringing and the Miserere was solemnly being sung; people were imploring the Lord to rid them of the elemental disaster. An endless procession, with cross and banners, wound through the streets, and the blue smoke of the censers rose high into the bright sky. East of Warsaw a chain of batteries stood ready to meet, at midnight, the unwelcome enemy with the thunder of their metallic mouths. This was the mobilization of religion and science; heavenly and earthly army.

At two in the afternoon, the enemy appeared. Enveloped in a halo of smoke, the flaming sphere moved along the shore of the Vistula, setting the forests of Belian and Mlotzin on fire. The chain of batteries, lined up in front of the fortress, was broken up in twenty minutes, the arsenal was blown to pieces and ten minutes later the sphere burst into the streets of the city. The bells were silenced, the procession was dispersed in panic, fright and horror. Cries of despair, the hissing of the flames, the crackling of breaking glass and the roar of falling walls signified the course of flight of the atomic vortex. A quarter of an hour later, having laid waste the New World and Lazenki, it disappeared in the direction of Mokotow; behind it the vast city roared and sighed in smoke and flame.

The burning of Warsaw served as an impetus to force the other nations to join the movement sponsored by Germany. Fervidly interested became the world's greatest scientists, such as Rutherford, Bohr, Aston and many others. Laboratories worked day and night; lathes and machines roared full-throatedly in the ironworks; metal grated against metal and one after another there appeared upon the Earth iron and brass giants that were to combat the inexorable foe.

Toward the end of the week, Deriugin was commissioned to Paris to set aside all the difficulties that impeded the work in the Creusot ironworks. From there he was supposed to go to Genoa, where the works of Italy were concentrated. The flaming sphere, meanwhile, continued its course over Europe, leaving in its wake fires, devastation and thousands of victims. Passing Warsaw, it set fire to Kovel and then disappeared for some time in the marshes of Poliesie. Thence it moved southward, flying between Kiev and Zhitomir and wiping Ouman completely off the map, it descended over the river Boog, then brushing by the eastern outskirts of Nikolaev, it wended its course over the Black Sea.

The destruction caused by it began to assume actual cosmic dimensions. Aside from the fires and victims, now it bore with it new calamities. Dreadful thunderstorms and hurricanes of unusual proportions—similar to tropical showers—were descending from the atmosphere which was pregnant with vapors from the rivers, lakes and seas, caused by the immense heat that had been radiating from the destroying globe.

Passing through the Balkan Peninsula and inflicting great damage and suffering on Belgrade, the fiery vortex, by way of Tyrol and Baxaria, entered France, and devastating the north-eastern corner, disappeared into the ocean. At this point, between Cologne and Paris, it was met by Eitel Flinder.

The turbulent days, after the death of his father, bore heavily upon the young man. He was completely lost in the chaos of strange occurrences. Ever since the time he had spoken to Hinez, after his father's funeral, he found it impossible to collect his thoughts, or direct them along proper and sound channels. The strips of fires and ruin that had swept over Europe seemed to have cut deep crosses into his breast. He could not, under any circumstances, reconcile himself to the fact that his father was the cause of the disaster now ravaging all Europe. Besides, his old hatred for Deriugin, about whom he continued to hear and read daily, had not ceased for a single moment. And despite the fact that he could not himself explain on what this strange feeling toward the young Russian was being fed, yet, in his utter ignorance, he did not notice how that feeling of reasonless malice was gradually changing into the blind conviction that, it was the Moscovite, who was the cause of his father's death, as well as of the dreadful nightmares that continued to ravage all of Europe for the last three weeks. Though the thought was wild, without any foundation, still it continued to torment the weak mind of the young Hussar. He felt certain that all misfortunes emanated from Moscow, for, while the fiery sphere had only grazed a small part of the Russian territory, it had played great havoc everywhere else in Europe. And without giving due consideration to his actions, Eitel turned about face to Paris, right on the heels of his detested foe.

VI

DERIUGIN was no longer in Paris. Though hot on his trail, Eitel did not follow him immediately to Italy. In these days of frightful nightmares, it was not easy to travel from one country to another. All depots were beleaguered by enormous crowds of people. Bloody encounters were fought in order to get into a railroad car. The immense city was in hot delirium. Eitel observed with timid curiosity the panic which possessed the human ant-hill and it found a live response in his own heart. And what he saw redoubled his hatred for the supposed author of the unprecedented catastrophe. Paris was dying before his eyes.

All this occurred two days before Eitel's arrival in Paris. As soon as the news about the appearance of the atomic vortex in the Vosges and about its movements westward were received, an unprecedented confusion broke out on the Bourse. The most solid values

tumbled with amazing speed. In the next twenty-four hours, several of the largest concerns in the country were forced to discontinue payments. Hordes of people hastened to withdraw their money from the banks. In a word, it was an ordinary financial panic multiplied several times by ten.

A human sea inundated the streets and squares of the city and splashed out there all its hatred, malice and fear that was kept locked within the stony boxes—their houses. Here and there, amid the living tempestuous stream, gonfalone fluctuated and statues of saints and of the Madonna vascilated on their litters in the processions that implored Heaven to deliver them from the impending disaster. Improvised choruses alternated, church bells pealed and women shrieked.

On the day of Eitel's arrival in Paris there appeared in *"Figaro"* an article which played the rôle of a barrel of gasoline poured upon an incipient fire. One of the most renowned authorities in the field of radioactivity was summing up the course of events and reached the following definite conclusion: that the earth was coming to an end, that man is in no position to arrest the breaking up of the atoms within the atomic vortex, that by now the speed of its growth has been constantly progressing, that it is expected in the near future to reach colossal dimensions and velocity, precluding almost an immediate cataclysm. This is imminent and seemed only a question of time. Any struggle with the enemy was fruitless and ridiculous. Civilization has fulfilled its mission, reached its culminating point of development and must leave the stage. . . .

As an aftermath of the article, it appeared as if some sluices have opened in the gigantic city as well as in the hearts of the people. Prayers and anathemas, wailing and sighing, licentious songs and gospels of priests were intermingled and rolled into one. Throngs of insensates appeared in the streets. Some raised their hands to heaven in mute prayer, others openly gave vent to wild profligacies. One great financier and millionaire, now the possessor of only worthless securities, appeared on the balcony of his palatial residence and gazing down upon the maddening crowds, he began to tear into shreds, notes and paper currency worth hundreds of thousands of dollars, shouting in wild frenzy:

"Our earth is coming to an end! It's the end of the world!"

The wild scenes completely possessed Eitel's mind. He was certain now that he was summoned from above to save the Earth from the impending destruction and, the only way to accomplish this, was to wipe off from the face of the Earth that person who, in his opinion, was the embodiment of all the dreadful occurrences.

When the atomic vortex flew past Paris without causing any damage, the first wave of refugees that sought salvation outside the walls of Paris, surged back into the city. Eitel dashed off for Genoa. Despite the fact that at that moment the city was not in immediate danger, young Flinder found in it almost the same picture as in Paris.

In the city full of commotion and beset with despair, there was a little island against which live waves dashed themselves to pieces. Here, day and night, in fire and heat of the melting furnaces, and amid the clank and din of machines, thousands of people worked, like the children of Vulcan in the blacksmith shops of hell. The world could rage with madness, as it saw fit, but here they forged implements for the struggle for its existence, while there still was a drop of hope left.

At the time of Deriugin's arrival, three powerful engines were completed, while another five were still in work. Every day, from early morning, leaving behind him the filthy and narrow streets of the noisy city, the engineer would enter the smoky kingdom of iron and steel, whence it was destined to launch at the needed moment the iron giants, wherever the enemy was expected.

It was here that young Flinder had found him, after an untiring chase. Deriugin was in the yard of the gigantic plant which produced yesterday a new electromagnet which was to be tested this day. At first the engines were tested. The groaning of their oppressive weights shook up the machines with a heavy tremor, so that the earth began to shake under them. Several mechanics, together with Deriugin, walked around the iron monsters, observing their rhythm, breath and the workings of each and every part of them.

The chief engineer, a tall, slim Italian, pointed out some inaccuracies in the refrigerator; a group of mechanics stopped to watch a tiny stream of gas that had been leaking out from somewhere. Deriugin stepped aside, writing something into his notebook, when suddenly, in the rear of the dark passageway of the interior building, appeared the figure of a man who stopped bewildered in the center of the yard, apparently stunned by the clanking and noise that filled the air from all sides. The visitor's face seemed familiar to Deriugin, but, for the moment, he could not recollect where he had met these restlessly seeking eyes, the protuberant forehead and hard-compressed lips.

Something strange, impetuous and alarming was in the stranger's pose, and Deriugin was about to inquire how and wherefore he had come here, when their eyes suddenly met. Within a trice, Deriugin's memory conjured up the forgotten image for him, and within the same trice the intruder's eyes became inflamed with such rabid hatred, that the engineer unwillingly retreated. Eitel's right hand dropped into his pocket and within a twinkle of an eye, Deriugin saw before himself the dark gap of the pistol's bore.

Not realizing what it was all about, he uttered a cry and dashed off to the side of the ponderous engine. A shot rent the air, followed by another. Deriugin felt a burning sensation on his left shoulder. He turned around. Eitel stood a few feet away from him, aiming at close range for a new shot. From the cabin of the electromagnet a frightened face was peering out. At the refrigerator, the mechanics had gathered into a group, not knowing what to do.

In this very brief moment, there flashed through Deriugin's mind a bright thought. He made a sprint to the side of the magnet and shouted to the mechanic:

"Enrico, turn on the current!"

Another shot rent the air. Deriugin dropped to the

ground. In the next moment something very astonishing had occurred: the pistol, torn out from Eitel's hand by the great power of the magnet, flew up into the air the dozen feet that separated it from the magnet, struck with all its might against the frame and remained there, as if held up by an unseen hand.

Confounded, Flinder remained standing unmoved, gazing about himself with frenzied eyes. When the people ran up to him and grasped him by the arm, he did not try to resist, but followed silently after them. Turning back his head, from time to time, he looked up bewilderingly at his weapon, which hung upon the strange monster as though it were glued down to it.

Several people ran up to Deriugin and busied themselves about him. Happily, his wounds, one in the shoulder, the other in the left leg, were not dangerous; at any rate, the bone was not touched. He was carried into the central building.

"Well, well, Signor Deriugin, I am happy to congratulate you!" said the chief engineer, after he was bandaged. "You certainly had a lucky escape. Had you not torn the pistol from the fiend's hand with the aid of the electro-magnet, we would not have had the pleasure of speaking to you now."

Indeed, the current turned into the field coils had transformed it into a powerful magnet, which attracted Flinder's pistol.

"Everything is well—that ends well!" replied Deriugin smilingly. "But it is too bad, for the accident will retard my work for a few days."

VII

A CROSS-EXAMINATION of Eitel proved beyond conjecture that they were dealing with a mentally-deranged person. He was one of those innumerable victims of the turbulent quarter of this century, whose fatigued and strained mind could not resist the powerful attacks of these frightful days. To turn him over to the authorities was not considered a wise move, as the streets nowadays were overfilled with similar madmen. Besides, the city itself resembled a huge Bedlam. It was decided to detain him on the factory grounds under special guard, in one of the rooms of the resident body of engineers.

However, in the pellmell of new events, he was completely forgotten. At the end of the week a dispatch came that the fiery vortex had again appeared on the French coast and it was coursing along the southwestern boundary toward the Mediterranean Sea. Three electro-magnets from the Creusot Works were sent out by railroad to intercept it, but they arrived too late. Destroying Toulouse and converting the Haute-Garonne into a veritable desert, the fiery vortex again wended its course over the maritime expanse. Now, within about forty-eight hours, it was expected somewhere on the western coast of Italy. Five new engines, fully equipped, were mounted on platforms in Genoa and shipped to Rome, whence it was easy to move them to any point on the coast. Locomotives stood in readiness, day and night, awaiting orders to fling their loads into action.

Deriugin, the chief engineer, and a number of mechanics were all ready at any moment to meet the treacherous foe.

However, after reading through the details about the movements of the atomic flame, the young engineer suddenly began to doubt the expediency of his own project. The cursed sphere continued to grow ever larger and larger, making the approach to it difficult and dangerous. An entirely new question now arose. Would it be possible to get near enough the sphere—within the proximity of about 70 or 100 feet, for instance, without being exposed to the danger of being scorched in its sultry atmosphere? Would the electromagnets be effective at such a distance? And, if so, suppose they succeeded in encircling and arresting it? What then? Wasn't it too late? . . .

Deriugin, however, did not share his views with his comrades, but continued to work as obstinately as before. But this was not all; there was still another discouraging feature of this affair. Alarming dispatches were arriving from Naples; Vesuvius was speaking in a manner never heard before. Tremendous pillars of vapor, 12 to 18 miles high, were rising from the crater. The Earth was sighing and rumbling as on the day of the Last Judgment. Naples was already destroyed and the inhabitants were fleeing from under the ruins in wild terror.

All this was sufficiently awe-inspiring in itself, without adding to the already difficult struggle with the atomic vortex. All the railroads were crammed with train-loads of refugees from the South. The panic, doubled by the new catastrophe, completely disorganized the authorities. Besides, even here, about two hundred kilometers away from the volcano, light tremors of the Earth were beginning to be felt. And most of all, a noticeable wind was beginning to draw. The chief engineer was grumbling and scowling, it seemed, as if he too were beginning to wonder whether the struggle was worth the pains.

On Tuesday evening, June 1, the radio announced that the vortex had passed between Corsica and Sardinia, taking an eastward course; at the same time another engine had arrived in Rome from Genoa and five from LeCreusot, France, to assist in the work. This was considered sufficient power to cope with the situation. The whole division of engines moved further south, every necessary step was taken to facilitate the unloading, when the hour of battle arrived, or to trail the fiery enemy, if a chance presented itself. A chain of observation posts were stationed all along the coast; on belfries, churches and field watch-towers. Everyone's nerves were strained to the extreme by feverish expectations. Meanwhile, from the south-east, the din of the volcano was clearly audible and a fiery pillar, like a giant torch, stood high in the darkening sky. Deriugin was filled with apprehension, as he anticipated the new, impending storm and shook his head sadly when he realized suddenly that the wind had begun to play stronger and sharper.

At two in the morning, the flaming cloud appeared alongside the shore. The engines were immediately started eastward toward the sea. At three o'clock, in

two lines of a semi-circle one kilometer in diameter, they rolled down to the sea at the very moment when the flaming sphere, in curling vapor, whistling, hissing, with rolling thunder, reached the contingent almost in the center of the arc formed by the iron giants.

Deriugin was in one of the electro-magnets; he sat in a small cabin together with the commander and mechanic in the curve of the left line. It was dawning and in a few minutes the whole panorama was as clear as daylight. On the right and on the left puffed and roared the metallic parts of the massive monsters, resembling huge crabs. On the upper platforms gleamed flashes of light—optic signals, transmitting orders from the chief engineer, whose engine was outside the arc of the second line. Directly in front the fiery, fuming sphere, freed from the vaporous atmosphere, darted lightning, emitted sparks, roared and thundered and breathed forth its heat and blinding light. Here, at a distance of a half a kilometer, the intensity of the heat was being felt. Everywhere, on the engines, over the bushes and trees along the shore, untouched as yet, jumped and quivered lights, like drops of cold water. At the same time, from the south-east ever louder roared the distant mountain and a huge black-gray pillar standing in the air, tossed its smoky peak up high on the crest of the wind.

The strange chase began.

The center of the arc remained stationary while its ends gradually were bending in, encircling the sphere from all sides and from the rear. The electro-magnets were put into action, but, at such a distance their influence, apparently, was insufficient. The fiery vortex moved eastward into the depth of the continent and the engines were retreating at the same speed. Retreating thus about six miles amid thundering, booming, crackling and dinning from all sides, the chief engineer decided to start the offensive. The center of the front tractors halted, the others closed on to the center from all sides, locking the ring tighter. The fiery sphere was approaching. The engines shuddered, sighed, and bellowed, as if alive. The dazzling light cut the eyes and the air was stifled with heat, as if hell itself had burst open. It was becoming more and more difficult to breathe; the blood rushed up the temples; the body reeked with perspiration, ached and grieved.

The cloud continued its approach.

Was it possible that all the efforts would be reduced to naught—turned into child's play? Was it possible that the attempts were made with inadequate means and that the vortex would fly past over their corpses on to the Apennines? The fiery cloud was so near that the eyes were about to burst with heat; the head was spinning; there was no air in the chest. Deriugin unwillingly shut his eyes; he was about to faint. Suddenly someone grasped his arm. He opened his eyes. The chief mechanic, his face disfigured and his eyes bulging out, pressed his fingers painfully against Deriugin's, shouting madly, trying to overcome the furious din of the engines:

"It is stopping! It is stopping!"

Indeed, the sphere was no longer approaching; this huge flaming bubble wavered, to and fro, making a few attempts to break away, and finally became congealed on the spot.

Deriugin felt that hot tears burst out on his eyes.

"Devil take it! It is a victory just the same! Although temporary and shaky, still, it is a victory! This accursed human scourge was imprisoned after all!"

SUDDENLY darkness set in—as if a blanket of gray had covered up the turbid sky. Deriugin turned his head back over his shoulders and fell into a tremor; half of the horizon from south-east was enveloped in utter darkness; a lace-like black cloud spreading all the way from the volcano, blotted out the sun. In proportion thereof, the fiery sphere in the front shone brighter and lighter. From above fell heavy flocks of gray dust. The animal instinct enslaved his heart and filled up the body with wizened imbecility.

Someone clutched Deriugin's arm again. The chief mechanic, whose face was disfigured with horror, pointed to the East and shouted hoarsely:

"The wind, the wind, Santa Madonna!!"

Indeed, from the northwest the wind bore clouds of sand, heaps of ashes, dry grass and twirled them into pillars of whirlwinds from right and left. The fiery sphere shuddered under the blows, rocked and sighed: then, making two attempts to free itself, it suddenly gave an enormous leap toward the southern end of the enclosed circle. On the platforms of the tractors little fires began to jump restlessly, signalizing the new formation. But it was too late. Cut up by the hurricane, the atomic vortex within a few seconds flew past the distance between the line of magnets and, enveloping in a flaming shroud the nearest of them, took itself off into the booming and rumbling darkness.

For several minutes the tractors tossed about confusedly like a herd of awkward turtles. Then, they stretched out in three lines and thundering and clanking with the metals, they took up the chase. Meanwhile, the darkness continued to spread, blanketing more than half of the sky The wild chase continued for fifteen minutes. The fiery trail of the whirl disappeared completely in the blinding darkness which now had enveloped the full horizon. A torrent of rain poured down, mixed with dirt and ashes. To continue, was both absurd and impossible. Deriugin sat apathetically in his place, his arms crossed on his chest and his eyes shut, completely crushed by the enraged elements. Indolently his thoughts roved in his head, stopping at nothing. Thus passed half an hour.

Then it appeared as if the Earth had heaved a heavy sigh from its depths and quaked all the way down to its bottomless abyss. A shuddering, incredible roar devoured everything else and was precipitated in rumblings of sounds upon the trembling darkness. A giant fiery pillar grew up in measureless height, as if the Earth's womb had belched out its contents into heaven. A hot wave of heat smote Deriugin and he lost his conscience.

When he recovered, he found himself in one of Rome's hospitals amid tens of thousands of wounded,

(*Continued on page 37*)

The TERROR of the STREETS

By George McLociard

Author of: "Smoke Rings," and "Monorail."

"QUESTION!" interrupted a dissenting voice from the rear of the lecture room. "Would you mind repeating that last statement, Mr. Saunders?"

Turning very slowly from the cabinet-table on which was rigged a complete experimental X-ray outfit, the white-haired instructor queried, "What statement, Mr. Stefenson?"

"You declared Roentgen rays and the associated rays have not the power of making an object invisible. By what reason can you assume such a declaration to be correct?"

"Experiment and general practice, my dear sir," the professor smiled at some amusing thought, "have plainly demonstrated and proved conclusively that such rays have not the ability to render an object invisible—in the literal sense of the word. Nevertheless, I might add for your information, a number of well-known men, among whom are Kingsley and Carlton, are at present busy upon an allied problem—trying to determine just what effects the ultra-radio rays—those far below the infra-reds—have upon solids and gases of the lighter elements. As you may realize, they have met with considerable difficulty owing to the fact that they are in a field wherein practically nothing is known. We have already done much research work in the realm of the shorter waves of light, but that which lies between the upper limits of hearing and the lower borders of sight is, as yet, open to much supposition."

The professor's smile changed to a quizzical frown as he regarded the young, wind-darkened and weathered face of the doubter and noted, as he had on numberless occasions previously, the keen (one might almost say, cold), analytical light in Stefenson's clear blue eyes; the high, broad forehead down which straggled an unruly tuft of blond hair; and the thin, almost cruel, compressed lips, now drawn in a humorous—nay, mocking smile.

"Yes, your conclusion is correct," admitted Stefenson nodding. "But—supposing one, working on the conception that there *were* rays which permitted light to pass directly through solid matter, found a method of controlling and intensifying such rays. Would not it follow that he would be able to bring about a state of invisibility to some substances under their effects?"

After considering the theorist for a moment, wondering what he was driving at, Saunders answered dryly, "Yes, probably—in theory. It is an interesting thought and may never be disproved, for, as yet, no man has discovered evidences of such rays as your theory demands. Young man, from appearances I'd venture that you have been absorbing more than you can hold of pseudo-scientific trash lately; that stuff may be passable for amusement, but it is not the thing to be brought up in a scientific laboratory, as it wastes too much valuable time which could be well put to more worthwhile matters."

There was an explosive laugh from Stefenson and his unimpressed voice shattered the silence which had greeted the laugh.

"Mr. Saunders, you are not a student of pure science, when you make such an announcement as that; you reveal yourself as the perfect example of a modern man whose imagination has been suppressed by the curious demands made upon it by life; fundamentally, your thinking is not your own—it is the accumulated knowledge of other men's dreams and discoveries which, when some incident causes the memory train to awaken, flow through your mind, terminating in what you believe is thinking. Almost machine-like is the intelligence which controls your imagination by hurling at it the checking words—it is impossible—contrary to fact.

"But to the subject that began this one-sided argument. It concerned an idle thought revolving about invisibility. Casting aside all scientific reasons you could point out as inconceivable in gaining this end, did you ever dwell upon the thought of what might happen should a man stumble upon this powerful agent and use it to do wrong? What means and what methods could you with the mighty reserves of pure and applied science at your elbows bring into use to combat him, if he were to smash through civilization with no regard for life or property? Is it not a fact, that while the rest of the world, awed and given to superstition, would look to you for aid, that you—held in check by your own bigoted knowledge, would be unable to lift a hand to end the deprecating movements of the unseen one? That——"

Crash! His face livid with anger and speechless, the professor had brought his little used gavel down upon the table top so hard that the head snapped off and bounced across the room.

"Silence!" he finally roared. "Didn't I say we have no time for childish imagery?"

WE are probably all agreed upon the fact that the automobile today consists of one of the chief dangers to humanity in our big cities. Thousands of people are being killed each and every year through the instrumentality of the automobile accident. Automobile factories are turning out these machines at an ever increasing pace, and the end is not in sight.

Many accidents, are, of course, caused by the pedestrians themselves and are due to their own carelessness, but infinitely more are the fault of carelessness of the motorists themselves.

The present author has woven a most amazing tale around this subject. It contains excellent science and embodies an excellent moral as well.

A machine, that is all it could be termed, for it bore but little resemblance to either motor car or bus, actually forty feet in length and having a slight resemblance to a squat coupe, had apparently not been damaged a bit by the impact. Apparently it was built as solid as a battleship.

UNABASHED, Stefenson laughed outright. A whole-hearted laugh that spoke eloquently of inward satisfaction. "Childish?" he questioned. "Just because such a thing seems beyond your knowledge, is it impossible? I have fond hopes of being with you that day when invisibility is demonstrated to you in such a manner that you will remember this day."

Saunders' expression changed to one of perplexity, "Surely, Mr. Stefenson, you are not insinuating that brain attack of yours is an existing fact?"

"That, for the present, will have to go unanswered, I'm afraid. Nevertheless, I hope you will not forget my unintended lecture!" There was a tantalizing gleam in his narrowed eyes as he lapsed into silence.

To all the students and the faculty, Daniel Stefenson was an unfathomable mystery. Two years before he had appeared without recommendations other than his person at the University, made known his intention of following up a single subject—Electro-Chemistry, and plunged into the intricacies of the course with such spirit that amazed comment was drawn even from world-famed scientists carrying on their experiments in the well-equipped laboratories. It became evident, with the passage of time, that Stefenson was more than just a student, that he knew things they barely suspected, for he was always in some sort of an argument with various instructors—always ending his opinions with, "That's it exactly. Just what I was looking for." Extremely self-centered, this intellectual giant lacked many of the modern social requirements; his bluntness, purposeful mien, and egotistic disposition brought either scorn or fear from those about him. To their hostile actions he turned an indifferent attitude, considering them mere spineless puppets groping their little ways onward in the well-worn ruts of conventionalism. It was his commanding height and evident stalwart strength only, that drew many a sigh of admiration from football aspiring youths. Although the Coeds regarded him with a mixture of admiration and awe, not one of them under any condition could be induced to speak to him—this despite the fearless and forward reputation the college girl of today has earned. Perhaps, instinctively, they sensed that he was separated from them by distances far greater than of earthly land or sea; that he was inexpressively foreign. Yes, it was universally admitted throughout the university that Stefenson was, as a character, singular, and his actions strange.

Later in the day as he was striding through the halls to his locker, a pleasant-faced youth fell in step with him with the exclamation, "Say, Dan, now what are you up to again? I've never known you to be so personal in any of your discussions before! You surely riled Old Saunders this time. This noon I happened to pass the Dean's office and saw him come out declaring that you should be tossed out on the streets with no more ado."

"You don't say," murmured Stefenson thoughtfully. Only one student had gained the confidence of Stefenson and he, James Malone, had in some round-about-way managed to dig under the stiff upper crust encompassing Stefenson, finding that there was an entirely different sort of man underneath.

Stefenson opened his locker. "Jack, do you think I said too much this morning? It was all idle talk—didn't mean a thing. Saunders made his statements about the action of the fluoroscope in such a—cocksure way that I couldn't resist digging into him. Really, no harm was meant."

"Gosh!" Malone's exclamation showed keen disappointment. "The way you did—dig into him made me believe you meant every word of it—Bet he does, too."

With a bland smile Stefenson shook his head. "See you to-morrow, Jack," he parted, making his way quickly out of the building. A few seconds later Malone followed him and as he reached his roadster, he glimpsed Stefenson's black-bodied, red-fendered speedster flash swiftly west on the Midway. Settling into his more conservative machine, he muttered, "If I dared to drive as he does, I'd have been smashed up immediately. Wonder how he gets away with it?"

Approaching State Street, he was brought to a halt by the closing up of traffic at the intersection where a milling mob was gathered. A smash-up surmised, Malone left his machine and hastened over. He was brought to a sudden halt when he discovered Stefenson's speedster standing in the middle of the intersection—two heavy, black streaks of burnt rubber on the pavement giving evidence that it had been brought to with unusual deceleration. The front bumper was completely shorn off and lay to one side—a twisted bit of worthless steel. Fearful, Malone pushed into the crowd and was relieved to discover Stefenson, who, with a number of active men, was tearing the roof from a small, shattered, overturned coupé, in the effort to release the imprisoned occupant. Nearby, a man exclaimed excitedly, "Whew, but that fellow in that speedster came close to getting his!"

"How was that?" demanded Malone, grasping his elbow.

The fellow gave him a querulous glance at this undue familiarity but graciously gave his story. "He came whizzing down the drive at a pretty good clip, as the crossing light was with him. To me it looked as though he was racing with that coupé and when he drew near the corner, he naturally turned to left, intending to pass the coupé. Then things began to happen." He pointed to a huge machine of the high-speed truck type, which Malone had not noticed before. "That truck came tearing down State Street, bound north and just at the right moment shot out on the boulevard. That fellow in the speedster skidded to the quickest stop I've ever seen, but even then, he was not quick enough, for the truck took off his bumper and smashed full tilt squarely into the side of that coupé. Look—see how far it threw the machine? Twenty feet, if an inch."

"Whose fault?" asked Malone, though he knew well enough what the answer would be.

"The truck's. Driver says the brakes didn't hold."

There was a gasp from the pressing mob. Stefenson had lifted the inert occupant of the smashed machine out of the wreckage. A girl—some strange emotion swept over the crowd, causing the driver of the truck to draw back closer to the protection of the policeman who had hurried up. Stefenson carefully placed her in his speedster, shoving aside those who sought to assist him,

and with a physician, whose offices were on the corner, perched on the running board, roared away. Malone raced to his machine and followed as soon as he was able.

HE waited outside the emergency hospital for what seemed to him hours before Stefenson made his appearance. Malone was amazed to see the sudden change wrought in his appearance. There was a pain in his eyes that Malone never imagined could be registered there, a depression expressed in every line of his drawn face.

"Just another accident, Malone," he sighed, turning aside and clamping his teeth together with a grim draw of his lips.

"Malone," he cried sharply, fiercely, his eyes on the vehicle crowded boulevard. "It is an awful calamity to one's loved ones when he or she is struck down and killed just because someone you never knew existed before, was careless. Just who is to blame for the death of that innocent girl? The driver of that truck? The mechanics, on whom lies the responsibility of keeping those vehicles in mechanical condition? The manufacturer, who should have known that today's demand for higher speeds calls for better designed braking systems? Any one or all of them are responsible. But who?"

Malone silently shook his head negatively.

"Why isn't such murdering carelessness stopped? What did that insane driver mean by coming down a bumpy pavement at a forty-mile pace, a two-ton load on the rear, and with brakes which he knew were worthless? Are there no laws for this type of person, who commits murder as surely as one does with a revolver, and is immune from punishment just because he can claim that the machine got out of control? Isn't a gun out of control the instant the trigger is pulled? But, I forgot, even wilful murderers are being released today for slighter reasons than that truck driver will offer."

"Stefenson," consoled Malone, "it's an impossibility. Law or no law, there will always be some people who will want to drive faster than ordinary traffic, as long as their machines keep up the pace."

"No, Malone, that is not what I mean. I mean remove the bad driver, the one who has proven himself incapable of being trusted at the wheel. Remove him and those ancient wrecks running loose about the streets endangering everyone they meet."

"Impossible. As soon as such measures are taken, some one arises with the age-old cry of personal liberty at stake."

"That's it, Malone! Then it follows that the only way to stop it, would be for some force outside the law, outside the general run of life, if necessary, to eliminate those offenders."

"Yes, but WHO?" asserted Malone, "Who and what can accomplish this miracle? The motor clubs, the nation over, have tried with super-human efforts. In the last year they have come to admit the futility of their campaign. Newspapers, which formerly published the accounts of the day's accidents in glaring type, now make very little note of them—except now and then, when some really unusual, even fatal accident occurs.

"Stefenson, the modern world has surrendered to speed—is glorifying speed in every form. Planes hurl through the air at three hundred miles an hour, which terrific speed seems to make a fifty-mile pace a crawl. We have lost our age-old respect—for DEATH—to put it in simple words, and so the heedless, the careless, accordingly, suffer the consequences."

"Yes," interposed Stefenson, a choke in his voice, "Yes, they get their rewards, eventually—but think of the innocent persons who have to pay with their lives or ambitions just when he does pile up! He isn't the only one involved when an accident occurs, remember. Just think of the pain, the broken dreams, the wasted lives, the horror, and the trouble that the mentally incompetent driver causes every year!"

"If there was only a way—a plan devised to make the motoring public realize what a terrible weapon the uncontrolled automobile is?" murmured Malone as Stefenson made for his machine.

•

DRIVING in from the north on the wings of a fifty-mile gale, a blinding snow-storm raged over the city when Malone guided his fair companion to his roadster. The annual New Year's class dance had been brought to an abrupt close as reports came that the unexpected blizzard gave signs of closing down all vehicular traffic. Though well before midnight, all the students had agreed that it was best to be on their ways, before they would be stranded.

Malone had found Annette Richards in the foyer, surrounded by a group of eager young men, all bartering for the honor of escorting her home. With a possessing laugh, Malone waved them aside.

As his winter-enclosed roadster was picking its cautious path down the snow-covered pavements in the center of an unreal world of slanting, driving flakes, Malone chatted cheerily to the girl.

"This spoils the whole evening."

"Oh, I don't think so," disagreed his companion, "I love this kind of weather; it reminds me of winters in my father's home in northern Minnesota."

"Where it snows so deep that you have to climb up the chimney to get outdoors," completed Malone, with a grin. "Let it snow if it wants to, I'm going out to a friend's home after I drop you off." He swung his machine sharply toward the curbing as an open car filled with cheering and shouting students careened past. Malone drew a despairing breath. "Really, Annette, it *is* getting terrible. Just look at that—joy-riding on a night like this. I've been watching other drivers closely since Stefenson's fiancée was killed the other week."

"Jack—is that who the girl was?" she exclaimed in surprise.

Malone nodded. "He would not admit it, but the truth came out at the inquest. He's all broken up. You know that he was dismissed from college on account of trouble. He says nothing, but whenever I look at him, I feel as though a terrific force is being held in check. Actually, Annette, I feel as though an explosion is about to go off any time—he's a person one cannot understand."

"It is a great mystery to everyone, Jack, as to how you two ever came to know each other so intimately when he avoids all others so carefully," puzzled the girl softly.

Malone smiled. "That's no mystery. The week after he came to College he called at my home and made a proposition with me. You won't tell this to anyone, Annette?"

"Of course not. I respect your confidences."

"Well, if I would tutor him in history and English he would help me along in the sciences. As he was so friendly, and willing to aid me financially, I could do nothing but comply. It was only a short time until he had absorbed all that I knew and was on the road to teaching himself. Annette, I have never met anyone who is more of a real man than Stefenson. What you have heard about him is mere talk—actions he assumed to hide himself—a shell to protect his interests."

There was a glint in the girl's eyes, a rare smile on her lips as she asked in a soft, pleading voice, "Jack, do you think it would be—objectionable if I—asked to go with you?"

"Oh, oh," exclaimed Malone, flashing a meaning glance. "So the pretty maid wishes to meet the terrible ogre in his castle?"

"Yes," after a moment of silence. "I'd really like to meet him *once*. Perhaps something might happen," she laughed softly. Malone's face was a study, for he had caught an unnatural timbre in her voice. "At that," he agreed at length, "something interesting might happen."

Half an hour later he turned the roadster off Western Avenue into a rough, deeply-drifted side road over which they alternately bounced and charged for a half-mile, at length coming to a shuddering stop. In the peculiar illumination that accompanies the heavy fall of snow, a long, two-storied building loomed darkly, its many ice-encrusted windows permitting feeble yellow rays of light to escape. As Malone's spotlight picked out the details of the structure, Annette gave a startled gasp, "Why, Jack, isn't this the Verdante Research Laboratory?"

"Supposedly, Annette," assured Malone, leading the way from the car. Quickly they took refuge in the recessed entrance where they stood shivering in the ankle-deep snow that had been swept up by the howling wind into a miniature mountain ridge.

"That's funny," declared Malone after he had rung the bell repeatedly. "The lights are on and yet we get no response." He gave a testing twist to the knob and the door opened. Immediately they stumbled in, beating the snow from their clothes.

"My, what a formidable appearing place," declared Annette, glancing about the concrete-floored and brick-faced ante-room. "Just like a factory entrance, but—Jack, factories do not have steel doors a foot thick; do they?"

"This is, in every respect, a real factory, in spite of its name and other circumstance, unmentionable at present. It is the home of Stefenson. Come, since he does not show himself, we'll have to look him up."

Malone led the girl up a few steps and, turning to the right, opened another steel door. A vast shop was revealed to the girl. A shop that would have drawn rapt exclamations from a lover of machinery, for the greater part of the huge, two-storied chamber was given over to a well-equipped experimental machine shop whose milling machines, lathes, drill-presses—machines of special design, electrical and mechanical, large and small, were scattered with mathematical precision over the entire floor. Powerful electric lamps shot dazzling floods of light up to the white-painted, steel girdered ceiling, from which it was reflected indirectly, with daylight brilliance, downward. High, wide windows were set in the thick side walls, while the rear was a brick blank.

Annette stared about her, bewildered. "Jack, I thought you were going to Stefenson's home?"

"We are there, Annette. This is his machine shop—one of his laboratories.

"One? What? What does he do?" she demanded confronting him.

"Oh, a lot of things. Right now he is working upon some sort of a television device. Said the other day that if his men didn't speed up with the mechanical end of the work, he'd have to let it go."

THEY started, alarmed, when something fell behind them. Malone laughed easily as he pointed to a milling cutter which had fallen to the floor and was rolling about in a spiral path.

Annette glanced with narrowed eyes at Malone. She had noticed that very cutter lying in the center of the milling-machine table a moment before. Now it was on the floor! She said nothing to Malone but her lips quivered on account of something that was not cold as she went on, her eyes alert for some movement, "Why don't you explain things? You say he owns this place and has men working for him?"

"Yes, precisely. That is the state of affairs."

"Then, why did he attend our college and carry on like a spoiled school-boy, picking fights with the professors and the like?" queried she, noting that Malone was curiously watching her every movement. Her hand flew to her mouth as the heavy door through which they had entered and neglected to close, slammed shut.

Malone surprised, murmured, "Gosh, but that wind is strong to-night. About your question, Annette, you will have to ask him. He would never tell me. What's the matter?"

Annette shivered, "This place gives me the creeps."

Malone laughed at her fears, and taking her arm, led her down the aisle between the machines toward a door barely visible at the other end; through a narrow, dimly-lit hallway; up a wide circling stairway; and into what seemed to be an office. With a deprecating wave of his hand he continued on, leading into another hallway where Annette stopped him with, "Jack, someone *is* following us!"

"Forget it. It's only Stefenson," declared Malone, again starting on. The girl stood a moment staring fearfully down the hall; then resignedly followed. She began to wish she had never asked to come with Malone. Malone beckoned the girl to hurry. "Ever see anything

like this?" he asked, when at last she was at his side.

"Oh, isn't this wonderful," exclaimed she, forgetting her fears and gazing about her with sparkling eyes. "It is like one of those beautiful pictures of the home of the future!"

The cause of exclamation was the furnishings of several good-sized rooms connected together by arched openings which, to one of the past generation, would have been scorned as being fantastic, but to Annette, with her keen appreciation of things when they were expressed in their simplest moods, they were beautiful. Walls were of silver—a soft, dull, satiny sheen, toned in mixtures of gray-green silver bands of a deeper glowing depth in radiating geometric patterns. It was not the haphazard splotchings of the so-called modernistic, who tries to achieve simplicity by daring splashes of color, but each detail originated from a definite point, blending in an effect that was at once unique and restful to the senses. The comfortable furniture, simple and unadorned with useless bric-a-brac, was finished in the same designs. The direct lighting from wall fixtures was toned with amber shades to a golden illuminance which flooded the rooms. Even to the thick-velvet-like carpets was the silver-gray effect carried while the windows and book-cases were draped with curtains of silver cloth.

"This is wonderful," repeated Annette, visibly impressed. "Seeing that shop, I thought he was one who was satisfied with whatever he could gather together for his personal uses. But this—it is beyond description. Jack, let's go, please. I feel as though I had no right here."

Malone dissented, "Not yet, Annette. Stefenson will show up soon. Something unusual must have caused him to rush out, leaving the doors open and the lights lit. So, take off your coat and try one of those comfortable triangular chairs." He removed his own coat, and, lighting a cigarette, glanced through the various rooms. He returned to Annette's side, his eyes upon the door through which they had entered from the hall.

"Say, Annette, did you close that door when you came in?"

She drew back, "No, I left it open."

"Well, it's closed now."

Malone strode across to the door in question and twisted the knob. The lever did not move! It was locked!

"Hello! What's this," he muttered, attempting to cover his find from Annette.

She was at his side instantly, her brown eyes filled with strange fear. Slowly there crept upon both of them a feeling, indescribable, seizing their limbs, chilling them, and causing a thickening, salty dryness in their mouths. Cold, paralyzing, was the shock they experienced when some little-used sense warned them that they were not the only ones in that room!

Intelligence unseen was watching them!

ANNETTE flashed Malone a glance filled with fear, and with quivering fingers pointed to a spot on the rug not ten feet from them where the heavy nap of the rug was flattened down in a circle some six feet in diameter. As they stared upon this phenomenon, they saw a tiny flicker of golden flame curl about the edges and the unearthly movement of the nap rise and fall as the circle moved across the room. There was a scream from the frightened girl, as her cloak spun into the air, whirled once, and with a momentary red glare, disappeared! Almost instantly, Malone's coat followed suit, bringing an incredulous grunt from Malone's open mouth. The flickering circle of flame moved swiftly across the room and a moment later their coats appeared, hanging on a coat rack which had materialized out of the air.

Again that awe-inspiring movement of the nap and one of the lights clicked out, leaving the room in a subdued light. Annette retreated until she felt Malone's arms encircle her protectingly.

Silence reigned. Silence that seemed to scream its horror into their tense senses. Even the rush of the high wind about the building was stilled.

Silence! Hearts pounding streams of blood to paralyzed brains, leaving the lower limbs weak and seemingly frigid!

"Well!"

That one word snapped through the air like an electric shock.

"When there *are* means of permitting light to pass through solid objects, one cannot argue otherwise, Malone!" There was a quiet laugh from out of the air.

Reason fought with terror in Malone's mind and swiftly the impossible truth flashed upon him. He shook the girl roughly and in a somewhat possessed voice, called out, "For God's sake, Stefenson, come on out of it, before you frighten this poor girl to death!"

Stefenson's laugh rang weirdly from a point in the middle of the room. "It is rather startling to meet someone you can't see, eh? Don't be alarmed, Miss, I intend no harm—this is just an experiment."

Malone stepped forward, intending to satisfy himself that Stefenson was really there.

"Stay back, Malone. I'm going to come out. Watch the space in the middle of the room. But first switch off the lights in this room."

Malone did as he was told, and, in the dim pallor thrown from the next room, took his place at Annette's side, watching the designated spot. At first nothing could be detected, but, as age-long seconds plodded past, there slowly appeared a deep reddish mist which defined itself as a cone of red light whose apex was about seven feet above the floor. In the center of the cone a pillar of black grew, and as the crimson flowed into yellow and finally white, a human form could be distinguished. The figure had one arm upraised. The light faded away and Stefenson stood before them, a curious tripod arrangement with a small cone surmounting it strapped to his head.

"Well," Stefenson was the first to break the silence. "What do you think of Saunder's statements now? Think he'll retract?"

"I'll say he will. Just give him a demonstration such as you gave us and he'll believe anything he hears from then on," returned Malone, drawing a deep relieved breath. There was a slight sigh from Annette and her

inert weight made itself evident upon Malone's arm.

Stefenson eyed Malone with a frown as Malone laid her on the long lounge. There was a hard glint in his eyes as he spoke, "Who is she? What is she doing here? I thought I told you to keep my presence in this section of the city quiet?" It was not anger—just a calm curiosity.

"She?" Malone had picked up a newspaper and was fanning Annette, who, despite his efforts, remained in the faint. Malone turned anxious eyes on Stefenson, who had removed and placed the strange machine on a nearby table. Stefenson stepped to his side and waving Malone aside, placed his fingers on the girl's upper eye-lids. He gave a cruel upward twist with his thumbs and Annette stirred painfully. She opened her aching eyes and saw a tall form standing at her side. With an inarticulate cry, she arose to her feet and would have fallen had not Stefenson steadied her.

"I'm sorry, Miss, that I had to use such a forceful method to bring you to. You will have a headache for some time." He smiled encouragingly, as he helped her to a nearby chair.

Turning to Malone, he demanded, "I asked you a question, Malone."

Malone grinned. "I'm afraid she'll never forgive you for that headache you've given her. Her name, if it so pleases you, is Annette Richards, student of History at the college of which you were so recently a member. I don't have to introduce you. She knows you so well that she asked me to bring her here this evening." Malone winked mischievously to Annette, whose white face flushed with color at this accusation.

Stefenson glared at Malone through narrowed lids and turned to the girl. "Is that true?" His face showed he realized a painful joke had been played upon him. "Is that the reason?"

Sick at heart, for now she realized the inopportune time of their visit, she raised her eyes to his, "Yes," she admitted quietly, "not thinking, I asked Malone to bring me along. I'm sorry."

Stefenson regarded her with calculating eyes, "You need not be, Miss Richards. Do you realize that you would never have been inside this building to-night had I not wished it? I was with you two the instant Malone rang the bell. I followed you, tossed that milling cutter down, and slammed the door. I suspected that you were Malone's fiancée, and that the only reason you came here was to see what kind of a person I was. I'm sorry to say that you will have plenty of opportunity to find that out from now on. Your presence here to-night places you in a peculiar situation, of which I am the master.

"If you are the type of character I suspect you to be, I will rest assured that not a word about what you saw to-night will ever pass your lips without my permission."

"I will only be too glad to forget this horrible evening." declared Annette, a frown of pain on her forehead.

IT was several weeks before Malone could gather together enough courage to visit Annette and clear up the involved affair he had started with his unruly tongue. To his surprise, he found that she was ready to listen to his incoherent, stammering explanation. He parted with a glowing satisfaction at his prowess as a peacemaker. That afternoon he called at the Laboratory, but found that Stefenson was out of the city. The foreman of the shop, a quiet-mannered man of about fifty years, greeted him warmly, as Malone was a frequent visitor and had gained the confidence of the suspicious old fellow.

"What's new, Tom?" queried Jack, taking in the six men working industriously at the machines.

"Come in here," he commanded, drawing Malone into the inner office. "Stefenson is doing something this time that I can't get the drift of. Made me get those fellows out there. They're all strangers to me, but a keener bunch of mechanics you never saw. Gave me these plans and told me that when it was done, he would send more work." He unrolled a sheaf of blueprints and spread them over the drawing board."

"What the dickens! What is he going to do with that?"

"I don't know," answered Tom perplexedly. "It's a gas-motor—of the four cycle type. Look at the bore of the cylinders! Six inches—eight cylinders in line. That's an awful amount of power. In reality it is as efficient as a sixteen cylindered motor."

Malone studied the prints for some time. "Ever do anything in this line before?"

"Nix, I've been building special machines and instruments for years, but this is the first time I've tackled as big a job as this."

"Then you are not familiar with automotive engines? This is an engine for a motor car."

"Hump!" snorted Tom. "Then that's going to be some car!"

* * * * *

Malone's visits to the Verdante Laboratories became more frequent as the work upon the mighty engine progressed, but he never saw Stefenson, although Tom confessed he had been there several times for brief visits.

Crates and packing boxes containing parts of a monster motor car were delivered daily at the Laboratory, and were stored unopened in a large underground garage under the building. The day came when the men were dismissed and the shop settled down to its accustomed silence again. Still Stefenson did not return. Annette questioned Malone time and time again as to why he did not keep her informed of Stefenson's movements, and when he told her that he was as much in the dark as she was, she would let it be plainly evident that she did not believe him. Malone could not help remarking once that she showed a little more interest than was called for. And when a defiant light flashed in her brown eyes, he knew his supposition was correct; the mystery surrounding Stefenson attracted her.

One afternoon Malone picked up Annette, intending to drive to Blue Island. Their road happening to lead to the Verdante Research Laboratory, Malone made an investigating sally in that direction, just to see if Stefenson was at home. In the warm rays of the late

March sun, the building did not appear so forbidding and awe-inspiring. The passerby would never give it a thought other than to wonder why such a beautiful factory building was set so far back in the open fields.

At Malone's ring, Old Tom came to the door. "Yes, he's here. Came home this morning." Stefenson was right behind him, clad in a greasy jumper. "Hello," he greeted, wiping grimy hands on a piece of waste. "I see you came back to see more interesting things, Miss Richards. I have some, but I'm afraid they are not so terrifying this time." He instructed Tom to take their coats upstairs and motioned for them to follow him.

"Don't be alarmed, Miss Richards," he remarked as he led the way through a cleverly concealed door at the foot of the stairway. "This building has more concealed passageways and secret rooms than there appears." They descended a narrow stairs and suddenly found themselves in a long well-lighted sub-hall which extended under the entire length of the building, numerous doors leading to the various chambers which made up the basement.

Into one of these doors they followed Stefenson and Malone recognized it as the garage. In the center of the concrete walled room stood the most unusual motor car chassis that it had ever been Malone's fortune to look upon. Too long and too well-braced to be that of a truck, the immense steel channel frame, actually forty feet long, was swung on a double set of transverse springs at the front while four-inch "I" beams formed the thrust-shock-absorbing fork for the front axle. The rear was composed of two independent driving axles which were also connected to the frame by three transverse springs which were so set that the order was a spring, axle, spring, and so on alternately. Everywhere could be seen the evidences of uncalled for strength in every part. Even the wheels, extremely small compared to the size of the chassis, were disks composed of several layers of quarter-inch steel plate.

"What in the name of all that is impossible do you call this thing?" demanded Malone, giving a testing kick to one of the solid rubber tires.

"This?" Stefenson's face grew thoughtful, then relaxed in a grin, "This is my latest experiment. Some toy, eh?"

"I'll say! What can you do with it? Fly to the moon?"

"Hardly, but it can fly just the same. Better watch out when it goes on the streets."

"Say, if you put that 'thing' on the streets, I'm leaving this city to-night."

"Better get going then, for by next month this 'thing' *is* to be on the streets."

Tom entered, and Stefenson sized Malone up and down. "Say, since you are so intensely interested in this contraption, you might lend a helping hand here. You'll find a clean jumper in that locker." Imitating a grimace, Malone pulled off his coat and vest and scrambled into the jumper. He made a show of looking about for another pair.

"You're out of luck," he reported to Annette. "None of these fit you, so you can't play with us." He laughed at his joke.

"That's right," broke in Stefenson, a calculating light in his eyes as he caught her attention. "By the way, Miss Richards, did you ever try tossing pots and pans about?"

Not a word did she utter, but the glance she flashed him revealed what she thought of the suggestion.

"I wouldn't have said that, Miss Richards, except that I am going to be very busy this afternoon and, therefore, will not be in a position to entertain you. There is one thing that I admire and that is companionship that is so intimate that personal entertainment is unnecessary." Malone listened open-mouthed, expecting a storm.

"Very well," acquiesced she. "I'll entertain myself." With a careless shrug of her shoulder, she left the garage.

Stefenson had a slight complacent smile, as he fell to tightening nuts.

"Why! The impudent nerve of you," chided Malone in mock seriousness. "Here we come to pay you a brief visit and you put us to work."

"It won't hurt—will be far better than risking your lives chasing about on the streets all afternoon," was the almost curt reply.

Thereupon the three set to work, and under the direction of Stefenson, assembled and set the radiator—a high, narrow affair with an enormus reservoir—in place. Over this, with the aid of an overhead crane, a thick, steel shell was dropped, to be welded in place. From the sides of the shell two triangular sheets of plating were brought down to the frame channels so as to further strengthen the shell from backward thrusts. Old Tom, a hissing oxyhydrogen torch in his hands, did the welding with a skill that revealed years' of practice. The hours flew by swiftly. Suddenly, Stefenson glanced at his watch.

"Good night! It's almost six already," he exclaimed gathering up the tools and placing them neatly on the benches. "There's a small washroom down the hall," he directed Malone, washing his hands in a pan of gasoline. "I have to get this oil and grease out of my skin." Tom led the way.

"Gosh, doesn't he give you the creeps?" suggested Tom with a quiet smile. "Here I've been doing all sorts of special work for him for two years, meanwhile acting as janitor when there was nothing else to do, and still I know as much about him as when he first came here. He's a real man—all the same. There is no beating about the bush with him. Notice how he talked with Miss Richards? There was a smile on her lips that neither of you saw. She's your fiancée?"

Malone smiled. "Yes, she—was. I'm afraid I misjudged her."

"Nothing's safe with that sort of a man, eh?" laughed Tom, splashing water over his lean arms.

* * * *

After saying good-night to Tom, who lived in the near neighborhood, Malone made for Stefenson's quarters. In the silver-walled dining room he discovered the table laid out for four chairs. The low lights shone on the high lustre of the chrome-plated ware, casting

glittering high-lights on the walls. The light-blue bakelite dishes formed a pleasing contrast to the white cloth. Surprised, Malone scratched his ear and made for the kitchen where he found Stefenson, already washed and dressed in a light suit, inspecting the contents of an electric oven, while Annette stood watching him anxiously.

Arising, he noted Malone regarding them with a half-smile. "We've discovered a good cook, Jack. First time she ever tried an electric and she didn't burn the roast." Gravely he lifted the lids of the other pans and peered into them, nodding his head in satisfaction. He winked slyly to Malone, much as to say that he expected as much.

"How did you find these things?" asked Malone, indicating the foodstuff and utensils.

There was a happy note in her voice as she returned, "I wandered about through the halls and doorways of this honeycombed place for a long time before I found these rooms. I didn't know that they compose part of a cozy cottage on the roof! Why didn't you tell me that? And that roof-garden! Really, it must be beautiful here during the summer, almost like living in the country. Then I found the kitchen—this is the result."

"Well, no one is going to complain," declared Stefenson, whose eyes followed every move Annette made as she tripped about industriously.

AFTER the dinner had been brought to a close and they were seated in the library, Malone, his head filled with thoughts concerning the mysterious venture in which Stefenson was the principal, asked, "Say, Daniel, I'm up to my head in conjecture as to what you are doing. First, a few months ago, you spilled some fantastic theory based on invisibility, then you declared that the only way to stop speeding would be for some force outside the law to combat it, and now, you are building a machine, with which I suspect, you are going to break all the world's records for speed."

After a long period of silence, in which he gravely considered some problem, Stefenson answered, "I'm sorry, Malone, but that will have to go unanswered for the present. There are, as yet, certain conditions which have not developed to the point where they would warrant an explanation. But, mind you, I am not going to demand that you close your eyes to things that take place about here. Little by little I am making deliberate slips which I hope you will connect together and build your own story. It won't be long until I reveal myself to you two, but before that can be done, I have to pave a path over which you may pass to that knowledge.

Otherwise, naturally, there is going to be no little misunderstanding."

Malone scratched his head, "Now, you've done it. I'm in deeper than ever." Annette, saying nothing, listened with a slowly comprehending light in her eyes. She was about to speak her thoughts when a silencing wave of Stefenson's hand caused her to hesitate, much to her own amazement.

"Well, if you won't tell what you are going to do, you might show us how that doo-gigger works—that amputated camera tripod which made you look like the center of a doughnut," complained Malone, determined to learn something about the trick of invisibility. Stefenson went into the next room, returning with the cumbersome-appearing device.

Seating himself, he motioned for them to draw nearer. "Malone, you were in my classes, and you, Annette," he said her name with an easy familiarity, "had a pretty stiff course in the line of physics you are studying; so that you both know the underlying principles of the wave motion of light; how it is generated, transmitted, refracted, and reflected. You know that the eye depends greatly upon reflection to carry the light wave to the delicate nerves which pick up and register the different wave-lengths as color. I'm not speaking of light that comes direct—as from a searchlight. If there were no such thing as reflection I doubt very much if you could see the beam of a searchlight unless you were precisely in the center of the beam. Reflection makes sight a possibility, for without it everything would be a hideous black; there would be no blue sky, no green trees, no richly molded white clouds, and the rich, glorious blending of colors in the sunset. In fact, the only difference between you then and a blind man would be that you could see only light and colors which were sent directly from a source. But the great Designer knew the heavenly joys of sight and color, so He gave everything in the Universe a surface that was cut and ridged by millions of tiny crevices and projections, which, acting like facets, catch and reflect the composite white light thrown upon them. But that is already known to you.

"Why is Annette's dress red?" he queried, "Light containing all the different wave-lengths fall upon the cloth—but why is red the only color that is reflected?"

Malone thought a moment, "I read something of that once. Why it goes back to what you just said a while ago! The light strikes the cloth which contains facets that only reflect red—or waves of the vibration around red—absorbing all the other colors."

"In that condition, if there were no red?"

"It would be black?" This from Annette.

"Yes. Now that leads to another supposition. Supposing that one found that there were rays, somewhat similar to the X-ray, which, in some entirely unexplainable manner, allowed the visual waves of light to pass *around* an opaque object as does air about a streamlined wire or sound waves around an obstruction; that these rays likewise removed all reflection, all color; and that just a faint silhouette of the object remained. All that would be necessary to attain actual invisibility would be to eliminate that silhouette.

"Do you remember what Saunders said that day, Malone? That we actually know nothing of what lies in the great space below the infra-reds. And do you remember the experiment Carlton performed about a month ago, and which caused no little interest in the newspapers?"

"Yes, I read that," commented Malone. "He was experimenting with an extremely short wave transmitter. I think it was about a quarter of a meter. Any-

way, he went down so low in meters, or conversely, so high in kilocycles, that every piece of apparatus had to be supported on insulators two feet high. His aerial was a ten-inch length of copper tubing. It was said that every time he tried to go into the higher kilocycles, the plates and grids of the special fifty-watt oscillator *faded* from sight, their presence being denoted only by an unearthly reddish-violet glow."

"Yes, Malone, that was the result of his experiment. The high oscillations, if carried on far enough, would have resulted in the actual disappearance of the elements. That, you know now, is not an impossibility. This apparatus I use is based on that phenomenon; it is used to eliminate all possibility of the black silhouette remaining visible.

"There are, of course, some things which you will not be able to grasp; facts which you sense are not fully explained. Why? I will tell you. Suppose you tried to explain the how and why of the things that go on in a radio set to a person who had never seen or heard of radio? That is the condition I am up against to-night; I am trying to tell you of something your world—I mean your world of science, has only the slightest inkling of. But I'm trying, nevertheless."

HE turned the tripod machine over.

"The space between the padded head form and this protecting cover is compactly filled with the generating mechanism of the machine. A bakelite container houses a number of extremely powerful chemical cells which energize the step-up coils wound within the tripod legs and also supply the heating current to the filaments of the composite high-kilocycle and Roentgen oscillator, which is protected by this cone of metal.

"When the current is switched on, two oscillations are generated; one being the light-bender, as I can only term that curious phenomenon; the other is an extremely powerful vibration, which, like the tube in Carlton's experiment, brings objects to which it is firmly connected into resonance, forcing them to vibrate at that frequency which is below the infra-red. True, Malone, I could go up the scale and disappear in the ultra-violets, but there is unimagined danger there. Up there are rays which can cause death, once the vibration is strengthened."

"However," he arose, placing the machine carefully on his head and adjusting the bands under his chin, "there is an axiom that one demonstration is plainer than ten-thousand words."

"I am going to go under the vibrator slowly so that every detail will make itself evident to you. O. K.?" He raised his hand to the vibrator, touched a recessed ridge. Immediately a cone of intensely violet light flashed about him, while a sudden sharp jar made itself felt on the floor. For an instant the violet grew deeper, closed in about Stefenson, whose face showed a great strain. From deep violet to blue, green, yellow, orange, and red went the changing cone of color, Stefenson's body, as they knew it, could no longer be seen. Only a pillar of black, empty black, space remained. And as the red cone turned crimson, great bands of violet-red ascended and descended the black pillar which began to lose its form, becoming indistinct in spots. And, as the last traces of the vibrant crimson glowed, the shadowy silhouette disappeared.

To all appearances, they were the only ones in the room!

"By golly, the old Grecian stories of princes disappearing under cloaks of invisibility have nothing on Stefenson," murmured Malone, impressed.

"Yes," agreed a voice from the air, "one often wonders, many a time, just why those old tales have remained so tenaciously in folk-lore. That their acceptance was unchallenged at their inception seems to indicate that there was undoubtedly some similar incident. There is nothing new under the sun, remember."

"By the way, can you see any evidence of my presence? I am increasing the power considerably, as I'm going to show you two the power of invisibility."

Malone and Annette studied the room until they discovered the telltale circular depression on the nap of the rug. A rolling flicker of golden flame made itself visible.

"Nothing can be seen, Dan, but a circle of light," said Malone. As he spoke, the ring disappeared as Stefenson made an adjustment to the device. Interested, Malone and Annette moved closer to the spot where they had seen the flame. Malone turned his head, thinking he saw something move near the doorway, but a startled scream caused him to jerk about. He turned in time to see a searing red flash light up the place where Annette had stood a second previous!

Now Malone was alone in the room!

"Annette," he shouted fearfully.

He heard her nervous laugh, "Please, Dan, don't hold me so tight, I won't try to escape. Jack, I'm right next to you, in a world that is one encompassing red glow! I can't see myself or—Daniel, but I know he is holding me close to him. You, Jack, look so funny staring about that room."

Malone scowled, "How was it he picked you out for that *experiment?*"

Stefenson laughed, "Just to show you, Malone, how powerful is he, who is invisible. Just to show you that I can take what I want, when I want it, right in the face of anyone on earth, and make off with it without hindrance. What say you, Annette?"

"Why—," she began, but the rest of her words were muffled. "Please,—oh, don't." There was a red flash and she appeared suddenly, her eyes sparkling as she backed away, taking refuge behind the table. A moment later Stefenson, after the usual change of colored lights, reappeared, a laughing light in his blue eyes, as he glanced at Annette who, smiling responsively, was pushing back straying bits of hair.

Dumbfounded, Malone stared from one to the other. Finally, gaining speech, he laughed, "Taking things as they are, Annette, I'd feel sorry for the girl who married Stefenson. Just think of how easily he could slip into the house at three in the morning without her knowing it!"

"Jack!" she exclaimed, but the tone of her voice belied her sharpness.

Stefenson chuckled as he removed the vibrator.

THE hands of the telechon recessed in the wall pointed near the hour of midnight. Malone and Annette had gone almost an hour before and Stefenson still sat on the edge of his chair, his chin cupped in his supporting hand. Lost in thought, he made no movement with the exception of the flicker of his lids and the slow movement of his lips as he drew them between his teeth. It was a picture that many an artist would have viewed with acclaim, for the attitude of the man, the slightly bizarre, futuristic furnishings, with their accentuating flashes of light and dark silver, glowing in the amber lights, awaited the adept brush of the artist.

In Stefenson's eyes was a light—a gentleness unusual in him. It seemed to grow and fade as the minutes fled. Before him, on the carpet, lay the machine—the Vibrator—an instrument terrible in its potential powers—which had brought her to him.

"Oh, Allenyse," he muttered aloud once, "how could I forget you so soon?—But I know she is worthy to fill your place." At length he stirred, arose with determination, and made his way down the stairs, towards the basement. He paused in the garage, staring at the chassis of the monster there. "This is a lot of nonsense. If it were not for the good that is sure to be the result, I'd stop right now," he muttered a little crossly, turning on his heel and continuing on down the passage. Reaching the end of the hall, he reached above into the maze of steam pipes suspended from the ceiling. He gave a certain valve a twist and a section of the solid concrete foundation receded, with a hiss of escaping air, back for about three feet, and then turned, being pivoted in the center. But we have become almost inured to surprises which are being constantly sprung upon us by Stefenson and so what was revealed in that secret room will have to go without comment other than to say it was an electrical laboratory so crammed with experimental devices that it is beyond human power to describe them. He was familiar with every detail of it, for not a single glance did he bestow upon the various machines, but headed directly for a high-powered transmitter set inconspicuously in one of the far corners.

He dragged a leather upholstered chair toward the instrument board and seated himself in front of a keyboard which resembled a typewriter in that it had the four banks of letters and numbers. From there on it was entirely foreign, a metal cover enclosing what would ordinarily be the type-bars and paper roller. Stefenson flipped over a series of toggle switches, and when the sound of many generators had settled down to low whines and when the pointers of the many meters had crept up to the red line drawn on the dials, he struck several keys, locking them in place.

Then he turned his attention to another machine nearby. Totally enclosed except for a cut-in recess on the front and top, through which the type-bars and paper-roller of a typewriter could be seen, it was surmounted by two superheterodyne receivers of well-known make. After making slight adjustments to the dials, Stefenson fed a sheet of paper into the carriage in much the same system as is found in the telephone typewriter, from which this instrument had evidently been developed, the difference being that this was operated by radio. A red lamp flashed and Stefenson returned to the chair, pounding the keys rapidly, continuing for several minutes. Then he returned to the receiver, watching the instantaneous movement of the arms as they clicked out the message.

"No. 109. Have reed and sent on message. Contents surprising. Doubt exists here if request can be filled without undue disturbance. It is to be expected that the order covering your withdrawal will be transmitted soon. Might as well begin to destroy all evidences of your investigations hav——

With a snort of rage, Stefenson ripped the sheet out of the machine and seated himself before the sending keyboard again. This time the message fairly ripped off his flying fingers. The receiver began clicking before he had completed.

"We as requested are going to let you do as you please concerning this girl, providing you absolve us from any trouble which is sure to come. About this fantastic experiment you are about to perform. Be careful. Remember one slip means exposure.

"F.J.M. C.I."

The Chicago News of May 5th carried a brief advertisement smuggled in among the automobile news. Undoubtedly, it had escaped the censoring shears of the editor, for had he seen it, there is no question but that it would never have been printed. It ran:

ATTENTION! ! ! !
MOTORISTS OF METROPOLITAN CHICAGO.

May 12th will mark the inception of the most rigid form of law enforcement ever attempted in the annals of control of the motoring public. And it is in the interests of all persons, drivers or pedestrians or passengers, that this warning is published.

As mentioned before, there is nothing in history to parallel the stringent punishment of the individual who, intentionally or carelessly breaks any of the canons of common sense while on the streets.

Inspect your car. See that it is in condition as to brakes—otherwise you might find yourself in a situation which would eliminate you as a motorist for some time.

Slow and Safe.

Remember the other fellow who might come at full speed out of the side street!

Naturally, in a city where a thousand unfortunate human beings meet untimely deaths in easily avoided motor accidents, this attracted no little attention—and discussion. Almost immediately came a pointed query as to who had originated the advertisement. The police authorities were interviewed by interested people and denied positively having anything to do with the warning.

"Since when," they demanded, "have we the right to put in such a startling condition as 'finding yourself in a situation which might eliminate you as motorist for some time?' That is a threat that we, honestly, would give much to see come true. It would do more to eliminate careless drivers than any futile and easily evaded law. It would be real enforcement."

Again, on the 12th, appeared another warning, covering an entire page:

MOTORISTS,
THE TERROR GREETS YOU!

Starting at noon to-morrow, the TERROR will stalk the streets! Use your common sense; be safe. Drive cautiously, stop at all designated stops and give your fellow motorists the considerations you would like them to give you.
WATCH YOUR SPEED! GOOD BRAKES?

There was a curious rumble of conjecture from all over the city that day. Nearly everyone agreed that it was an unique advertising scheme perpetrated by some manufacturer who had a new form of brakes to sell. But there were a few who knew that there were sinister forces at work. How did that advertisement happen to be printed? Suffice it to say that the editorial offices were in an uproar.

THE preceding day, the city editor awoke at his usual time. As his sleepy eyes roved his room, he started. Draped over the chair at the foot of his bed was a flaming red banner with a white scythe in the field. It was not there when he turned out his light the night before! He folded it carefully and took it with him when he went to his office. There he showed it to his secretary, explaining that some one had perpetrated a queer joke on him. To his surprise, the girl's face went white. After a moment, she produced one similar to it in every respect. She confided that she had found it spread out on her kitchen table. This was no longer a joke, thought he, as he settled down to the day's work. He opened the drawer to his desk and gave a shout, for there in the drawer was another flag! And when his personal safe was opened, another flag was found. Wrapped in the last flag, was the message which is printed above; also there was a bundle of bills sufficient to pay the cost of printing. There was a conference, and after much debate, the advertisement was printed with the expressed hope that whoever was carrying on that mysterious work would eventually make himself known, and explain his actions.

When the day had drawn to a close and the edge had worn off the novelty of the warning, another strange phenomenon made itself known to the millions who gathered about their radios for their evening's entertainment. Promptly at seven came a shrill, fluctuating whistle which covered the entire broadcast band. The over-riding hum of generators caught and held the attention of the wondering people. The stations, then on the air, sensed that something out of the ordinary was causing the interference and signed off, promising to return the moment the air was clear. At eight on the clock, the whistle died away and the ether was silent. Then unexpectedly, a voice, sonorous and commanding, thundered into the homes of millions on the waves of an extremely powerful transmitter:

"Chicago, cursed for years as a paradise of careless motorists, is to learn in a few short weeks what real, honest-to-goodness, undiscriminating law enforcement can accomplish.

"Chicago, on the completion of a mighty system of newly widened and resurfaced boulevards, has permitted increased speed rates, by the passage of a wholly unnecessary provision. Immediately the disastrous effect became obvious—at once, motor accidents increased alarmingly in every section of the city. Forty miles an hour was never intended for narrow, poorly-paved streets hemmed in by tall buildings built as close to the curb line as ill-judgment can allow. Forty miles in a street thirty feet wide! Do you motorists realize that at that pace a machine is covering fifty-eight feet in a second! Fifty-eight feet in the time it takes you to snap your fingers. And the intersecting streets only thirty feet wide! What chance have you to bring your machine to a stop when that precious first forty feet would be lost while you lifted your foot from the accelerator and placed it on the brake pedal? Is that common sense?

"Is it common sense to drive at that pace, just because some nit-wit passed a law allowing it? Is it common sense to drive at high speed, taking chances with your life, only to loaf around, and kill time when you reach your destination? A great part of the motoring public is beginning to realize this plain fact and are becoming skilled drivers by driving slowly. It does not take intelligence to drive fast. It is the unintelligent fool that causes the accidents on this city's streets, by being too liberal with his foot pressure.

"That is to be remedied. Beginning to-morrow noon, there will be let loose upon the streets a machine such as no man has yet imagined. It will be recognized—soon, and the work it will do will become the interest of a nation. Capable of unrealized speed and being of never to be forgotten size and strength, it is to ply the streets at the highest speed possible. Unlike any other vehicle, it is so built that it does not have to halt for any chance-taker. It will not stop to let a careless driver have the right of way!

"There is no need to go further into the conditions under which this machine will strike down offenders of common sense driving other than to say—Watch your speed. Undue haste will cause WASTE.

"You need not heed this warning, you foolish individuals who will greet this warning with derision, but, if you should hear this siren trailing you, know you that the Terror is on your heels!"

A sullen throb of a mighty engine was heard drawing closer, an ear-rending shriek of a siren whined closer and closer. Came a realistic crash of metal and glass—shouts and screams—a fading whine of a siren disappearing in the distance. Then there was silence as the unknown station left the air.

Chicago Avenue and Michigan Boulevard. The gateway to the North Side. A bottle-neck choked with

vehicles at any time of the day. Tall buildings hemming in the narrow boulevard, casting their gray shadows over the oily black pavement.

Evening. Five o'clock.

Sun sinking in the west. Shadows, dark and long, reaching with spreading fingers over the walls. The blue lake on the east taking on a darker hue. On the rising incline of the great Link Bridge sweeping upward toward the river, where the crimson fringed pinnacles of the towering terra-cotta structures stood forth in the smoke-filled air with a strange unearthly realism, was a solid jam of motor-cars.

The simultaneous release of tens of thousands of Loop workers and the sudden onrush of southbound traffic from the north concentrated at the point of greatest friction. In every respect, it resembled the meeting of two mighty rivers; an awe-inspiring sight when viewed from above. Machines, packed closely, bumper to bumper, creeping along in steady sweep, milling and churning, leaping ahead when space allowed; screaming brakes, roaring motors, the continuous jarring of horns, the pound of swiftly-moving motor-buses racing down the incline. This is Chicago! It is America! It is the evidence of the wonderful age in which we are living!

It is in every city on this continent, a daily experience and no one gives a serious thought to the dangers involved, except when some close jam takes off fenders and doors in the twinkling of an eye.

Motorcycle-policeman Kelly, at his appointed post on the northeast corner of the intersection, on the fatal 13th of May, rose disgustedly from his seat with the exclamation, "Suffering catfish, now he's gone and done it." Traffic had been brought to a stop, and the cause of it was a monstrous, strangely built motor car, which stood in a diagonal on the intersection. The insistent clamor of horns filled the air, while a crowd began to gather on the corners.

A machine, that is all it could be termed, for it bore but little resemblance to either motor car or bus, actually forty feet in length and having a slight resemblance to a squat coupé, had apparently come to grief. As the officer drew nearer, his eyes took in all details of the unusual vehicle. Of a length befitting a motorbus, the red colored leviathan had swung out too far as it attempted to turn into Michigan Boulevard from the west on Chicago Avenue. It had come in behind the center signal lights and jammed its pugnacious nose into the left side of a bus.

Kelly stood gasping as his eyes swept over the monster, which apparently had not been damaged by the impact. His incredulous eyes lighted upon the four recessed and shielded rear wheels; took in the fact that the front wheels were completely out of sight under the prodigious sweep of the curving, stream-lined nose; that the narrow radiator, set far back on the back of the rolling snout, ran straight to the narrow slit of the windshield; that it was built to withstand terrific shocks and was apparently as solid as a battleship. Moving closer, Kelly shouted in true style, "Hey, you in that red tank, back up. Where do you think you are, anyway?" The red machine obediently jerked itself out of the side of the bus, but a frantic clanging of a street car warned it that escape in that direction was impossible. The shaken, but uninjured, passengers of the wrecked bus descended and took their ways to the sidewalks where a great crowd had gathered. Some nervous driver lost control at that inopportune moment and a slight smash-up occurred in the free lane on the east side of the Boulevard. Street cars lined up for blocks; swarms of people gathered like flies about honey; the incessant bellowing of horns added to the din that rose in a crescendo roaring.

THE long-feared jam had occurred, and the cursing Kelly was unable to untangle it. He pranced about the wrecked machines, streaking the air with combinations of blood-curdling sounds that never would see print. He peered into the red machine and started anew a string of expletives, when he discovered there was no driver.

"Hey," he shouted to several policemen who had managed to come up by taking to the sidewalks with their motorcycles, "make an opening down there, pointing to the solid wall of machines which now filled the entire width of the boulevard. "Drive them on the sidewalks, anywhere. The driver of this pile of iron has beat it." Well versed in their line of work, the police soon had an opening made into which they backed the line of cars that had closed in behind the damaged bus. When the bus had been driven back, enough room was left for the willing crowd to push the cumbersome red monster out into the clear of Michigan Boulevard. The pent up stream of vehicles went on again, leaving a chance to bring the cause of the tie-up to the curb, where the lingering crowd gathered, admiring the brute strength of the finely moulded steel body.

Kelly retrieved his motorcycle and stood beside the machine, his wary eyes on the solid stream of cars rushing past. He started up alert when he heard a movement from within and without warning steel shutters snapped on the narrow slits that were windows. A whirring grind and the flared exhaust pipe emitted a throbbing rumble. As the machine gave a lurch forward, Kelly shouted a warning to his fellow officers, who had helped bring order out of the chaotic mass of traffic. A sharp reverberating blast burst out as the powerful machine went into low speed, dashing away and out into the traffic with alarming acceleration.

Siren screaming, the policeman gave chase. From the red demon, now in second speed, broke the unmuffled thunder of a mighty engine racing. Alarmed motorists scattered for the curbs as the flame-colored monster dashed onward. They had the impression of a low, thundering, red streak before their startled senses steadied themselves.

On it swept, with never a deviation from the path it had selected. Over the Link Bridge, where another policeman joined in the chase, rumbled the strange vehicle, its exhaust accentuated by the walls of the sky-scrapers. On and on, while chaos followed in its wake, as the suddenly halted machines began to get into motion again. Nearing Jackson Boulevard the traffic lights, which had read clear, turned red. That did not seem

to bother the red demon, for as the traffic ahead slackened, it swung out into the left side of the boulevard, gathering speed all the while. Pedestrians, hearing the unusual commotion, gathered at the curbing, gasping in amazement. At the intersection of Jackson Boulevard, traffic was closed up—still on it came at fifty miles an hour despite the fact that unwarned motorists were swinging out of the western boulevard!

To all the horror-stricken spectators it was evident that a terrible smash was imminent. But that was not to be, for with a movement that was difficult to follow, the monster turned right between the light towers, cutting in behind a machine that stood, fear-stricken at the corner, skidded with a scream of its solid rubber tires sideways between two other stalled cars, and letting loose a blast of derision from its motor-driven siren, shot like a projectile down the cleared boulevard.

During the next few hours the Chief of Police was the center of thousands of anxious queries. Reports came in, one after another, from all over the city that a huge red machine with a boot-like snout was tearing wildly about the streets, paying no regard to lights or speed laws. Slowly, as the news came in and the truth dawned on the people, did they connect the events of the preceding days. "It must be so," finally agreed the Chief. "That machine was promised in last night's radio warning, and is in action now. But, you may rest assured, it won't carry on long, for to-night every squad will be on the streets with orders to get it—whatever it is."

BUT the Chief did not know what he was up against when he gave his command so confidently on the night of the 13th of May. For, from then on, the Terror, as the newspapers nicknamed the monster machine for want of a better designation, made an almost punctual appearance daily on Michigan Boulevard, the sound of its siren causing all machines to make a concerted rush for the curb. No one desired to test out the Terror's threat when that onrushing giant shot along at high speed. Unable to keep up the terrific pace led by the Terror, the disgruntled police saw the red deck of the machine leave them in the distance each time.

Thus a week passed. A week of tense alarm which subsided as it was learned that not one machine had been chased or damaged by the threatening Terror. Then, like wildfire, one Sunday morning, the news spread that during the night the Terror had turned wild and had begun to carry out its threat. Several machines had been smashed for speeding. Late that afternoon the Cadillac squad of the Central station sighted the fearsome Terror slipping quietly down Western Avenue. Immediately, they took up the chase, though wondering what they could do to stop the Terror. As it made no effort to escape, they gained upon it rapidly. Suddenly one officer shouted a belated warning, "Look out, he's going to—" The rest of his words were drowned in the crash of metal meeting metal. The Terror had simply jammed on its six-wheel air brakes and waited for the police car to slam into its sturdy rear deck. As the Terror lunged out of the wreckage, the shaken, but otherwise uninjured men, clambered out. The entire radiator and front end of the squad car had been caved in. Thus demonstrated the Terror that it had begun its campaign in earnest and that opposition or attempts of opposition from the police would bring but one result—elimination.

As the fearful days crept on and the Terror's fantastic reign of the streets became more and more rigid, the people learned of the varied ways in which they could expect punishment, should they happen to perform any nonsensical feats of driving when the Terror was in the vicinity. There was one method which the giant machine seemed to glory in, and it was one that called for unusual skill in the driver, whoever it was, at the wheel of the Terror. In overtaking a speeding car, the Terror would hang doggedly to the rear of the offending machine, its siren screaming a warning that could be heard for a mile, forcing the terror-stricken motorist to continue on his way at increasing speed through opposing stoplights, cross-traffic, and street car intersections, with never an opportunity to stop, for if he did, the menacing snout was apt to come up close and push the car ahead, whether its brakes were on or not. It was amazing—the power of this low-hung land-destroyer. Then, if the creature, writhing in suspense within the chased car, showed that the hazardous lesson had taken effect, the Terror would swing away. But, had the driver revealed careless traits, or the machine itself evidenced a chance-taking owner, the Terror executed what was termed by the newspapers as the "Finale." After crowding the doomed machine to the curbing and allowing the passengers to escape, the Terror would press its snout against the rear side of the car and then crush its way along the entire length, tearing away mud-guards, running board, and bumpers. Often the lighter cars would lose their entire tops, while broken wheels and sprung axles were to be expected. After such a process, there wasn't much of a chance for the machine to speed again. It was a great comfort for the motoring public to learn that it was only a few that merited the most stringent lesson, that almost all were released after passing the nerve-shattering test of plowing helplessly through heavy opposing traffic; and that very few, after having such a harrowing experience, continued to drive in their old, incautious way. They had visions of themselves coming at high speed out of the intersections. It was forced upon them unwillingly that there were thousands of other drivers, who had the same rights as they and that these same rights were capable of causing conflict when they chanced to meet—at the same spot.

Despite the widely known fact that the Terror was always racing through the streets, it had never been charged with coming in violent contact with another machine! The driver of that steel giant seemed to control the Terror with a skill that was uncanny. Speed? Why, there was only one light car that could match it in acceleration! Agility it had—amazing in a car of such size and weight. Stop? There is where the comments raged. What sort of brakes did that giant have? True, there had been heard the unmistakable hiss of air-brakes, but, surely, these were not capable of bringing

that ten-ton giant to a halt within twenty feet, when it was traveling at forty miles an hour!

It was an amazing car and the crusade it was waging was just as amazing.

Chicagoans, during those hectic days, were kept on their toes and on the alert, for at any moment some foolish or fear-crazed driver might dash wildly down the street in the futile endeavor to escape the snarling Terror. Many a time, following the Terror, several police cars would race, their sirens shattering the air. Then the spectators would scatter—pedestrians for the shelter of recessed doorways and motorists for the safety of side streets. The police, angered and chagrined by the fearless reign of the unknown driver, brought rifles and machine guns into play. But, since the thick hide of the Terror had weathered the shocks of countless collisions, there was slight chance that a bullet would penetrate. Tires, being of solid rubber, were uninjured by bursts of machine-gun fire. The narrow horizontal slits of windows were protected by steel shutters which would close whenever the fire became too hot for the comfort of the hidden driver.

Often the Terror would let loose a snarl of defiance from its siren and turn to give fight. At this challenge, the bravado of the police vanished and they betook themselves, on foot, to more expedient quarters. They had learned that to cross the Terror's steel-encompassed snout meant destruction.

Complaints from city officials, helpless in this reign of the ruthless engine of destruction, caused the Government to assign several highly efficient secret-service men to the suppliant city. However, they confessed upon arriving, that their efforts would be eventually unsuccessful on account of the small amount of actual evidence presented.

A few people had come to the conclusion that the huge vehicle was controlled by radio, basing their convictions on the stories that whenever the Terror was in a tight jam, the driver was not present, although the machine carried out its maneuvers skilfully. And many experimenters spent hours covering the wave bands expecting to find and, if possible, cut into the radio impulses that controlled the car. The police announced emphatically that the driver was in the machine and that some day they would get him. Many and amusing were the ideas submitted for the express purpose of trapping the Terror. Pits in the pavement; great weights suspended over the streets and released at the opportune time upon the roof of the Terror; barricades; cannon; and mines—all these were suggested, but immediately discarded on account of the extreme mobility of the Terror.

Months followed one another quickly, and it became evident that the Terror would have to hunt out another city, if it desired to continue its successful work of terrorizing thoughtless motorists. Rarely was more than one car a week demolished, but as these were more for effect than offense, the rumor ran that the Terror was about to leave the city.

New York, naturally, would be its next field and, as soon as that city heard of the rumored threat, there was a concerted drive on incompetent drivers, by both newspapers and police, for well they realized what the result of the Terror's appearance would be. Too well they knew the narrow streets of the Wall Street section did not allow any such sudden dispersal of vehicular traffic as did the wider boulevards of Chicago. And, when the Terror was reported missing from the streets of Chicago, New York retreated within her stores and homes, leaving her pleasure cars in their garages—by police order. Watch was kept of the tunnels and bridges.

For a tense week there was not a word or sign of the Terror. Chicago feared the red monster was lying watchfully in its lair, New York was a flutter with the expectation of hearing the unwelcome shriek of a motor-driven siren breaking the unusual stillness of the streets.

With bated breath, the nation awaited the story of the new conquest of the Red-Rider of Commonsense Driving. It never came, for in the interval, the secret of the Terror was stumbled upon. The truth, much of which was unexpected, startled those discovering it in such a degree that they were almost afraid—yes, that was the correct word—to apprehend the Unknown One who piloted the Terror.

"YES, we have located the hangout of the Terror," announced Williams of the federal Secret Service, breaking the quiet of the Chief of Police's office. McGorty, the heavy-featured chief, pursed his lips thoughtfully.

"Well, it certainly took you fellows long enough. It is a mystery to me no longer why the black secrets of the world war are just now being revealed—if all the rest of Uncle Sam's best are like you," he grunted sarcastically, scratching his chin.

The secret-service man grinned. "Just wait until you hear the story we are going to tell you and you'll see those black whiskers play porcupine."

"Yea?" he growled. "Don't go throwing hints about me missing a shave this morning. You wouldn't wait till a man could make himself presentable."

"Can't be helped, McGorty. I thought it was best to let you know what we learned as soon as was possible. We are all here, I guess."

The small office was filled with silent men who sat on every available thing. Police captains, detectives, newspaper reporters were present with the expectation of hearing the result of Williams' work.

"Well, then on with the story—come what may," added Williams with a grin. "When my associates and I were sent here three months ago, we did not put much stock in the story that was being shouted by the newspapers of the cities outside Chicago. Honestly, we thought it was nothing but a rumor, like those of the supposed gang wars that are attributed to Chicago. It was too fantastic to be true. We intended to scout that rumor within a week after our arrival, but, when we had one glimpse of the wonderful machine, we knew at once that we were confronted by a problem unsurpassed in all history. Well, to make the long story shorter and more interesting, I let my men rove the city as they pleased while I, personally, paid visits to the various

colleges, knowing that there, if in any place, I could find the truth of the story of the hidden driver, who could become invisible at will. I found that there was, in effect, 'no sich animal.' And was about to give up that lead when this man introduced himself to me. He told me a story which he has promised to repeat to you. All right, Mr. Saunders."

Saunders coughed, glancing nervously at the circle of interested men. "Several months ago, six to be exact, there was a young man in my classes who had gained the reputation of having the keenest mind in the entire college. This youngster, he wasn't more than twenty-five, seemed to have control of a considerable amount of knowledge and used it to poke fun at our statements. We had had a little trouble with him on matters which, to our minds, were trivial, but one day he broke out with a startling and then amusing theory about invisibility and the one question he asked has remained emblazoned in my memory.

"'What could I, with the resources of science at my elbows, do, if as an invisible man, I decided to smash through the laws of modern civilization with no regard to life or property?'"

There was a movement from the men and they flashed comprehending glances at each other.

"I paid little attention to his ravings and had him ousted from the college. Then I lost sight of him. My work and other affairs pushed him completely out of my mind until the Terror began raging about the city. I recalled his prophecy, but was more ashamed than willing to tell what I suspected. I would have let things run, saying nothing, but for the terrible experience I passed through one night last week.

"I was seated in my room at the hotel where I reside, going over some of the work for the next day, when I noted that the front door of my apartment was swinging open. With a shock I recalled that I had turned the key in the the lock when I entered! As the door paused in its swing, I arose, trying to quiet the pounding of my heart, telling myself that such imagined fears were not for a man of my age and knowledge. Something within me warned me that I was not alone in that room! I closed the door, after looking down the deserted hall, and locked it again. When I turned around, I staggered, for the chair I had been sitting in the minute before was gone! Not a single trace of it was left. It might as well have never existed. Not so long ago I used to boast that nothing under the sun could frighten me, but as I looked about my apartment for the lost chair, I felt icy fingers creeping down my spine, thick hands grasping my throat, and my lower limbs were numb. Rooted to the spot by a paralyzing fear that gripped deeper than the power of reason and feeling the terrible presence of an unseen intelligence, I noted that where the chair had stood, a faint, crimson glow was growing brighter. There was a rapid change of colored lights in the form of a cone, and before me, grinning like the very devil, was the young man who had propounded the fantastic theory. He sat in my chair, without saying a word, merely laughing with satisfaction."

"'Well, professor,' he said at length, 'remember the day I wished to be with you—the day you met an invisible man? That time has come and you are convinced—yes, you are, else you would not seek that chair and seat yourself—that there are a few things of which your book-learned and rudimentary sciences know little.' He arose and stepped to my side, peering down at me with those cold blue eyes.

"'Mr. Saunders, you are well aware of the work which is being done by the Terror. You know there has never been anything in the history of man which has acted with such disregard to law and order in the express purpose of showing before the world the damned carelessness and over-confidence of a really small part of the people. Saunders, if you had sat in that seat with me in the Terror, for I am the Unknown One, and saw the foolishness shown by motorists, you would feel as I do; they deserve pity, the poor, misguided fools! The automobile is not a plaything to be given to every individual who can amass a paltry sum to make a first payment; it is a terrible weapon, whose owner should treat it as such, and be in financial condition to be able to shoulder responsibility in case of accident. Nevertheless, I feel I have done a work which will not be lost upon this continent; I have driven deep into the heart of every citizen of Chicago the long understood but never followed truth 'Haste makes waste.' But that is not what I came here to see you about, Saunders.

"'I wanted to show you, Saunders; demonstrate to you that I am not one obsessed with the idea of destruction. I have hated this work from the day I conceived it; it is one that anyone in my position would have done. I had the power, the equipment, and the reason—the result, only time will reveal.

"'Good-bye,' he said softly, moving to the door. 'That is all.' He was gone. I sat, dazed, for some time.

"I did not wish to tell anyone of his visit, for I knew that the great, though destructive, crusade he was waging was admirable. I would never have said a word except that Mr. Williams wormed the story out of me by clever subterfuge." He smiled wanly to the attentive men who had absorbed every word.

"Yes, that's his story," continued Williams, "and after hearing it, I had my hands full running down the thousand and one clews that presented themselves. I knew, then, that Stefenson was responsible for the mysterious placing of the red flags in strange places. But how was I to trace an invisible man? I might as well try chasing a spook. But, through the students at the University, I learned that Stefenson had a roadster, an Auburn speedster of unusual colors, and after a check-up with the manufacturer and license bureau, I found that it was the property of the Verdante Research Company. We looked the place over the other day, posing as factory inspectors, and found it ideally situated and equipped to house such a machine as the Terror. Then, too, the Terror is seen most frequently in that section of the city. Now, all we have to do is —capture him."

"Is that all?" interposed the chief, snorting. "Capture him? Do you expect to walk up to him and say, 'You are under arrest'? How do you expect to capture

him when, for all we know, he may be in this room listening to you?"

SEVERAL men swallowed hard and glanced fearfully about the crowded room. "I've been doing some thinking about this fellow." He smiled sheepishly as several grinned at his remark. "And the suggestion I have to offer is,—well, it may be surprising to you. How about letting things continue as they are? The Terror is said to be out of town this week and we won't have to worry about him. Let him alone. Perhaps he will start his business anew in some other city. If so, we can lean back and laugh at the efforts of their police to stop him. But, if he returns, we will have to drive in, sparing no expense to put him out of the way."

"Aw—," Williams' voice sounded disappointed, "you do that and my plans go sailing away. Listen, McGorty, Uncle Sam's men know more than they profess to know. We know that there is a girl and another man in this game and that they have made repeated visits to that so-called factory out on Western Avenue. My plan was to fall upon the three at once, when there was less chance of a trick being pulled. Don't think for a moment I'm not aware of the fact that the capture of any one of the three would be a lost motion, as the other two working together would release him, regardless of what steps we took to hold him. At least, give me credit for that. The only plan I see is to land the three at once, separate them, and make sure none of them escapes."

McGorty's eyes twinkled while he listened. "Well, Williams, when you do get them, just what are you going to do with them?"

There was a buzz of wonderment. No one had thought of this question before. What could they do to a man who had eliminated speeders, lawbreakers of a lesser degree, without causing a single death, through the smashing of personal property? Whereas, the usual precedure of law was to arrest an offender, fine him, and release him with the warning to watch out in the future, the Terror caught him in the act and rendered his machine unfit for further speeding. It is a common concession amongst all that whatever damage a speeder receives is his own loss and just because the Terror inflicted the damages, there was a very unique problem for lawyers to decide. Who, getting down to bedrock, was to blame? If the unfortunate driver intentionally risked destruction by careless driving, why blame a force which had pounced upon him, eliminating him before he did damage to some other? It was a ticklish problem, considering the fact that upon the release of one of the participants—an extremely possible supposition—the other two were as good as free!

McGorty said as much. But Williams was determined, "I don't care; I was sent here to arrest him, and I'll do it if I have to—kill him."

"Maybe," grunted the chief, lighting a black cigar. "Do as you like; use my men, if you wish; I won't stop you. Only I'd hold my tongue a little more. There is no sense killing anyone over this affair yet, and that is practically what you would have to do."

"LISTEN, Dan," commanded Malone, spreading a newspaper on the library table. "It's good. 'The Hargrave Motor Company offers $10,000 reward for any information leading to the detection of the man who operates the Terror.' They state here that some important papers bearing on a new motor have been stolen from their safety boxes at the National Bank and that a red flag was left in the empty drawer. Gosh, Dan, is that where you got the plans for the motor of the Terror?"

Stefenson broke off his intimate conversation with Annette, strangely alert. The now inseparable three had convened in Stefenson's quarters in one of their weekly visits.

A change, which they had noticed slightly when they had entered that evening was evident in Stefenson at that moment. His face was a study as he arose and strode up and down the room. Surprise and wonder were in Malone's and Annette's exchanged glances, for they had never witnessed such emotion in Stefenson before.

"Malone," there was anguish in his low voice. "I knew that was coming—sometime." His eyes were on Annette's upturned face.

"Malone, it's time that you should know the truth. I'm afraid some of the things I am about to relate will tax your credulity." He seemed unable to go on and settled into his chair beside Annette.

"Malone, I am going to tell you as much as I can to-night of what I am and who I am, and whatever you may think of me at the conclusion, please keep your thoughts to yourself. Do not interrupt me in any way, as I might decide not to go through with this—confession.

"Five years ago, a young man had a disagreement with his father, the owner of vast territory in an unknown land, over an heiress in a neighboring land. The father, for apparently selfish and pecuniary reasons, desired that his son wed this heiress—thereby bringing under his control her land also. But the young man, knowing that the girl did not care for such a marriage and that to remain in his father's house meant the carrying out of an enforced ceremony, fled to the protection of a friend of his—a scientist of the highest order. Through him this young man learned of secrets previously withheld from the rest of the people. Later, this scientist sent the young man to various parts of the world where he was instructed to perform certain missions.

"Malone," for some unknown reason, he directed all his attention to Jack. "This country—your world, has some mighty strange corners on its vast surface; there will be, despite all the explorations made to-day by your scientists, certain regions upon which no man can venture to set foot and expect to return. These regions, comparatively small in area, are inhabited by a race, which for the last three centuries, has been biding its time, planning and working to encompass this entire globe with their rule. I am not spinning an idle yarn, Malone, for I was taught under them and thereby am one of them. I have seen and used some machines that your wildest fictionists never imagined. This race is

powerful, thousands of years ahead of your immature sciences, and has been a controlling factor in world politics in the last hundred years. So it is, that whenever a discovery is made that is not to their direct gain, the machine, and often the inventor, is removed by clever means unthought of by any of you at present. My business, when I came here three years ago, was to secure the plans and calculations of a truly wonderful four-cycle alcohol motor, whose inventor had wandered off five years ago and in whose will he had mentioned the Hargrave Motor Company as receiver.

"Did you follow me?"

Malone sat on the edge of his chair, amazement expressed in every line of his face. He shook his head.

"I was sent out on my trip of exploration about four years ago. I spent one year in this unknown land and then set out to wander over the face of the earth, learning all I could of its peoples, seeing things, meeting men and women, great and common. The more I learned, the more I came to the realization of how sore was the need of establishing one central power. I know that your much vaunted civilization is but the work of a few men.

"But enough of that. I have already said more than I am supposed to. I went about my work quietly until that day when I indulged in a harmless little race with the girl who was to become my wife, when I returned to my country. Unexpectedly, a heavy truck cut her out of existence and I promised her as she died, that I would make the careless atone for her death. I did." Here he paused, staring at the floor.

"I am not a heartless, narrow-minded man by any means. I desire companionship as much as any other human does and that is why I have asked you to come here. Those pleasant evenings have been enjoyable hours—times in which I forgot my distant birth, my name, and my purpose.

"Now, my work is accomplished. My orders are to report home at once. A week from today will mark my departure and I hope I will hurt neither of you by asking that you remain away until next Friday at three, when I will take leave of these surroundings—forever."

Stefenson raised his eyes to Annette and he shook his head. Tears were gathering in her eyes. "No, Annette, there is no sense shedding tears—yet. Save them until next Friday." He forced a smile.

FRIDAY afternoon, just before the appointed hour, Malone started for Stefenson's laboratory, first picking up Annette. She, clad in a light fur coat, appeared unusually fragile. There was a despondent droop on her pretty face that spoke of broken dreams, and a resigned light in her eyes, once sparkling with life and fun. Malone had watched the quiet romance of these two widely different characters, and felt that something would occur that afternoon, which would put the final touches to their love for each other. He said nothing as he drove through the slow moving lanes of traffic, marveling at the smoothness with which each machine slipped in and out of traffic. There was no more of the sudden jerking and threatening moves by cross-street traffic.

THE Terror had struck home—hard. And the police, backed up by new codes of motoring rules, handled the few offenders adequately.

As Malone guided his roadster through the narrow fringe of trees near the building, he thought he saw the figure of a man clad in blue uniform hidden in the shrubbery. From somewhere in the vicinity came the low rumble of idling motors. Alarmed, Malone drove his car close to the doorway and discovered Stefenson standing ready for them behind the slightly opened steel door. This he closed quickly when they had entered, dropping a six-inch bolt into the wall socket.

"Well, they have found us," he announced, leading the way to his rooms. "I was expecting that for the last week. They know we are impregnable within this place and therefore will not rush us for some time—enough time, I believe, to allow us to carry out my plans, all arrangements for which are made ready."

Annette moved disconsolately about the rooms, which despite Stefenson's determination of leaving, were undisturbed. Daniel watched her, a faint twinkle in his eyes.

"Well, Annette, take a good look. This is the last time you will ever see these rooms or this place. I'm leaving here in a few minutes and when I do the new owner takes charge immediately. What he will do, I cannot say.

"Malone, your most cheerful liar is going to stage one of the most stupendous productions ever attempted outside the movies. Come." They followed him through the apartment into the roof garden, now green and gold in the warm rays of the early fall sun. He headed for a rough wooden platform-like structure near the north wall and mounting this, they saw that it permitted them to look over the high brick-work out into the fields below. Stefenson carefully removed a tarpaulin from a table on the platform, revealing an intricate assemblage of glowing tubes, whirring motors and switches apparently gathered together in a short time, as the apparatus bore none of the painstaking care which Stefenson was accustomed to take.

"Look," he pointed out in the fields, where, at a distance of about a hundred yards, hundreds of policemen were spread out in a cordon about the place. "They mean to get us this time, Malone. See that cable they are carrying so carefully? It is a wire, charged with high voltage; they fear we will try to make ourselves invisible and walk between them—that is the way they are going to prevent that. It must have taken some argument to put that idea into practice, eh?

"Yes, they mean business," he went on after laughing at their frightened glances. "This noon I drove the Terror for the last time. Loaded it with nitro-glycerine and took it to the quarry on Archer Avenue. After starting it in the direction of the opening from a side street, I leaped from it. Obediently, as ever, the machine plunged on, gathering speed every second, crashed through the flimsy fence and disappeared over the brink of the two-hundred foot chasm. A few seconds later came a terrific concussion that shook the ground, shattered windows in the vicinity, and sent a sheet of flame leaping over the brink. The Terror was no more!"

"Why—why did you do that?" gulped Malone.

"I wanted the secrets of the Terror to die! They can never be unfolded now, for that car is beyond recognition as a machine."

He seized Malone by the shoulder, his face not six inches away: "Malone, you know me! I want that knowledge to die also. I want your word of honor, a word which you will die, if necessary, to uphold. I want you to promise to keep all the things I've taught and told you, to yourself. It will go hard with you if ever a word is rumored that I was not of this civilization. Do anything you see fit; call me insane, if you need to, but never let it be known who I am. Understand? You are going to be watched from now on—. Have I your word?"

Malone drew a deep breath, returning Stefenson's stare the while.

"Stefenson," Malone said, "as far as I'm concerned, from this moment on—you have never existed."

Stefenson slapped him on the back, "That's the boy. Now, to show my faith in you, I have sold this property to you, through an agent. It is yours to own and operate with no restrictions."

He turned to Annette, who stood staring out at the ever-increasing mob outside the deadly wire circuit.

"Annette, what I have said to Malone, applies to you likewise. As far as you are concerned, I have never existed?" He stated.

She compressed her lips, slowly shaking her head. Her pleading eyes sought and held his. Suddenly he grinned. "You mean it?" With a slight sob she turned from his sight, bowing her head despairingly on the stone work.

"Very well," he sighed, turning to Malone, "This jumbled electrical assemblage is an extremely powerful generator of invisibility which is in operation, concealing a plane out there in the field. You have heard that distant rumble of motors since you came? Those are the engines of the invisible plane.

"When I give you a signal, Malone, I want you to take this axe," he lifted a fire axe from under the table, "and smash this entire apparatus until not a single trace of what it was used for can ever be discovered. Mind you, Malone, there is a temporary electrical connection, through relays, which, if my plan is not carried out at the right moment, will send this place up in flames."

He paused, contemplating the two. He grasped Malone's hand, "Goodbye, Malone, you are going to have a hard time in the next few months on my account, but I know you will carry through."

"And Annette," his powerful hands were on her arms, "Surely, you are not going to cry over someone who is not of your land? Someone who has no right to return your love?"

Her eyes, dimmed with tears, returned his gaze, "You," she choked over the words, "did not pay any attention to the laws of my world before; why begin to do so now?"

"That's the girl! That's what I have been trying to make you say for the last few months," laughed Stefenson, drawing her to him. "You are going with me, Annette. I was going to take you, whether you desired to go or not, but your willingness makes me happy."

"Go, say good-bye to Jack. Make it one he'll remember, for it's the last one—forever," closed Stefenson, releasing her. She threw herself upon Malone, who, somewhat dazed, had heard every word as though in a dream. She caressed him, murmuring, "I'm so happy, Jack. I'll always remember you. Good-bye."

Malone shook his head. Annette was very dear to him, and the thought of bidding her farewell forever was tearing at his very heartstrings.

"Yes, Jack, we say good-bye," nodded Stefenson, when Annette had returned to his side. "On you rests a great responsibility. Let Annette's relatives know what happened, but say as little as possible." Again he grasped Malone's inert hand.

"Good-bye," choked Malone as the two made their way off the platform and across the garden.

A minute later Malone saw them, arm in arm, tripping resolutely across the field, while a low shout arose from the great assemblage. Stefenson paused, waved his arms. At once, Malone grasped the switch, opening it. He brought the axe down upon the table. Gasping from his effort and sorrow, he paused only when the machine and its table lay a smashed mass of severed wires, bent steel, and broken glass. Then he turned his attention to the field.

A large twin-engined amphibian plane was slowly getting into motion, its engines roaring under full throttle. There was a concerted inward rush of men. Police-cars, and motorcycles led the closing wave that rolled inwards.

Its tail high in the air, the plane skimmed over the ground, gradually rising. Once clear of the ground, it rose in a steep zoom, banking to evade the stuttering machine-gun fire that was directed against it. As the huge ship swept swiftly over the building, Malone saw a small arm waving from one of the ports and he returned the wave with a broken smile.

From the direction of the municipal airport came the roar of another plane, one with a crowing cock ringed with a white circle painted on its fuselage—a news-reel plane, somewhat late for the excitement. The amphibian, now high in the air, circled the building several times with the other plane following on its heels. It seemed loath to leave. With a long, screaming downward swoop, it thundered directly across the field, barely a hundred feet high, passing directly over Malone, rose steeply and headed south at full speed.

Watching the steadily diminishing speck, Malone felt as though the world was leaving him. Into the south, disappearing forever, Annette, and Stefenson—going—forever—in mystery.

Out of the Unknown he had come and into the Unknown he had returned, leaving behind him a city whose motorists began anew their usual careless and thoughtless driving. For such is human nature.

THE END.

The Revolt of the Atoms

By V. Orlovsky

(*Continued from page 17*)

maimed and half-crazed people who had escaped death during the unusual catastrophe which had befallen their unfortunate country.

He could not conceive for a long time what had happened. The events resembled too much the nightmares of a sick brain. But here's what happened: The earthquake in Campagna ended with such a colossal eruption, that it could be compared only with the catastrophe on the Krakatao Island in the Strait of Sunda, in 1883. Three consecutive subterranean shocks discharged from the crater of Vesuvius incredible amounts of glowing lava, pumice and ashes.

The power of explosion was of such nature, that the air-wave produced by it, was impelled into the upper layers of the atmosphere. These were the shocks that impressed themselves uppermost in Deriugin's mind. All the cities and villages within and about 100-150 kilometers around the center of the catastrophe were either destroyed by subterranean shocks and hurricanes, or buried under the layers of ashes and liquefied rock dirt. The coast was inundated by a huge wave swept upon it from the sea. The number of killed was not yet known, but it was estimated to exceed several hundred thousands.

But together with that, in the general chaos of destruction, disappeared the atomic vortex. It was difficult, however, to say with any degree of certainty what had happened to it, but the postulate forwarded by Professor Umbero Medona, of the Bologna University, was accepted as plausible and logical.

Apparently, the fiery sphere fell into a cyclone formed about Vesuvius, owing to the rising currents of air above the crater. Attracted by it, the sphere tore out of the ring of engines and sped away along the wide spiral toward the center of the tornado, and at the moment it reached the crater, the main explosion occurred, ejecting the atomic vortex together with the ether wave out of the bounds of the Earth's atmosphere. Opinions were current to the effect that such coincidence was not of common nature, but was caused by a chain of phenomena. Yet, to prove that this was so, was a thing beyond possibility.

At any rate, the Earth rid itself of the dreadful menace albeit at a dreadful price. Eitel Flinder suddenly disappeared from Genoa, but, in all probability met his death in the catastrophe that buried the beautiful Campagna.

Three months later, the astonomers at the Greenwich Observatory detected a tiny star that was performing its circle around the Earth in the form of a satellite, at the distance of about twelve hundred miles. This was the atomic vortex that was gradually dissipating into universal space its dreadful energy, no longer to be feared by man.

THE END

BURIED TREASURE

By Miles J. Breuer M.D.

Author of: "The Captured Cross-Section," "The Man with the Strange Head," etc.

THEY were talking. A group of students of the year 3008 A.D. had sat down together in the shadow of what was obviously the ruin of an ancient power-house. Within the crumbling concrete walls and beneath naked steel girders of the roof were rusty wrecks of engines and generators that appeared unspeakably crude and clumsy to these young men.

There were six of them. Though they were physically robust and well developed, their faces were surprisingly round and smooth and young looking. There were other curiously contrasting things about them. Although their eyes were quick and keen and alert, yet their bodies were very quiet; they rarely made a useless movement. The absence of the usual and expected student boisterousness is amazing to me as I write of it. Although their appearance, their faces and hands and clothes showed much culture and grooming, as though both boys and clothes had been produced at the expense of much painstaking care, yet they apparently had no conscious thought of either themselves or of their clothes. They were all dressed alike, except in minor details of tint and border, in light, close-fitting undergarments, and a cloak over the shoulders. Their six faces were almost as nearly alike as their clothes.

They sat and talked with a quiet and graceful sort of dignity. They were from a University history class, and were studying the First World War Period, from which these ruins dated. They had looked over the crumbling remains thoroughly, and were now discussing the people that built them—which meant us.

"It was a terribly turbulent age emotionally," one of them remarked. "Fear and anxiety ruled the lives of these people. Fear for food and shelter, fear of disease, fear of storms and floods, fear of each other—they had no peace from birth until death. Each individual had to hoard his little store of the world's goods to feed and shelter himself and his family, and it was no unusual thing for one of them to lose it and find himself and family in want, with death from cold or starvation staring them in the face. No one knew when a foreign nation would descend on his home to kill and plunder; no one knew when his neighbor would sue him in court and deprive him of his living; no one knew when a disease might overtake him, and cause him to die, prematurely, unexpectedly—just imagine how their emotions must have been harrowed!"

"And yet they wrote of themselves as a highly civilized people." The one who spoke was Mkmstr (I think I had best render at least their names in the phonetic spelling of that day). Though these young men all looked very much alike, if you looked closely you would have found that Mkmstr was taller and heavier than the rest, and that his eyes had a little more blue, and a little less of the universal brown.

"Yet they were a happy people," observed one Tamsn; "probably happier than we are. I've been reading some of their novels. They used to 'fall in love'; that was the emotional accompaniment of choosing a partner in marriage, a curious emotional phenomenon. Often they seemed to experience some degree of unhappiness on account of it, but on the other hand it gave them an intensity of happiness that I doubt if we can comprehend."

"*You* ought to," Mkmstr implied slyly.

"I wish I could," Tamsn continued. "My approaching marriage has only made me study the subject more thoroughly. They supposed 'love' resided in the hear—"

"No, not during the First World War period," corrected 'Al whose memory for facts and dates made him the living reference-work of the party. 'Al was somewhat smaller than the rest of them, and his features were finer, so that he looked very much like a child with great, grown body. "That idea was discarded two generations earlier."

"Anyway," Tamsn went on, "young people got a consuming thrill out of finding each other and deciding to live together for life. Today, marriages are made in the *Vital Statistics Office*. Emotions do not count. Only your medical history and your social reactions, and this *gene* and that *gene*. Why! We no longer have emotions."

They regarded Tamsn in silence, never having

THE present story by our well-known author will probably go down in publishing annals as a particularly interesting piece of scientifiction literature.

In it, he has presented a secret code which, to our knowledge, is entirely new, and which, we believe, has never been presented before. Outside of this, the story gave rise to an entirely novel situation, which, to the best of our knowledge, has never been tried in a magazine before.

When Dr. Breuer's manuscript arrived, the symbol-chart, which will be found printed elsewhere, was drawn upon a piece of transparent tracing cloth. The editors had little trouble to place this chart over the key of the symbol, which is printed on page 43 and thus deciphered the code easily.

But how to present the story to our readers? It was impossible to print the symbol-chart on a separate piece of transparent paper, due to the high expense involved, so a brand new method had to be invented by the editor of this publication, and it was finally solved in a satisfactory manner.

If the directions are followed carefully, no trouble will be had in deciphering the code. Nor does it mutilate the magazine, because even after the sheet on page 41 has been cut out with a penknife, it can always be re-inserted in the magazine for keeping. It will, indeed, keep indefinitely in this manner.

Outside of the new code presented in it, the narration makes excellent reading and would be a fine story even without the novelty feature.

When they reached the top of the ruin-covered hill, came the amazing thing of the morning's program. Hz put together the seven pieces of trussed metal, clamped in four of the pocket detractors, and the thing began to dig. The youngsters regarded it as a rather commonplace affair and never gave it a second look as soon as they were sure it was working.

thought of such things before. Tamsn continued:

"'Love' wasn't all. People of that day had a capacity for excitement, for depths of feeling and heights of joy, that we have practically lost. The elimination of war has lost us the emotion of patriotism, perhaps the noblest feeling the world has ever known. State rearing of children has cost us parental love; scientific mating has deprived us of romantic love; intellectual pursuits have supplanted all the ancient, high-flung emotional amusements. Yes, we have worked hard to eliminate fear, anxiety, despair, hate, and we think we are blessed and happy. Well, our happiness never fails; but it never rises. Sometimes I think we're a bunch of vegetables, living colorless lives!"

A SUDDEN ripping, cracking rent the air above their heads and disturbed the peaceful quiet of the deserted hilltop. These highly trained and cultivated people had themselves so well in hand that they did not even start. They had lost all emotional reaction to fear; only the intellectual reaction was left. They rose calmly and walked out of the way. Then they stood and looked around. A great block of concrete above the place where they had sat was tottering. Age and changing weather had weakened a critical portion of its support. They walked still further away, displaying not the least physical signs of uneasiness. When the ton of stone crashed down on the spot where they had sat, splitting into a hundred fragments and throwing up a cloud of dust, not a muscle twitched in the group.

"It's fortunate for us that it sounded a warning," Pirsn observed. Until we get better acquainted with him, it will be difficult to distinguish him from the rest. These people of 3008 A.D. look very much alike.

They wandered over to the rubbish heap, from which a fine dust still rose, keeping a wary eye on the ruined wall above them; and in a moment their keen eyes had spied the rusty iron cylinder among the crumbled concrete. It was somewhat smaller than a forearm, and was still half encased in fragments of ancient concrete.

Pirsn picked it up and finished knocking off the adherent concrete. He turned it over and around. He shook it and listened. He tapped it against the concrete wall and it sounded hollow.

"Evidently a receptacle," Tamsn concluded. "Let us get it open and see what they took such pains to conceal."

"What if it is one of those ancient war projectiles?" Pirsn suggested. "They exploded and killed people. There would be no particular advantage arising out of our getting killed."

The learned little 'Al came to the rescue:

"We can say definitely that this is not a shell. A shell was pointed at the nose and had a flat base; this is rounded at both ends. A shell was accurately machined steel for true fit and flight; this is rough cast-iron. It is improbable that a shell would be encased in the middle of a block of concrete."

They studied it with a view to opening it. They discovered a faint groove around it near one end. This suggested that it must have a screw cap. They did their valiant best to unscrew it, but it was rusted too firmly in place.

"If we concentrate all our detractors on one spot, we can get power enough to melt one end off." This suggestion came from Hz, the mechanical genius of the party. They all grasped the truth of it, once someone had suggested it.

They all took their detractors from their pockets. A detractor looked very much like a pocket flashlight. Everybody carried one, for the purpose of helping himself to the unlimited stores of power constantly being broadcast into the air for public use. It could be used to run a car or an airplane, warm a room, light up a dark place; in short, for anything that required power.

They tapped the rusty cylinder, holding it in a vertical position, in order to shake its contents down into one end. Then they concentrated their detractors on the other end. The metal first glowed red and then glared white; and bright drops of molten metal fell on the ground and caused smoke. Shortly one end was open, and so quick and intense had been the heat, that the metal was heated no further than an eighth of an inch away from the melted edge. Yet, to prevent the burning of the outcoming contents, they waited for this to cool; they waited with a calm and quiet patience that was uncanny. By all rights they should have been wildly eager to see what was inside. If they were, it did not show.

Finally they shook the cylinder with the open end down. They got only one thing, a roll of light bluish, smooth, transparent material, which might have been paper or might have been linen. One side was covered with strange characters.

"It's some sort of writing," Tamsn said. "A message. Don't touch it till we photograph it. It's a thousand years old and might fall to pieces."

Three of them took turns photographing it with neat little cameras against a graduated scale. In the meanwhile, Mkmstr talked to pass away the time.

"Just think!" he exclaimed; "at that time, people in general were unable to do their own writing or photographing. They depended upon professionals, upon whom they looked down as menials."

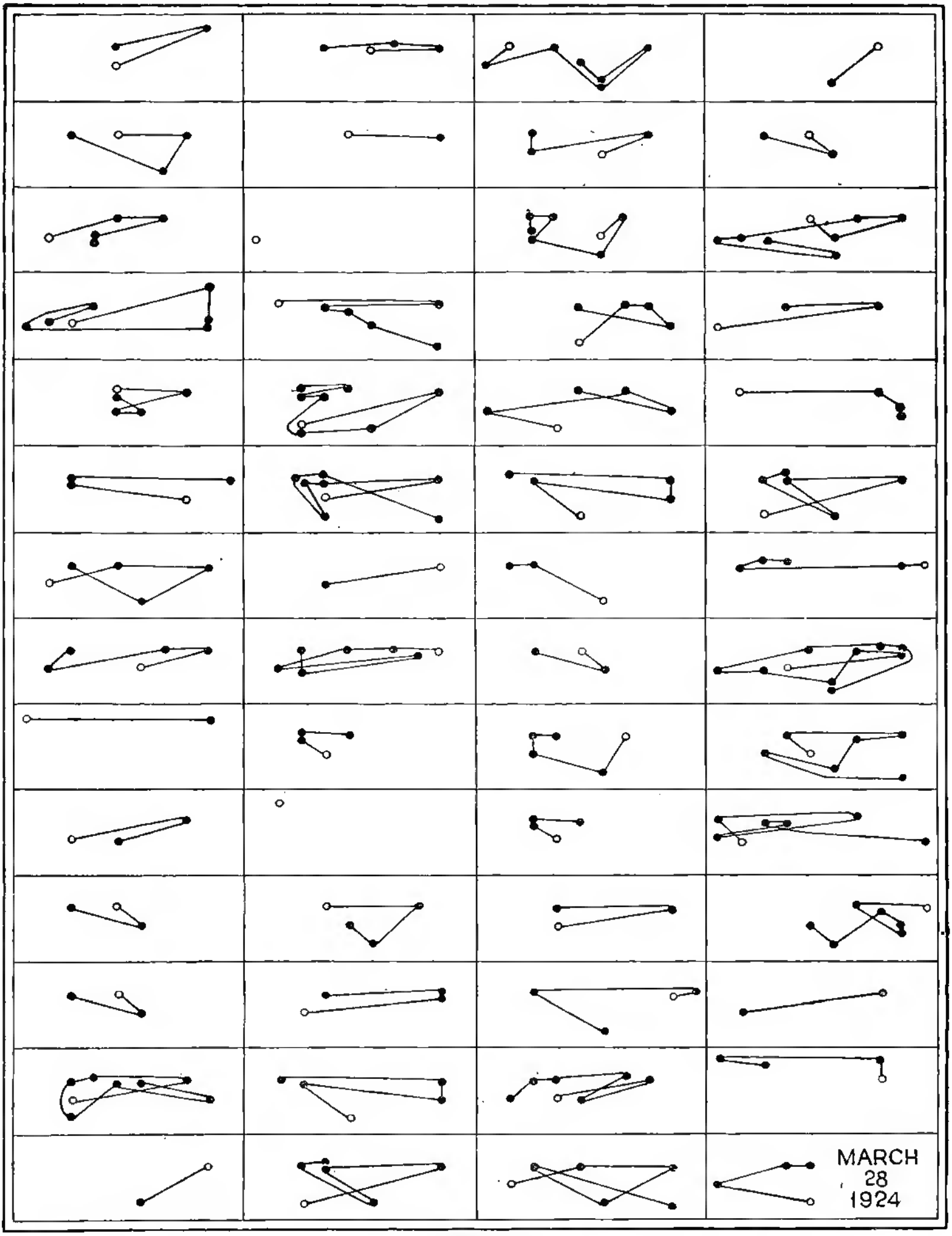
Mkmstr did not envy the past and its romance as Tamsn did; he exulted in the glory of the present.

"A slight correction, please," put in the omniscient 'Al; "at the First World War period almost everyone could write, though relatively few were able to handle other recording processes routinely as we do. A thousand years before that, however, even the highest and most prominent people could not write, but had skilled menials do it for them."

By that time the photographing was done. This is what the document contained:

"THAT is no known writing of any age or people," pronounced 'Al. He turned to Pirsn. Pirsn was the abstract reasoner, the Sherlock Holmes of the bunch. "What do you say?" asked 'Al.

"It has a crudely artificial appearance," suggested Pirsn, "as though made by an individual for a purpose or an occasion."



DIRECTIONS

First, carefully cut out this entire page, using a sharp penknife. Then, place page WITH THE UNPRINTED PART UP, on a clean newspaper. Next, procure a bottle of fine oil, such as 3-in-1 brand and pour about one teaspoonful on the page. Take a clean wad of absorbent cotton and distribute oil all over page, making sure that entire paper is covered. Wipe off surplus oil. The page is now translucent. Next, with printed part up, place it over key symbol on page 43. Read from circle towards dots. Circle and each dot gives one letter. Each of fifty-six boxes on this page contains one word. After reading message, oiled page can be replaced in magazine.

BURIED TREASURE

"A secret code!" exclaimed Tamsn. Tamsn's atavistic spark of romance, though barely perceptible, seemed out of place in this *blasé* and self-controlled world.

"A cryptogram, no doubt," Mkmstr assented, his mind always on something practical. "It must be an important message, with all those elaborate efforts to conceal it."

I am glad that these young fellows found a cryptogram. It gives us an opportunity to see how brains worked in those days, when their capabilities were really developed. None of them had ever seen a cryptogram before, nor even taken the slightest interest in the subject of secret writing. Yet, they set about solving this one, in an assured, matter-of-fact way, and they solved it promptly. In fact they elected one of their number to solve it. They assigned the job to Pirsn and calmly forgot about it until he had it finished, in the same light-hearted way that the gang would have assigned me the job of procuring hot dogs and buns when a picnic was planned in my student days.

A few hundred years earlier than this day, something the world had never seen before, an Index of the World's Knowledge had been brought to completion. Therefore, everything known to mankind on any subject was instantly available to the seeker. Pirsn's first step toward solving the cipher was to go to the building housing this Index, to learn all about crytography. In all the cities, these buildings were alike, a huge central dome with twenty radiating wings of huge marble colonnades. It took him all the afternoon to read up his subject and solve the message. The gang met the next afternoon at Mkmstr's apartment.

I continue to marvel at these college students of the year 3008. All students that I have ever known would have descended on the place with a bang. There would have been several scuffles, some of them approaching the point of being dangerous to the life and limb alike of participant and bystander; then they would have all draped themselves over walls and furniture in fantastic and contorted attitudes. These young men, however, filed in and sat down quietly and decorously, like a group of deans entering a convocation. Without impatient exclamations or rustlings, they waited, with alert eyes and silent bodies, until Pirsn produced the bluish manuscript and several sheets of notes.

"It was disappointingly easy and simple," Pirsn began. "However, I found crytography an interesting subject, not at all difficult. Some day I wish to look further into the psychology that made people wish to conceal their thoughts by such means. It confirms our ideas that during those times there was much friction and antagonism between individuals, and but little cooperation. However, I was also quite interested in the quaint and curious English that was spoken at that time; I had to learn some of it in order to decipher the document. Now I'll repeat the steps by which I read it:

"First, the message is on a transparent medium,* and has a definite geometrical arrangement. That suggests that it belongs among those ciphers that are read by being placed over some sort of a guide-diagram or 'frill' or 'key table.' This is a most convenient discovery, because it rules out of consideration a vast mass of possibilities in substitution ciphers, and saves us much time.

"Second: There are fifty-six characters. If the characters stood for letters, it would mean that the message contained somewhere between nine and fourteen words; certainly an inadequate number for conveying very much information. However, if each character stood for a word, fifty-six words would be a reasonable length for a message. Again, if there were fifty-six letters, there should be six or seven of them representing 'e'; *i. e.*, that many repetitions of the same sign. The sign occurring in the 8th space is repeated in the 31st, 41st, and 45th spaces. It might be an 'e'. However, here the trail ends. For, there ought also to be four or five each of 't,' 's,' and 'o,' and there are not. No other sign is repeated save the one mentioned. Although the spaces 10 and 38 each contain a single circle, I am already going on the hypothesis that it is the position of the dots that counts, and therefore 10 and 38 are different symbols. We have then, fifty-three signs, only one of which occurs more than once. This is strong evidence that the symbols stand for words, not for letters.

"Third: The number of dots connected by lines, in different signs, varies from one to ten; just the right proportion to suggest that the dots represent letters. Remember that in the old English, more letters were used than nowadays. The circle would mean the beginning of the word; quite natural. There must, then, be a key to lay under each square; each dot will then lie over the letter for which it stands. Now to find that key. We have three clues:

"The four-times repeated sign contains three letters. In the English language of that period, the chances are a thousand to one that it is the word 'the.' I made a square of the proper size and put the letters 't,' 'h,' and 'e' into the places indicated by their position in this word. The next thing would have been to study each symbol with my diagram of known letters. Sooner or later I would have decided another letter from contiguity and contest. Putting this in its place, I would have repeated the process. Thus, letter by letter, I could have built up the message. However, I stumbled on a short-cut."

"'The'? did you say?" interrupted Hz. "We spell that with two letters, not three."

"You must remember," reminded 'Al, "that the word we now spell 'θ-e' was at that time spelled 't-h-e'."

"As I said, I found a short-cut," Pirsn continued. "In looking over the various 'grill' and diagram ciphers, I noticed a number of times the keyboard of the typewriting machine of that period—this strangely illogical and inconvenient arrangement of letters:

2	3	4	5	6	7	8	9	0	
Q	W	E	R	T	Y	U	I	O	P
A	S	D	F	G	H	J	K	L	;
Z	X	C	V	B	N	M	?	.	

"It suddenly occurred to me that the positions of the

*In reality, draftsman's tracing-cloth, which they apparently did not recognize.

dots standing for 't,' 'h,' and 'e,' correspond relatively to their positions on this keyboard. I made out a table of letters of the proper size and arrangement, and tried out a few of the signs, laying each section of the message over the keyboard diagram.

"The puzzle was solved; here you are:

"Got your warning in time to hide the stuff, a hundred thousand dollars' worth. Built air-tight concrete vault, will keep forever, below corner stone of new power house, outside the foundation, 20 feet under ground. Dig three feet square; the ring for pulling the door open is directly below figures 1924 on corner stone. Bart. March 28 1924."

SILENCE reigned for many minutes, and was then softly interrupted by the passing of papers from hand to hand.

"Pirates' treasure!" Tamsn finally breathed, subduing his excitement as one subdues a cough in church. Whatever matter came up, Tamsn traveled straight to the thrill.

"Couldn't be!" said the matter-of-fact 'Al, "In 1924, pirates had been extinct for a hundred years."

"What was pirates' treasure? What good could it do?" Mkmstr never deserted the straight and practical path. And 'Al never failed when historical information was required.

"Chiefly gold and silver," he replied. "Sometimes mineral crystals, jewels; they were worn on the person for adornment. Watches, utensils; valuable things stolen from their owners. You ask what good would it do us? Natural jewels are not as large and perfect as synthetic ones, and have practically no value either in industry or in scientific work. The watches and utensils might make a gift to a museum. Gold and silver are our most efficient sources of atomic power, and a hundred thousand dollars' worth—" he figured for a moment—"each of his share would be relieved of about a year's work in the labor divisions."

"I wouldn't give up my shift," Tamsn exclaimed. "The only real fun I ever had in my life was my turn in a labor platoon."

"The question is, shall we dig it up, or report it?" Mkmstr propounded the question impersonally, but he was aching for action; he wanted to dig it up.

They agreed that it must be dug up, not because gold and silver meant anything to them, but because it was a most interesting antiquarian find, from the very period they were studying in their history classes. It was the nearest thing to excitement that life provided.

The one thing that gives us an idea of the independence and stability reached by the society of that epoch, is the fact that these young men, at the age when life tastes sweetest and contains the most thrills, could not conceive of finding anything that would be of any value to them. What could they possibly want? They had everything already. Buried treasure meant no extra pleasure, no extra happiness, no excitement, not a thrill. It meant merely the intellectual satisfaction of finding some interesting historical material.

"The world holds no more buried treasure," Tamsn concluded mournfully when 'Al concluded his explanation.

These boys had been together for several years; they knew each other thoroughly. Their "gang" was well organized in an informal way. According to the unwritten law the digging would fall to Hz, the mechanically inclined member. Hz talked it over with them:

"Since we want to keep it a secret for the present, a regular excavator would be too conspicuous to secure and to handle. I'll make a small, slow-speed excavator that we can operate with our pocket detractors. It will take me twenty-four hours, and I'll build it in sections, so that we can carry it ourselves."

EARLY in the morning on the second day after the cipher was solved, the six of them met at Mkmstr's room. Hz distributed among them the pieces of his machine in a matter of fact way, as though it were nothing to have invented and constructed a totally new piece of apparatus in twenty-four hours. Tamsn showed traces of suppressed (very thoroughly suppressed) excitement. The others might have been engaged in the preparation of one of their daily college tasks for all the effect produced upon them by the proposed unearthing of a treasure over a thousand years old.

They climbed into a couple of roomy airplanes with their burdens, allowing space for what they might have to bring back home. Mkmstr worked at the instrument-board of the machine; he set pointers on dials; he wound keys and pushed plugs into holes; he turned letter knobs and dials. He was working out the problem of the plane's coming flight. When he was through, he moved a lever and sank back comfortably in his seat. The plane started off, rose, turned, gathered speed, and chose its own way, without any further human guidance or attention.

In the rays of the rising sun the city shone dazzling and resplendent beyond anything you and I have ever seen. From the height at which the plane flew, one could see a comfortable world. The countryside was dotted with cozy dwellings in brilliant horticultural settings, between which stretched broad acres of things growing for the needs of men. It seemed that some men dwelt in the city and some in the country, but both in equally comfortable, orderly, beautiful ways. If you have dreamed of the future as a crowded, teeming place, this was not it; it was leisurely and cordial.

There were many other planes abroad, in which drivers leaned back and enjoyed themselves with no concern for the management of the vehicle. Machines were at work on the broad, green, level fields. The morning air was keen and pleasant, and the young fellows felt glad to be alive.

When they reached the top of the ruin-covered hill, came the amazing thing of the morning's program. Hz put together the seven pieces of trussed metal, clamped in four of the pocket detractors, and the thing began to dig. The youngsters regarded it as a rather commonplace affair and never gave it a second look as soon as they were sure it was working.

Hz's "slow-speed" excavator required about an hour

to dig down twenty feet. They made their hole five feet square instead of three, to allow the machine space to work in. Hz watched it intently, and indeed, at twenty feet depth, he heard the scrape of the blades on a hard surface. He shut the machine off, and three of them were silently accorded the privilege of descending, Tamsn the romantic adventurer, Hz who had made the machine, and Pirsn who had solved the cryptogram. They were physically active and clambered down the arm of the machine like monkeys.

They scraped the dirt off the concrete floor and sent it up the machine; they found a big iron ring and a groove showing where the edge of the door was. So Hz hooked a blade into the ring, and after they had climbed out, started the chain. The machine lifted out a slab of concrete and set it on the ground. Below them yawned a black hole, in which were visible the upper two or three steps of a flight.

So they unclamped their detractors in order to use them as flashlights and climbed down into the opening. They found themselves standing in a cramped and musty chamber. It was cramped because it was full of wooden cases piled around the walls and stacked in the middle. There was a half inch of impalpable dust over everything, which, stirred by their movements, soon had them all coughing and sneezing. The cases were light and clinked as they were moved.

Rather promptly they decided that it was too crowded and too dusty to do anything down there; the only possibility of learning more, lay in taking some of the boxes up to the surface with them to examine. They carried one to the top of the stairs, propped it between two excavator blades, and had the machine hoist it out of the hole.

They undid the simple zinc hasp and raised the lid on its ancient hinges. There were twenty-four green bottles, each full of some liquid.

"Pirates' treasure," remarked Mkmstr to Tamsn's blank look of disappointment.

Nacht had out a bottle and was turning it over, peering through it and smelling of it.

"A beverage or a medicine," he remarked. "What else could it be?"

"In bottles?" suggested 'Al. "Oh, they used to put up cleaning solutions, skin lotions, writing fluids—endless things. At the University Museum is an ancient bottle labeled 'Embalming Fluid'."

"We can tell by the color," Nacht said, fingering the tinfoil seal over the cork. "What would they be apt to conceal a hundred thousand dollars' worth of?"

"Not medicine," 'Al felt sure. "At that time, the use of medicines had already begun to decline. Alcoholic beverages were also suddenly stopped a few years before the date on this paper. We know little or nothing about the post-alcoholic beverages, but this seems to be one of them."

Nacht took off the tinfoil and pried at the cork. He finally got half of it out and half of it in. A delicious aroma spread among the circle reclining on the grass.

"Smells too good to be alcoholic," said Mkmstr.

"No harm to taste it," Tamsn said, making a gesture that asked Nacht for the bottle. Nacht motioned toward the case. Tamsn quickly took one, opened it, and tasted the liquid. His face took on a rapturous expression.

"It's an enchanting material," he announced. "Cannot possibly be alcoholic."

Two other bottles were opened and tasted at once; and Tamsn's was sampled again. The reports were enthusiastic:

"Delicate!"

"Highly accomplished!"

"I always knew the ancients possessed arts that we had lost." This last profound remark was from Tamsn, the archaeophile.

Pirsn tried it.

"Who would have thought that the sense of taste could convey so much emotion?" was his comment. Pirsn's ideas always tended toward the abstract.

BY this time 'Al and Hz had their second portions, and Tamsn his third; and each of the others was opening and tasting a bottle and remarking on its wonders. Tamsn was a little flushed as he stood up to take a drink, and to join him five other bottles were pointed bottomwards toward the sky.

"Isn't it a wonderful day, fellows!" Tamsn exclaimed. Never in all his life had his voice rung so enthusiastically; never in all their lives had the others heard so much emotion expressed in a mere voice. However, you and I would only have considered him the least cold and reserved, the most nearly human one in the bunch now.

"Remarkable day," 'Al agreed. "Remarkable beverage of the post-alcoholic age."

"Beautiful blue sky, fleecy clouds, billowy forests, spires and towers of a fairy city in the distance—" Tamsn sighed deeply.

"Sounds beautiful," Nacht said critically. "That is the way the poets wrote a thousand years ago. Why don't folks talk that way now?"

"This *is* really living, isn't it?" Pirsn said, his voice rich with emotion. "Relax. Unburden your soul. Been cramped too much."

"I've never really *lived* before," Nacht remarked thoughtfully.

"Buried treasure anyhow," Tamsn said with much satisfaction. "We thought it wasn't possible."

"Real buried treasure," assented 'Al happily.

A song welled up from their midst, one of the soft harmonies of that petted and comfortable age. But in a few moments the gentle melody had rolled itself into a rollicking lilt that rang lustily out of six boisterous throats and re-echoed among the ruins and down the hill-side. Something was happening to these accurately balanced, rigidly controlled people of a perfect age.

The sound of it pleased them and they sang it again. The third time they danced to their singing. Not for hundreds of years had this blossoming earth witnessed such a sight as six young men dancing among ruins and singing at the tops of their lungs; not since man's emotions had been leveled by the establishment of universal safety and comfort by the abolition of fear and anger, so that they now ran as a deep but placid and

well-controlled stream, with no more turbulent rapids, no more turbulent spray reflecting rainbows in the sunshine.

Nacht slapped Tamsn a resounding thwack between the shoulders.

"Here's to your Minerva, your bride to be!" he shouted heartily and drank down the toast.

Tamsn looked as though he would like to leave the group at once in search of his Minerva. He stood awhile in indecision with shining eyes and parted lips, but finally decided to stay.

"Minerva!" he murmured, and gazed rapturously toward a white statue on a gatepost which had an arm and a nose missing. But never before had he felt thus about his Minerva. Something new had wakened within him.

Whatever the stuff was that they had found—and it is clear that this must have been a good quality light wine—it had not been strong enough to make them silly or unsteady. It had merely removed the thinnest layer of neo-cortical inhibition, and made them only carefree and boisterous. Before long they were broad-jumping, and after that, climbing all over the crumbling buildings. Two of them tried out a wrestling match, and the rest stood by and applauded, enjoying it immensely. They explored ruins, not in their usual fashion of spending an hour on a square inch with scientific accuracy, but like children, racing here and there, poking into all the adventurous corners, shouting with glee at each new discovery.

"I've never known before what it means to be happy," Mkmstr panted, sitting down to rest near an airplane.

"Our buried treasure brought us more joy than all the gold and mineral crystals of the pirate days could have secured," 'Al remarked, sitting down beside him.

"Got to conceal it carefully," Hz contributed.

"I'm intensely tired and sleepy now," yawned Nacht. In fact, the same was true of all of them. Like a group of babies after strenuous play, they were being overcome by the pleasant lassitude of fatigue. They all lay down in the shelter of the planes.

"Careful!" warned Pirsn. "The ground is cold and damp and we're not used to it. Might mean disease.

We don't know much about disease any more, because we've learned to be careful." He was mumbling along chiefly to himself. "Why can't we be careful now—!" he demanded, noting that no one was paying attention to him; and then trailed off weakly.

It was in vain. The others lay still and some were beginning to snore. Not even a snore had been heard in this world for ages. So Pirsn went about taking detractors out of pockets, laying them on rocks, and focussing their warmth upon the sleeping figures. He got the sixth one set by desperate effort, and rolled into the middle of the circle where there was a comfortable glow of warmth, asleep before he hit the ground. He rolled against Tamsn, who murmured in his sleep:

"We thought there couldn't be any buried treasure!"

THEIR digging around the foundations of the power-house, augmented by their subsequent antics, must have weakened the supports of that corner of the wall. While they slept a rain of rocks descended into their excavation, smashing their excavating machine to a flat pile of twisted metal. Crashing of glass and aromatic odors came from below.

Then a huge section of foundation caved in, and the entire corner of the ruined building gave way. The underground chamber collapsed completely. I doubt if a single bottle was left intact.

Over by their airplanes the young fellows slept so soundly and innocently, that their dreams were not in the least disturbed by the crashing and the quaking of the earth.

THE END.

INTO *the* GREEN PRISM

By A. Hyatt Verrill

Author of: "The King of the Monkey Men," "Beyond the Pole," etc.

What Went Before:

PROFESSOR RAMON AMADOR, internationally recognized authority on physics and optics, and with a dash of the aborigine in him, and the writer of this story, Don Alfeo, an archeologist, complement each other in their discoveries, whenever they meet on an expedition.

Prof. Amador, quite excited over the findings that his associate had made while in the Manabi district a year before, asks permission to accompany him on his next trip. Don Alfeo readily grants this permission, because he is sure that some marvelous discoveries will be made there if his friend accompanies him. In Ecuador, with the help of some peons there, all the scientific paraphernalia belonging to both men, are finally brought to the shore of the Manabi River, where the professor immediately sets out to find the source of the supply of minute golden beads and green glass-like mineral which Don Alfeo showed him. He not only finds more gold beads, but also a lapis lazuli image, beautifully ornamented with many patterns deeply engraved over it. The place had obviously been the site of a great temple or place for ceremonials—a veritable treasure house for the scientists, it seemed.

In experimenting with the green "glass" which they found there, the professor accidently stumbles on a new discovery. He finds that in the prismatic form it magnifies minute objects to great proportions and as clearly as though they were full size. This glass Ramon names "Manabinite." They also discover that inorganic matter, placed within a certain range of the projected waves produced by the prism, vanishes. Other material such as wood, paper, or metal, becomes as transparent as glass. Prof. Amador believes he can see even an atom with the aid of his highly developed prism. Finally he does. They observe the minute structures of stones, wood, etc., though some material shows no change whatever behind the prism. After these astounding discoveries, the two scientists decide to return home with a collection of their precious prisms, to continue their amazing experiments unhampered, in well equipped laboratories in America.

PART II

CHAPTER VI (*Continued*)

STRANGELY enough, it was his preparations for departure that led to the most astonishing, the most amazing and the most incredible discovery of all, and resulted in the mysterious, hitherto inexplicable, disappearance of my dear friend and companion.

In order that it might be quite safe while he was packing, Ramon asked me to take charge of the prism. As I was carrying it towards my own quarters, a whim seized me to have a last look at something. Idly wondering how an ordinary landscape would appear when viewed through the apparatus, I carried it to a little knoll a short distance from camp, and pointing it toward a sandy area beyond, stepped behind it. Only a faint, hazy, indefinite outline appeared, and very carefully and slowly I manipulated the adjustments which, as I have said, were designed to alter its magnifying powers or "focus" as I called it. Quickly the sand, pebbles and rocks took shape. They became enlarged, seemingly detached from everything else and appeared as if they were floating in the air in the peculiar manner to which I was now accustomed. The image was not tremendously magnified, but was sufficiently enlarged to make each grain of sand appear like a pebble, each pebble like a boulder, each boulder like a mountain. It was a fascinating sight, and, anxious to see the effect of greater magnification, I continued to move the adjustments. Slowly the grains of sand, the pebbles and the rocks grew before my eyes. A tiny blade of grass was transformed into a lofty, rough-stemmed, palm-like tree. An ant, scurrying across the field of vision, appeared like some gigantic, prehistoric monster. Larger became the minute grains of sand; the pebbles had become enormous, rough-sided, rock masses, seamed and scarred and pitted.

The pieces of rock were now too vast to be within the field, and rose like stupendous precipices—And then I stared, gasped, unable to believe my eyes. In a deep ravine, which I knew was merely the space between two tiny grains of sand, I had caught a glimpse of movement, of some living creature. What could it be, what form of animal life could be so small, so microscopic that it appeared a mere speck under such enormous magnification?

IF the first part of our well-known author's story has whetted your appetite for more, the second part will leave you gasping. Of all the novel and daring situations, the present one in this story certainly merits high consideration. We know, that the story will prove ample food for our correspondents, and that a red-hot battle will be waged in the Discussions Department. And after all, when the unbelievers will shout, "Impossible," you might ask them to explain how a human being sees a three dimensional body, as pictured in his brain, and how he comes to see it, and how he is able to recall that picture or object twenty years later? Perhaps this simple and commonplace thing is just as difficult of explanation as Mr. Verrill's mirage coming to life.

The next instant I gave vent to an involuntary yell of incredulous, almost terrified amazement. The creature had reappeared. It was standing, clearly revealed beside a gleaming mass of pink quartz, and it was—a human being, a man!

I felt I must be going mad. I felt like one in a dream, in a nightmare. Chills ran up and down my back. Either I was suffering from dementia, from an optical illusion or else—no, that was utterly impossible—or else I was gazing upon a miniature human being, a fellow man,

The people were dispersing from their morning sun-dance, the musicians were leaving. Then I saw the Indians gather, their eyes turned towards the palace. My heart beat hard and fast. . . . I hardly recognized my own voice as I turned towards Ramon. "She is coming! . . ."

who was less than one thousandth of an inch in height, who was smaller than an *amoeba,* who was microscopic in size!

I was brought back to earth by Ramon, who, aroused by my shout, had come hurrying towards me.

"What's wrong?" he cried. "Have you smashed it?"

I was too dazed, too overcome to reply, even to speak. I could only point at the Manabinite prism. My expression and features must have told Ramon that something amazing had happened. But nothing had prepared him for the wonder of it. As he glanced into the prism, his jaw sagged, his eyes dilated, his face paled. *"Santisima Madre!"* he gasped, crossing himself. "My God!" he ejaculated in English, "it's a man! But it cannot be, it's impossible, supernatural!"

"But true!" I managed to exclaim in a hoarse voice. "Thank God, Ramon, you see him too! I was afraid I had gone mad; that my brain was affected."

"There's another!" almost screamed Ramon. "Oh, *Dios,* what does it mean? Are we both mad?"

Now I, too, was gazing at the image revealed by the prism. Beside the first figure there was a second. Both were men, both were perfectly formed, stalwart fellows, dark-skinned, with long floating hair, their bodies clad in elaborately-colored poncho-like cloaks, both with staffs or clubs in their hands.

"They are Indians!" I whispered, unconsciously lowering my voice as if fearing they might hear me. "What does it mean, Ramon? Do such beings exist? Are they really there? Or are we seeing something that is an illusion, a mirage, the reduced images of men somewhere else? What do you make of it?"

For a moment Ramon was silent. Then, very slowly, as if weighing every word he spoke, *"Amigo mio,"* he said. "We are gazing upon the most incredible things that human eyes have ever seen. Those two beings are real, they are alive, they are as human as we are. Mirages, illusions, phantasms, ghosts, fairies cast no shadows. Those men do. Down there among those grains of sand, under our feet, is a race of humans infinitely minute. God alone knows who or what they are. God alone knows how many of our fellow men and women we may have crushed beneath our blundering feet. *Amigo mio,* we have, that is, you have made a discovery that will startle the world. All of my discoveries are nothing compared with it. Unsuspected, unknown, undreamed of, absolutely incredible as it is, you have discovered a new, a microscopic race of men!"

"But—but, my heavens, man!" I cried, my voice shaking with the excitement and wonder of it all. "It's impossible! Why, we've been walking here, digging, working over this very spot. If such beings existed—and that's a preposterous idea—we would have destroyed them, buried them, crushed them as you say! No, no, Ramon! There's some explanation, some sane, sensible reason for what we see!"

"Hush!" admonished Ramon. "They're moving. They're going on. We must watch them, must follow them, must find out if there are more of them. Perhaps they have—yes, they must have—houses, villages. They——"

I burst into maniacal, nervous laughter. "Follow them!" I cried derisively. "How can you follow a man scarcely larger than an atom?"

"With this prism," snapped Ramon. "You forget that its depth of focus, as you will persist in calling it, is fully fifty feet. To those infinitesimal men among the grains of sand, fifty feet would be the breadth of a contingent. To them a few inches would be a day's journey—perhaps a month's tramp. You desired to see a 'living atom' as you expressed it. You have seen two. Ah, there they go! They are hurrying. *Santissima Virgen!* I see it! There is a house, a village! Scores, hundreds of people!"

CHAPTER VII

EVEN now, when the excitement, the wonder, the weird, dreamlike, incredulous amazement of it has passed; when I can think of it calmly and dispassionately; when, looking back, I can think of that day and revisualize every moment, every detail, every word as though I were reading it from a printed page; even now, I say, I cannot well describe our feelings, our sensations as, with staring, wondering, unbelieving eyes, we gazed into that bit of crystal and found ourselves looking into another world. We simply could not credit our senses. There before us, as plain, as clear, as natural as though we were gazing at any other community of Indians, were the throngs of people. There were their houses, their village. But that they were minute, microscopic, so small that the ordinary grains of sand were like good-sized hills beside them, seemed so utterly preposterous, so unnatural, so scientifically impossible, that we could not force ourselves to believe in their reality. No, to us, to our senses, we were looking upon some Indian settlement at a distance. To us, it seemed that by some freak of optics or physics, the images of normal-sized beings had been reflected, refracted (like the images in a mirage), to where we stood, and had been picked up by the prism.

In fact the illusion was so perfect and complete, that I found myself far more interested in studying the people themselves than I was in the marvel of the prism, and, temporarily at least, felt that I was watching perfectly normal-sized Indians. That they were Indians was obvious, but they were totally distinct from any Indians I had ever seen before.

Their color was a light ochre or olive, scarcely darker than tanned white men or than Professor Amador. Their hair, worn long by both men and women, was a tawny-brown, and their features were regular, well-formed, and denoted a high grade of intellect. The men were dressed in poncho-like garments of some material that glistened like metal, or I might better say, fish-scales. They wore sandals upon their feet, their hair was confined by fillets of bright colors, and they wore various ornaments in the form of necklaces, etc. I am now describing the first two individuals we had seen, but I noticed, among the throng at which we were now gazing, that there were obviously several classes or castes among the people. Among the men these were marked by the apparel, some wearing ponchos of dull-colored material, others merely loin-cloths; the ones with the iridescent, metallic garments were in the

minority. Among the women, the castes were marked not only by costume but by the color of the skin. Some were almost white, others were quite dark. The latter were nude to the waist and wore skirt-like garments of some fiber, while the others wore skirts of the same material as the ponchos of the first men and had cape-like garments fastened across the chest, covering the shoulders and back.

It was no doubt largely due to the fact that they were so typically Indian that we could not realize or believe that they were not normal in size. Had we suddenly discovered some minute beings of weird, monstrous or wholly new forms; if they had two heads or four legs; had they been green, blue or scarlet; had they been transcendingly beautiful and fairy-like or as repulsively ugly as Calibans, then, no doubt, we might have been able to convince ourselves that we were gazing at microscopic beings. But here we were, watching human beings, that were not only normal in every respect except size, but were, in addition, typical Indians.

Even the village and the houses were scarcely different from those of ordinary aborigines. The houses were low, domed or beehive-shaped, apparently constructed of adobe or clay, and among them were several larger buildings, the whole surrounded by a thick, high wall. I noticed, too, that the men, when carrying anything, bore bows and arrows, long slender spears and short stone-headed clubs. The two new arrivals, whom we had first detected, had apparently been on a hunting trip, for, as they entered the village, I noticed that one of them carried the body of a dead creature. At first I took it for a small deer, but, as the hunter threw it down before one of the houses, I saw to my surprise that it was not a vertebrate but some unknown creature, apparently an insect, for it had six legs.

I also saw that its skin, hair, fur or whatever its covering, was like metal and iridescent, and I assumed that the ponchos of the men were made from the skin or covering of the creature. But whether they were woven from the material, or whether the entire hide was used, I could not determine.

Here let me call attention to another peculiar sensation I had—and which I found later was shared by my companion. As we watched these people, we had an almost irresistible temptation to reach out and touch them. As I saw the strange animal, I forgot for the moment that I was merely watching the thing through the prism, and unconsciously, I extended my hand with the idea of picking up the creature and examining it.

INSTANTLY the scene was blotted out—people and village vanished, and in their place was a wall, brown, seamed, scarred, pitted. An exclamation of mingled amazement and impatience came from Ramon. I stared, speechless with amazement. What had happened? What new miracle was this?

Then, as suddenly as they had vanished, the people were before us again, and the wall had disappeared. I broke into hysterical laughter. I had withdrawn my hand; the wall that had blotted out the view had been a portion of my own hand vastly magnified!

For the first time since we had first seen the men, full realization of their size came to us. For the first time we were fully able to believe that the Indians before us were Liliputians that would have made the denizens of Gulliver's Liliput appear like enormous giants; people so small that, by comparison, even the smallest ant would appear as gigantic a monster as a dinosaur would to an ordinary human being.

It seemed beyond the bounds of reason, and had not Ramon seen exactly what I saw, I should have felt sure I was mad or that my senses were playing me false. How *could* such beings exist? How *could* there be living men and women so minute that they were invisible to the unaided eye? How could they survive? How could they escape being trampled and crushed underfoot? How could they avoid being utterly destroyed by the first rain, by the first puff of wind, by the first handful of drifting sand or dislodged gravel?

Such were the thoughts that raced through my mind as I watched the people in the village before me.

Then a remarkable thing happened. The scene before us was darkened. Twilight fell upon the village. Above the heads of the people some dense cloud was drifting. Involuntarily, I glanced at the sky. It was almost cloudless. Without thinking, I turned my eyes towards the spot where the Indian village had been, momentarily forgetting that it would be invisible. There was the bare stretch of sand, and crawling across it, was a tiny green lizard. I gasped as a sudden thought, a sudden idea swept through my mind. I sprang to the prism. There was the village; light was beginning to shine upon it once more. Again I glanced upward to see the lizard moving away. It was a wild, an insane thought, but a fact. The lizard had crawled *directly over* the Indians, but so far above their heads that he appeared merely as a dark cloud! So minute were they that the ordinary grains of sand were like the loftiest mountains to us. What we, looking through the prism, had mistaken for the sand grains, were particles of impalpable dust! Any ordinary thing, any normal creature, would pass over them, far up in their sky, leaving them unharmed, protected by their surrounding sand-grain mountains! They were as safe, as protected between grains of sand as ordinary human beings would be in some narrow canyon between the highest peaks of the Andes. Even Ramon and myself, walking across the sand, would not harm them. Our gigantic feet, treading the sand, would merely appear like dense black clouds. Something of this I managed to babble to my companion. "Of course," he snapped back a bit impatiently. "You can't crush a molecule or an atom, can you? Those beings are scarcely larger than atoms. Good heavens, man! Don't you realize how small they are? Why, you could put a whole family of them on a microscope slide, place a cover-glass over them, press it down as tightly as you could, and they'd have plenty of room to walk about and be comfortable! Good Lord, *amigo mio*, what a train of thought this leads to! They probably imagine they are full-sized men and women. They feel themselves just as large as we feel ourselves. What if there are still others as much smaller than they, as they are smaller than us!"

But I scarcely heard him. I had caught sight of a large building, a temple or a palace, and was staring transfixed. It was unmistakable, the counterpart of ancient, pre-Incan temples, and they were being used. Before its door were two stone chairs, chairs of exactly the same form, style and workmanship of those I had found here at the Manabi site! I was dazed, my mind was in a turmoil. What could it mean? Then I began to realize, to note, a hundred details. There could be no doubt about it. These Indians, these infinitesimal beings, were the same race as the ancient Manabis. Their sculpture, their chairs, their pottery, their ornaments were identical. But how, what, why—? The Manabis, as I knew from skeletons and skulls, were normal-sized men and women. Yet here were Manabis of microscopic dimensions, carrying on precisely the same industries, following the same customs, living the same life as the ancient Manabis had lived. Was it possible they were spirits? Was it possible that the uncanny powers of the prism had made visible the wraiths of another world? Were we gazing at the ghosts, the souls of long-dead Manabis? I laughed madly, hysterically, at the thought. But what other explanation could there be?

A raindrop spattered upon my head; another and another fell. In a few seconds it was raining hard, yet we continued to stare, for to both our minds had come the same thought, the same desire to see what happened to those minute people, as the rain poured down upon them.

But we were doomed to disappointment, as we might have known we would be, if we had stopped to think or to reason. Seen through that magical prism, each descending drop of rain was as big as a Zeppelin. Each drop, as it dashed down, completely blotted out everything from view. Each, as it struck the earth, burst like a fifteen-inch shell and sent vast cataracts of water in every direction. In that chaos of flying spray, of gigantic globules, of the torrents released as they burst, the Indians and their village, the temple and the surroundings were as effectually hidden as though behind a mountain range.

There was no sense in our getting drenched. There was nothing more to be seen, and we scurried to the shelter of our camp.

"There won't be anything left of them now," I observed, as we threw off our soaked garments. "This rain will be infinitely worse to them than a Johnstown flood."

RAMON snorted. "My good friend," he exclaimed, "for a scientific man you certainly say and do the most childish things at times. Do you, for one moment, suppose these incredible people have been developed, have lived, have grown to adult men and women, have built villages and temples, and have developed arts and industries all in a day or a month or a year? No, of course not. And yet it has rained here every year, rained harder than at present and steadily—for weeks at a time—and they still exist. This rain will not affect them in the least."

"Nonsense!" I cried heatedly. 'You are arguing from the point of view of our own world, on our basis of time. Those minute wondrous people must have everything in proportion to themselves—their lives, their time must be as short in proportion to ours as they are small in proportion to us. For all we know, a second of our time may be a year—several years—to them. In a day of our time they probably go through many generations, perhaps centuries of their time. But even if they didn't, how could they survive a heavy rain? Why, man alive, the spot where they were must be under an inch of water by now!"

Professor Amador roared with laughter. "There you go again!" he cried, when he could control his merriment. "You have been so amazed, so upset and overcome by finding something that upsets all your preconceived ideas that you do not stop to reason. You assume, because one feature of the case is revolutionary and wholly beyond all preconceived scientific theories and hard facts, that everything connected with it must be as bizarre and miraculous. Your own senses would controvert what you have just said if you stopped to reason about it. Why, we were watching those midgets for nearly an hour. Did you notice any flying of time among them? Did they grow old and die? Were children born, grown up and developed into men and women during the seconds, minutes that we watched and which you claim would have been equivalent to centuries to them? Not a bit of it. The men brought in their game, it was being skinned and prepared, and the fellows were still talking about their hunt when the rain began. No, no, *amigo mio,* an hour to us is an hour to them. Moreover, they have the same sunshine, the same hours of darkness as we have. They have no separate planetary system. Hence their time is our time, and you may be sure they have been in existence, living as they do now, for centuries, ages. As for being destroyed by this rain, by a few inches of water. Pooh! Water wouldn't affect them any more than that lizard that crawled above their village. We've walked right over them time and time again, but it hasn't destroyed them. Possibly, if there are other villages, we may have buried hundreds of them under dirt thrown out from our excavations. Probably they looked upon it as a convulsion of nature. But rain!"

'I admit your argument as to time is sound," I replied. 'But I still fail to see why rain or water would not destroy them. To tread over them is one thing—they are protected by the sand and pebbles and our feet do not press or crush what is beneath and between them. But water permeates everywhere. I can even conceive of a Juggernaut, some gigantic machine or even an imaginary Titan, rolling or striding across New York, crushing the buildings, spanning the city, and yet with the people escaping death in the canyon-like streets. But there would be no hope for them if the city were flooded until the highest buildings were submerged."

"Again you forget the most rudimentary truths of science," chuckled Ramon. "Did you ever dig carefully into sand after a heavy rain? If so, you must have observed that while it appears wet—water-soaked in fact—there is much dry sand.

"And you have forgotten how difficult, how nearly

impossible it is to secure perfect adhesion to a dry object. We pick up a stone, a pebble, and it appears wet, to be sure. But, if we examine it under a powerful lens, we will find that what appears a uniform coating of water is, in reality, composed of innumerable tiny drops; that there are appreciable dry spaces between them, and with infinitesimal particles of dust, next to the stone almost immeasurable layer of air, which is usually filled with infinitesimal particles of dust, next to the stone itself. Hence, my dear friend, these microscopic aborigines are quite safe. The rain that would soak us to the skin is composed of drops far too large to affect those little people. All they see of the descending torrent is the finest, the most microscopic spray that bounces off the sand grains and pebbles and falls like a gentle shower among the inconceivably minute crevices where they live. And the water that to us appears to cover them 'an inch deep' as you put it, appears to them like a vast dark cloud. Precisely, I might say, as that black cloud above us appears to our eyes. That cloud overhead is nothing more or less than water which, could it descend all at one time, would prove a flood many feet in depth. But because we are under that poised mass of water, we do not necessarily suffer. Do you see what I mean, my friend? Do you not understand that those remarkable beings are so inconceivably minute that the molecules of water, which to our eyes and senses appears a homogeneous liquid, are visibly separate, each aqueous molecule appearing to them like a great cloud. No, no, *amigo,* we must entirely reconstruct all our previous ideas and conceptions of humanity, of nature, of a thousand other things. It has been too great a revelation, too great a discovery, too revolutionary, too amazing for our poor brains to assimilate all at once. I confess that I, myself, cannot really believe that we have seen what we have seen. Yet, I have always held to the theory that we were purblind, unimaginative, egotistical, self-sufficient and unreasoning beings. That we humans were so bound down by our own ideas of our important place in nature, so limited in our viewpoint by our own exalted opinions of ourselves, and so dull in our perceptive senses, that we have built up, constructed the idea that all humans must be made more or less like ourselves, that the world, as we know it, must be the only world, and that there can be no other world. Even our ideas of inhabitants of other planets are always based on our own forms or the forms of creatures familiar to us. Always, as I said, I have held that this was the utmost nonsense, the most short-sighted policy, that, for all we know, there may be countless other strata—as I might call it—of life all about us. That we may be moving in a world of one particular range of vibratory waves; that above or below our perceptions there may be others, that even within the substance of which we and other bodies are composed, there may be universes teeming with intelligent forms of life, that, as far as we are aware, every atom may be a minute planetary body with its own satellites, its own inhabitants, its own individual forms of living organisms, each and all thinking and believing like ourselves that they alone are the only reasoning, intelligent beings in the entire universe. And now I find that, in a certain way and to a certain extent, my theory is borne out. We know that under our feet there is a race of men as small as microbes. That they possess much the same forms, features, habits, passions and arts as ordinary mortals. That to them there is no other world, that we are as invisible, as inconceivable to their eyes and their senses, as they are to ours. And this, my friend, is a most remarkable feature of the case and pleases me immensely. They are Indians—aboriginal Americans—people of my own race and blood."

"What is more," I observed, when he ceased speaking, "they are Manabis—the same race that inhabited this place in prehistoric times, the same tribe that made the stone seats, the slabs and those minute gold beads. I cannot understand it. The Manabis were full-sized people; these microscopic beings are precisely the same except for size. Do you know, I have been wondering if by some unknown, some preposterous, improbable means, they gradually diminished in size through the ages—if it is not within the bounds of possibility that the tiny beads that puzzled us were not the work of the Manabis when they had dwindled to say—six inches in height."

"Hardly," replied Ramon. "Of course, I admit that a six-inch gold worker would find making such beads as simple as an ordinary artisan would find the making of beads several inches in diameter. But in the first place we have found no transitory remains—no artifacts showing or indicating a diminution in the size of the Manabis. And, moreover, there is the lapis lazuli idol The fine carving would have been simple for a six-inch man, but to cut the images of that size from lapis-lazuli would have been a far greater undertaking than for a normal-sized man to sculpture an idol several hundred feet in height from a mountainside."

"But if the theory was true, it would account for the cyclopean stone-work of the pre-Incas," I reminded him. "How do you know but that, once upon a time, giants as much larger than ourselves as these people are smaller, inhabited this land; that during countless ages they gradually decreased in size. That the Titanic stone work was not the handicraft of the race when they were still giants?"

"For the same reason that you know the ancient Manabis were neither dwarfs nor giants," retorted Ramon. "The fragments of skeletons of the pre-Incas are those of normal-sized men and women. No, *amigo mio,* I cannot accept that idea. But I admit anything—even the wildest, most insane and preposterous things would not surprise me after what we have discovered."

CHAPTER VIII

ORDINARILY, Professor Amador showed no least indication that he was Indian. When discussing scientific matters, when conversing with his equals, when mingling with white men and women, he was wholly, absolutely the educated polished white man. In fact, he was far more Anglo Saxon than Latin. He had no trace of an accent and, aside from the use of an occasional Spanish expletive or a Spanish expression now and then—such as his favorite *"amigo*

mio" when talking to an intimate friend—no one who did not know him would have suspected that he was of Spanish descent. But often, when he was in uncivilized places, when he was among aborigines, when he was busied with some problem or when he was excited, his Indian blood came to the fore and, temporarily, at least, he would be entirely Indian. He would sit for hours, as motionless and silent as a stone statue, staring fixedly at some object or into space, oblivious of everything.

He would assume the tone, voice, manner of the Indian; would speak in their poetic, oratorical, symbolic way, and would relapse into his ancestral Quichua.* He could be as perverse, stubborn and determined as any aborigine, and he was as untiring, as immune to personal discomfort as any of his pure-blooded relatives. Not that I liked him any the less for this. My long association with Indians had taught me to appreciate many of their admirable qualities, and in some ways, I rather liked Ramon better as an Indian than as a Spaniard. Now, however, he had become obviously predominantly Indian once more. He had been talking like any fellow scientist, discoursing learnedly; but with his final words, he seemed to become suddenly transformed. The thought, the idea that had been suggested, had gripped his imaginative fancy, had appealed to the Indian love of the mysterious, to the Indian's pride of race, and he had become obsessed with the idea. Here were these amazing, these most marvelous of human beings, a race never dreamed of by anyone, and they were Indians! No wonder he was proud that he was of their race. News of their existence, of our startling discovery would set the whole world agog, and word that the smallest of all known organisms were human beings, and that they were Indians, would lift the aboriginal race into prominence above all other races. Ramon, I knew, was thinking of this. His eyes were fixed, a far-away look in them, his lips were set and he had frozen into immobility. His words, too, had set me to thinking. It was strange, a most remarkable fact that these minute people should be Indians, for—a wild thought had possessed me—was it not probable that they were the most ancient of races on the planet? Was it not possible that from these microscopic beings man had evolved to his present size? Or, was it the other way about? Had the Manabis diminished in size until they had become invisible to the naked eye? Or,—wilder and wilder thoughts were racing through my brain—were all the various human races represented in atomic-sized individuals? Was there another, a totally distinct sphere of existence going on, unseen and unsuspected all about us, a world of microscopic dimensions, a minute replica of our own? If so, was it not possible that there were larger spheres, spheres as much bigger than ours as we were bigger than these tiny mites whose world was a patch of sand? My mind was in a turmoil. Within the space of a little more than an hour, all my ideas, my conceptions, my knowledge, my beliefs and convictions of a lifetime had been utterly upset and destroyed. I could make neither head nor tail of it all. If I kept on thinking I should go mad, and, heedless of Ramon's detachment, I seized his shoulder, shook him into consciousness and insisted on talking to him.

Of course our conversation was all of the fantastic, miniature Indians we had seen and whom, even now, I could not force myself to believe we had seen.

IT was too unreal, and yet Ramon appeared to have accustomed his mind to their reality. In that way, I admit, he was superior to myself. Or it may be that it was his Indian blood, the superstitious tendency of the aborigine to believe in anything, no matter how impossible or incredible. My own mind was a chaos. I knew in my heart that we had seen the beings, I knew the impossible had happened, and yet my better reason told me there were no such things, that we had been subjected to an hallucination or an illusion of some sort. Oddly enough, too, I found myself constantly striving to convince myself that this was the case, mentally arguing that the people did not, could not exist, and I began arguing with Ramon on this line.

Wasn't it more sensible, I demanded, to think we had been deceived, to assume that, as I had suggested before, we had been looking at the reflected images of normal Indians at some distant point?

"You forget they are Manabis," Ramon reminded me. "Can you tell me where there are living Manabis?"

"No, but it would be more reasonable, more possible for Manabis to exist and to follow out their arts unknown to us—in some remote mountain or desert retreat—than for microscopic people to exist."

"Granted! Then how do you account for that beast they had killed, that six-legged, shining creature?"

"I don't," I admitted, "but even that would be more within reason if it were of normal size. Possibly there *are* such creatures somewhere in the interior."

Ramon grinned. "And assuming that is so, how about that lizard that crawled over the village and looked like a dark cloud?"

"Illusion," I replied, knowing perfectly well I was arguing against my own convictions. "The lizard was normal, but it was transposed, the reflected image of the village merely *appeared* to be beneath it—something like a double-exposed photographic negative."

"You are perfectly aware it was nothing of the kind," cried Ramon, testily.

"Like all scientific men—and most white men, I might add, you are not willing to admit the existence of anything to which you are not accustomed, which science has not approved, which is outside your hidebound ideas and conceptions, which you cannot explain by what you term possible or probable rules, laws, and beliefs, which are all stuff and nonsense. There the savage, the primitive man is superior to the civilized white man. The aborigine takes things as he finds them. He does not try to reason that they cannot be because they are beyond his comprehension. He does not say this or that is impossible. He believes what he sees and a great deal that he does not see. You call it superstition. A few years ago, belief in radio, in hypnotism, in any one of a thousand things we know

*A South American Indian language.

today, would have been termed superstition. What *is* superstition? Belief in something one cannot explain, that is not generally accepted by dense, pig-headed tradition-bound men! Yet you cannot explain a lot of things you believe in—electricity, light, the rotation of the earth, the planetary system, the spark of life, the working of the mind. Thank God, *amigo mio, I* have Quichua blood and can believe in anything! I can believe that anything is possible to God, that there are countless things in nature we cannot explain, that matters are transpiring all about us of which we know nothing, of which we do not even dream. But this matter is simpler. We *can* see these tiny beings. For Heaven's sake, why can't you believe in what you see? Why try to convince yourself it is impossible?"

"Good Lord, I *do* believe in them!" I exclaimed. "But do you think for one minute, you or I could make anyone else believe in them? That's the trouble, Ramon. I am thinking of it from the scientific viewpoint. Yet, I must admit, there is nothing scientifically impossible about those people. We know there are innumerable forms of life of microscopic size; undoubtedly there are as many more too minute to be seen even through the most powerful microscope. If one form of life of minute proportions can exist, there is no scientific reason why there should not be others. But vertebrates! Human beings! I don't know. Somehow that makes it different. Somehow, I suppose, it is merely because we are accustomed to it—human beings *must* be of more or less normal size."

"So must ants and insects," said Ramon. "And yet you do not doubt that Dr. Henden lost his life in a district where ants and insects were as large and larger than human beings. You yourself secured his notes telling of his strange experiences. You, yourself published the story. You have told me about it scores of times. Is it any more remarkable, more incredible, that there should be human beings as small as ants—thousands of times smaller than ants—than it is to have ants hundreds, thousands of times larger than ordinary ants?"

"I don't suppose it is," I confessed.

"And do you, a scientist, assume for one moment that our world is the only sphere on which intelligent vertebrate life exists?" he continued.

"No, of course not," I assured him.

"VERY well," Ramon proceeded. "In that case, why should there not be forms of life on electrons? An electron is as much a portion of a planetary system as our globe. Why shouldn't life, intelligent life, exist upon atoms? And why should there be any hard and fast rule limiting the size—and mind you, *amigo mio,* size is a relative term as vague and meaningless as our time—why, I say, should there be any limit to size?"

"Scientifically speaking, there isn't," I agreed. "But the trouble is, these beings are so darned much like any one else. If they'd been wholly different, it would have simplified matters."

"That, I admit, is a puzzle," he said. "I've been thinking a lot about it, and about your suggestion that the pre-Incans might have been giants. I wonder—no, that's too wild even for the primitive side of my mind. Do you know, these people are exactly like—bear the same relation to giants as the Manabi gold beads bear to the titanic works of the pre-Incans. As I said once before, it is like looking at things through the opposite ends of a pair of field-glasses. One way normal things are enlarged; reverse it and they are reduced. But there's a lot that puzzles me. You see, *amigo mio,* I am *not* enough Indian to accept everything without question. My aboriginal and my Iberian blood produce a conflict in my brain. I have the white man's desire for reasoning cause and effect, for getting at the bottom of things; but I have the Indian's tendency to accept things as they are. In some ways I wish I had never experimented with that confounded Manabinite. What I didn't know would not have troubled me. But now, now I cannot rest until I have solved a lot of puzzles."

"Neither can I, Ramon," I assured him. "But somewhere, somehow there's an explanation of this phenomenon. I cannot believe those minute beings, who are obviously identical with people who were of normal size, were created in their present form and size. Somewhere lies a mystery. Ethnology or anthropology does not repeat itself. No two distinct races of man are alike in every way. They may borrow one from another. There may be traces of cultural influence. There may be similarities in arts, in costumes, in religions, in anything. But *never* are two races—even though one or both may be the result of mixtures—never, I say, are two races identical. From what I have seen, these minute Indians are identical with the ancient Manabis. Perhaps future observation may lead to the detection of differences, but if they prove to be identical, then they *are* Manabis, and if they *are* Manabis then, my friend, there are but two possible solutions. Either the original Manabis were normal in size and, by some hitherto unknown process or cause, have dwindled to microscopic proportions, or else the original Manabis were microscopic and, for some undetermined reason and by some unknown process, developed into ordinary-sized mortals. We know the normal sized Manabis have vanished. We know those of microscopic size still exist. Now, Ramon, I propose to stay here until we learn the secret of these people or are convinced that we never can solve it."

Professor Amador rose and grasped my hand. "That," he declared, was almost precisely what I was about to suggest. In view of our amazing discovery what does the rainy season amount to? It will be uncomfortable, and we may be stricken with fever or other sickness. But I for one would consider my life well spent and would gladly succumb, if, by so doing, I could solve this greatest mystery that has ever faced a scientist. I shall remain until we learn the truth, or have abandoned efforts in despair."

Fortunately, however, we were not doomed to endure as much discomfort and to take such risks as I had feared. The rainy season was late, it was not severe, and often there were sunny days with no rain. But I am anticipating again.

It poured all that afternoon and we chafed with

impatience. We slept little or not at all that night. Our minds were too filled with the wonders of the day, and we spent the long hours discussing, arguing, suggesting, theorizing, propounding wild hypotheses, only to find ourselves as much at a loss as ever. We came no nearer an explanation, no nearer a logical theory to account for the existence of the incredible, microscopic people we had seen. And when morning dawned at last, and the sun shone from a clear sky, the whole affair seemed so unreal and fantastic that we both felt as though it were all a dream.

WE could scarcely wait to rush off to the prism, which we had left where we had used it, our sensations—or mine at least—a strange mixture of emotions. One moment I felt sure we would see nothing, that it was all a figment of imagination; the next I was wild with curiosity and interest to see the strange people again; to learn how they had fared during the rain. Almost breathless, we peered into the prism. And our first glance was enough. There was the village, there were the Indians. The earth about their village was damp. Evidently they, too, had had rain; but there was no indication that they had suffered from too much water. I was more amazed than ever. Despite Ramon's exposition of why they would not be affected by the downpour, it seemed incredible, unbelievable, that they could have survived. Yet there they were, unharmed, though I knew that the spot where they were had been covered with water during the night. One thing struck me forcibly. I was not yet able to adjust my mental processes to the new facts. I could not conceive as yet how minute these beings really were. They were so perfect in size and proportions, so like ordinary mortals, so wonderfully revealed in the prism, that there was no effect of their being small. That was the greatest difficulty. Until I could adjust my mind to the new conditions—the lizard, the rocks, even the rain, would appear tremendously enlarged and exaggerated. It struck me most forcibly, too, that it is a peculiar fact that the human brain finds it easier to appreciate or conceive of gigantic objects than of minute objects, probably because the eye can see and take in objects of large size, whereas those of unusually small size are difficult or even impossible to discern, and must be viewed through a lens, when they immediately lose their minute proportions. All this flashed through my mind as I again watched the miniature Manabis. Now they were all busy at their various tasks. Some of the men were making weapons, others were twisting ropes, others were building houses or repairing their dwellings, and I saw one gray-haired old fellow chipping away at a partly-finished stone seat.

The women, too, were busy. Some were making dresses, others were weaving or spinning, others were grinding some sort of seeds on *metates,* others were preparing food. It was, in fact, precisely the same scene that one might expect to see in any ordinary Indian village. Presently the people put aside their various utensils and their work, and, rising, started across the open space near the houses. It was obviously a concerted movement for every individual joined the procession. Then I discovered that their objective was the temple, and I turned my attention to it. Here was a wonderful, a unique opportunity for an archeologist. The Indians were going to a ceremonial, and I would be able to watch it, to study their religious observances. And, I had not the least doubt, they would follow out the same practices as had the ancient Manabis. What an addition to my knowledge of that vanished race! It would solve many an archeological puzzle, would add immeasurably to the world's knowledge of pre-Incan Indian religions and ceremonies.

Then, from a large building near the temple, a second file of people appeared. All were dressed in white, their single, poncho-like garments decorated with gold, and with ornate gold-adorned and bright colored headdresses. First came a group of men, venerable, dignified, each carrying some ceremonial object. One had a huge axe elaborately carved. Another had a mace-like sceptre with the head carved in a semi-human face that I instantly recognized as the same as that on the lapis idol. Another was bearing a staff, still another carried a beautifully painted, vase-like urn. Then, following them, came a group of women—young girls—clad also in white and gold. That the men were priests and the girls nuns or vestal virgins, I felt assured, and intently I watched them. Up the broad temple steps they passed, and formed two lines on either side of the main portal. Then, in the center of the door, the priest bearing the mace took his stand, while before and below him the crowd of villagers stood waiting. And I noticed that instead of facing the temple and the priest, the people faced in our direction, gazing towards us intently, curiously, expectantly. So vivid were their expressions, so near and so natural they appeared, that, for a moment, I thought they saw us, were watching us. The next instant I realized my mistake, understood what they were gazing at. A brilliant patch of light struck upon the earth before them; slowly it crept towards the temple steps. They were awaiting the sun, awaiting the daily vision of their sun-god! Up the steps crept the light. It struck upon the majestic figure of the high priest. Up, it crept, until with a sudden burst of reflected light, it struck full upon his upraised golden mace. Instantly the people prostrated themselves, raised their arms and, gazing directly into the rays of the sun, their lips moved, I listened intently, expecting—so plain and vivid was the scene—to hear their voices raised in a chant. But of course there was no sound. I turned for a brief instant to call attention to the illusion to Ramon. I could scarcely believe my eyes. He was prostrate, his arms raised, his face uplifted. Temporarily, unconsciously, he had reverted to the faith of his ancestors! The scene had awakened his old Incan blood. Carried away by the sudden flood of long-dormant beliefs he, too, was making obeisance to the sun-god. I was wise enough not to speak, not to let him see I had noticed him, and I again turned to the prism.

Now the priest had entered the temple followed by the virgins and the people and, so plain was everything, that, by the flood of light entering the place of worship,

I could distinguish the priests gathered about a great stone altar upon which rested an immense golden disk engraved to represent a human face. But that which held my gaze, that aroused my greatest interest, was the fact that, ranged about the temple walls, were scores of sculptured stone chairs, the counterparts of those that had so puzzled all archeologists, myself included. They were ceremonial, and, a moment later, the priests seated themselves in the chairs while the Virgins of the Sun prostrated themselves about the altar, and raising their arms, placed offerings upon it. I had solved the riddle of the chairs! I was immensely pleased, and I had completely forgotten that I was gazing at an invisible temple, at invisible men and not at a full-sized temple and normal-sized men. Then a movement at my side attracted my attention. I turned. Ramon had risen. With fixed eyes, with transfigured features, like one in a dream, he was walking forward, hands outstretched. Before I realized what it meant, what had come over him, he dropped on his knees, lifted his hands, and, in vivid pantomime, placed an invisible object on an invisible altar. I understood. For the moment he had been transported back for hundreds, thousands of years. To all intents and purposes he was the reincarnated person of some aboriginal ancestor. In one brief moment, all the white blood, all the inheritance of civilized men had been swept from him. Only the Indian remained, the Indian worshipping his ancient gods.

But he had knelt exactly upon the spot where stood the miniature temple! Unwittingly he must have crushed it and its worshipping people beneath him. Involuntarily I shouted a warning. Dazed, as if awakening from a dream, he blinked, turned towards me. A peculiar expression swept over his face, and slowly, as if still in a daze, he rose.

Beset by fears, forgetting everything in my desire to see the devastation he had wrought, I turned to the prism.

I could not credit my senses! I gasped. I think I screamed. Nothing had changed. There was the temple. The people were streaming down the steps. Ramon might never have existed as far as they were concerned!

CHAPTER IX

"GOOD Lord!" I ejaculated. "You were right over them and they didn't know you were there!"

For a time he remained silent, lost in thought. Then, ignoring my exclamation: "Really," he said, "I don't know exactly *what* happened to me. The last I remember clearly was looking into the prism and seeing the priest in the temple door. Then I heard you shout and found myself out there. I must have been temporarily hypnotised by gazing into the crystal. Did I do anything foolish or ridiculous?"

"No," I lied glibly, feeling he might be embarrassed if I described his strange behavior. "You merely acted as if you were walking in your sleep."

Then, not wishing to let him know my suspicions as to the real cause of his actions, I added: "Probably you are right. Gazing fixedly at any bright object often produces an hypnotic effect. But, man alive, don't you realize the wonder of what I said? You stood on top of the temple and produced no effect upon it.!"

"Naturally not," he replied, although I could see that his mind was not on my words. "I was, relatively, as far above the temple as the summits of those snow-capped Andean peaks are above us. Much farther in fact—perhaps as far above it as—well I won't say the moon; but so far above the people and the temple that I was beyond the range of their vision. But, *amigo mio*, I have a strange sensation of having seen those people and their ceremonies before now. A vivid impression. I even know the words of their chant. I even feel as if I had been in that temple myself. Of course, I never have seen anything of the sort. I wonder if it is the result of my studying so many of the Incan and pre-Incan remains and reading so much about their ceremonies?"

"Very possibly." I agreed, without taking my eyes from the prism. "But, look, Ramon! Did you notice those stone chairs in the temple? They are exact duplicates of those we find about here. It solves the mystery of their use. And the ceremonial! It proves conclusively that the Incan religion was a direct outcome of the beliefs of these pre-Incan people. Why, man, it's like turning back time for several thousand years and seeing the people as they were forty centuries ago!"

Ramon was beside me, staring into the prism again. I glanced at him. His lips were moving as if he were talking to himself. Then, completely lost to his surroundings, his words became audible. *"Kapak Inti Illariymin"* he muttered in Quicha, and to my amazement, using the ancient Hualla form of the dialect, while, through the prism, I saw the high priest bowing before the altar. Then *"Puncaho Pakariyrcumen,"* muttered Ramon, as though he was there among the worshipping Indians. Now the people were dispersing; streaming away from the temple, dancing and singing, until, reaching the open stage or plaza of the village, they gathered in groups and knots as if awaiting some other event.

Ramon was, to all intents and purposes, living in another age, in another sphere. "The *Taquicamayoc*" (musicians), he exclaimed, as from one of the buildings there appeared a group of nearly one hundred Indians playing upon various instruments. And, as the people commenced dancing and going through the complicated steps of the sun-dance my companion's lips hummed an Incan or pre-Incan tune. So amazed was I at his actions, at his complete disembodiment, as I might say, that my interest in him exceeded my interest in the people and their actions. What had come over him? How had it been brought about? How was it that he knew and spoke the ancient Incan or Hualla dialect, recognized each phase of the ceremonies before it occurred, spoke the words of the Incan salutation to the sun-god? Was it possible that he, Professor Amador, the scientist, was the reincarnation of some long-dead Incan or pre-Incan? Had he or his spirit, his soul or whatever it is, lived in the dim past? Had he witnessed and taken part in such cere-

monies as were being enacted before us? Did this part of him awaken at sight of the people and the temple and, for the time, dominate him? Or was it, as he had suggested, the result of some form of hypnosis? I could not say, but there was no doubt that he was, for the time, a pre-Incan taking, mentally at least, an active part in the pre-Incan ceremonies so strangely revealed to us. Personally, I was convinced that my friend was actuated by the spirit of some remote ancestor, for despite the ridicule of my fellow ethnologists, I had always stoutly maintained my belief in reincarnation. I was therefore immensely pleased at Ramon's behavior. My theory, I felt sure, was being borne out. Here was proof that man is but the reincarnation of other beings, and I regretted that I did not have others to witness the actions of my friend. Also, I wondered whose spirit dwelt dormant within my own body, and I regretted somewhat that I, too, was not of Incan ancestry, for I could then perhaps have taken as intimate a part in the scene before us, as had my friend. At all events I could have obtained a much more vivid and intelligent understanding of everything that was taking place. But I realized that, in all probability, Ramon would remember nothing of what had occurred when he again returned to his normal status, and hence any information I might have secured in that manner would have been of no value to science.

Meanwhile I had not failed to continue watching the amazing scene in the plaza, and I remember that my mental processes were somewhat confused and chaotic. I had long since lost all impressions of looking at minute beings through a magnifying medium; my subconscious mind told me I was not witnessing a scene brought by some mysterious means from a distant spot, and I found myself possessed with the feeling that I was actually in the village among the celebrants while, at the same time, there was the feeling that I was watching a most vivid and perfect motion-picture. This effect was greatly heightened by the absence of sound, although I could see the movements of the Indians' lips, could see the musicians playing upon their Pan's pipes, their flutes and their drums. But no cinematograph film ever portrayed a scene with such detail, such color, such depth and perspective. Intent, fascinated, I gazed; one portion of my brain was filled with Ramon's actions, the other was intent upon the scene before me, and all the time I was feeling that, at any moment, I would awaken to find it all a dream.

A SUDDEN exclamation from Ramon startled me. I glanced at him. Never had I seen such an expression upon his face before. He was transformed. His eyes were wide, fixed, staring, yet filled with such a longing, yearning expression as I have never seen in mortal eyes. His lips were parted, his breath came in short sharp gasps, his face was flushed, and the veins in his temples throbbed visibly.

"Kora!" he cried, stretching out his arms. *"Kora! Sumak Nusta!"*

What did he see? What had called forth that cry—"Kora! Beautiful Princess"!

Again I peered into the prism. The question was answered. The dancers had parted, had formed a double line across the plaza, and through the lane thus formed came a procession of girls led by the most beautiful woman I have ever seen or hope to see. No wonder Ramon had called her *Sumak Nusta* or Beautiful Princess. That she was a princess was evident, even to me. Her every movement was regal. Her robes, of some shimmering materials, gleamed and sparkled with iridescent hues as though sprinkled with diamond-dust. Her long hair, falling to her knees, was confined by a diadem of flashing gems. Over her tiny ears were oval coverings of gold. About her slender graceful neck was a collar of magnificent emeralds and golden-hued topazes. And in her right hand she carried a golden *Champi*, the insignia of a monarch in pre-Incan days.

To describe her person or her face would be impossible. Her figure, partly revealed by the clinging robes, was that of a goddess. Her bare arms and her right shoulder, that was exposed, were of an indescribable golden hue. Her oval face and straight nose were flawless and might have been chiselled from old ivory, had it not been for the vivid warmth of her great lustrous eyes and her red luscious lips. Had I the descriptive ability of a great novelist, I could devote pages to describing her, to detailing her loveliness, but while I admire a beautiful woman, yet I am more accustomed to dealing with archeological subjects than with feminine attractions. I confess, though, that I was enthralled; overcome by the beauty of the microscopic princess, the more so as I had never before seen an Indian woman, who could be considered even pretty. Indeed, I must admit to an increase in my slow pulse beats, to a most unusual and novel throbbing, as I gazed at her, and I am not ashamed to admit it, for she was enough to excite the admiration, and to thrill the nerves of any man.

Ramon was babbling, speaking incoherently in Hualla as though by the very force of his utterances he could attract the attention of the princess whom he had called Kora.

Suddenly she halted, turned her head and glanced about, a troubled, puzzled expression in her magnificent eyes. Then she frowned slightly, passed her left hand across her brows, and turned her gaze directly towards me. I could have sworn that she was aware of our presence, that she saw us, yet I know it was impossible. Ramon uttered a sharp exclamation. A cry that was almost a moan. The princess' lips parted in a smile; slowly she turned her head and stepped forward. What followed I cannot say, for I leaped away to grasp Ramon who, staggering back, sank unconscious into my arms.

For a moment I was seized with gripping fear, fear that the strain had been too great, that something in his brain had snapped, that my friend was dead. But to my unbounded relief, I found he still breathed, that his heart still beat. He had merely fainted. For the last half hour he had been under tremendous strain, under tremendous emotional pressure, and the sight of that vision of glorious womanhood, of the *Sumak Nusta*, the Beautiful Princess, had overcome

him. He had been in a state of semi-hypnosis, he had been living again through the ceremonies of his ancestors, and, I wondered, as I strove to restore him to consciousness, if it were possible that, in the princess, his spirit had recognized the woman it had loved and lost in remote bygone days. No doubt, when he came to himself, he would remember nothing of what he had gone through. He had said his actions were blank when he had gone through the pantomime of making an offering to the sun-god. It would be just as well if he failed to remember anything. But I was to be greatly mistaken in my surmises. He was coming to. He opened his eyes, stood up, stared about with a puzzled expression, seemed searching his mind for memory of something.

"Queer!" he exclaimed at last. "What happened? Where am I? I thought—but of course, I see, I understand! It is you, *amigo mio,* I am here at our camp. But I thought—Oh, my God, my friend, where is she? Where is my Kora, my beloved? Have I lost her? Did you see her? Oh, *Madre de Dios,* was it a dream?"

He was staring about wildly, his face drawn, distressed. From the very bottom of my heart I pitied him. "No," I said trying to quiet and comfort him. "It was not a dream, my dear friend. I saw her—the woman you called Kora the Beautiful Princess. She is real, she exists, but she is one of those minute invisible people.

"You have not lost her, for you never had her, unless perhaps, Ramon, you two existed in some former life, some former sphere."

Ramon sprang to the prism, but the next moment turned away and sank dejectedly to the ground. *"Santissima Madre!"* he almost sobbed, bowing his head and covering his eyes with his hands. "Was ever a man in such a predicament? To see the woman one loves, the woman one has loved through the ages—. Ah, yes, my dear friend, I know it now. Once, long ago, I lived. Once in the bygone forgotten days my soul loved Kora. To have loved through the ages, I say, to see the woman your spirit has loved, and to know that she is as unattainable as the stars? Ah, *amigo mio,* that *is* bitter, bitter sorrow, indeed!"

Then, suddenly brightening. "But she saw me!" he cried, leaping to his feet. "My love called to her! She saw me! She heard my voice, my cry! Did you see her, *amigo?* Did you see the look of joy in her eyes when she knew I was near?"

"Yes, I saw her look towards us," I replied. "But, Ramon, my good friend, calm yourself; try and be reasonable. Greatly as I would like to help you, to reassure you, I cannot. I do not think the princess saw or heard you. That, you know, if you stop to reason, would be impossible. And do you not see that it would be far better for you both if she did not? Is it not bad enough for you to suffer without causing her suffering as well?

"And, stop to think, Ramon—think how greatly she too would suffer if she knew that you were near and that you were still as remote, and as unattainable to her as she is to you."

RAMON bowed his head and stretching out his hand, grasped mine. "I know," he assented in scarcely audible tones. "You are right. I hope—yes with all my heart and soul, I hope she doesn't know, for I would rather suffer any agonies than have sorrow touch Kora. But, *amigo mio,* I *know* she saw me or heard me."

"Possibly," I said, as I considered the matter, "possibly she *sensed* your presence. Although I am a scientist and profess no hard and fast religion, yet I have faith in the Creator and His power to perform miracles that we poor humans cannot explain. And I believe in the soul or spirit and in its immortality. Also, I believe, as you know, that the immortal spirit must possess a body and that, in every man and every woman, is a spirit that has occupied the bodies of other men and women for infinite time. I also believe that, under certain conditions, the consciousness of the spirit's former incarnations is aroused. That, my friend, has been the case with you. Within your body is the spirit of some ancient being. It was the consciousness of that spirit aroused at sight of old familiar scenes that caused you to act as you have. That gave to your lips the ability to speak the ancient Hualla tongue, that made you recognize the ceremonies—each step, each event, in advance; that caused you to cry out when you saw the princess. And, as you confess, it was that spirit that loved her in the long ago. But, my friend, it is impossible that you or your spirit loved or knew this tiny princess herself. Even were she of normal size she could not have existed unchanged for centuries, any more than you yourself. No, no, Ramon, it is her spirit that your spirit recognized, and possibly, very probably, her soul responded to the cry of yours and caused her to turn and look towards you. But that she, with mortal eyes or ears, saw or heard you, is not possible. You must remember that, proportionately, we were as remote from her as the planets from us; that, compared to her, you are as big as our entire globe or even larger. She could no more have seen or heard you, than you or I could hear or see a person on the other side of the world."

"All you say is true," said Ramon. "Perhaps I should have told you more about myself before. But I feared you might scoff. Always, *amigo mio,* I have been somewhat this way. Always I have been aware of an inner self or something that at times reveals matters I could never have learned by any ordinary means. Always, when in the presence of the remains of my ancestors, I seem to feel as though I were amid familiar things, as if I had known them long ago. Often, by fixing my thoughts upon them I can see—as plainly as in a vision—the ruins reconstructed, and the people who once lived within them. Often I have tried thus to learn the secrets of those pre-Incan cyclopean structures. But in vain. Always I have seemed to see those titanic blocks of stone just as they are today. My strange vision cannot pierce their mysteries. But when I came here, though somehow much seemed vaguely familiar, I had no such sensations. And yet, now, since I have looked upon those microscopic Indians and have seen their temple, matters have been plainer, more

vivid to me than ever before. And then Kora appeared, and over me swept a most marvelous change. No longer were there hazy visions of the past. No, I seemed bodily transported, to be a part of the scene. And though I have never heard her name, though never in my life have I even dreamed that there was such a divine creature, yet, instantly, I knew that I had known her, loved her always. God, how I suffered! *Amigo mio* have you ever had a nightmare in which you strain, you strive, you exert every physical and mental effort to reach something, to touch something, to grasp some object to keep yourself from some fearful fate, only to find yourself powerless, bound by some invisible, unaccountable bonds, unable to move? Such were my sensations, *amigo*. My spirit fought to speak, to call to her, to tell her of my love, to hold her fast, to press burning kisses upon her beloved lips. But in vain. I was bound, helpless, as in a nightmare. Can you imagine what I suffered, what agonies I endured? And now, now the awakening is almost as bad, even worse, *amigo mio*. I know she lives. I know she is near me—within reach of my arm—and yet as remote as the stars."

"But you can see her, Ramon," I reminded him. "That should be some comfort; that should give you some happiness."

But I fear I only made matters worse. I was deeply, truly sorry for my dear friend. Had he been young, possibly I would not have been quite so sympathetic. A boyish passion, a youthful love affair would not have appeared so serious. Infatuations of that sort are soon forgotten. But Ramon was no longer young. He was about my own age. He was deeply emotional and, little as I know of affairs of the heart—being a confirmed bachelor myself and never having found either time or opportunity to devote myself to women—still I had seen enough of the world, and was a sufficiently informed student of human nature and human passions, to know that it is no light matter when a man of Ramon's age and type falls madly in love. Moreover, Ramon's passion was not of recent birth or sudden inspiration. Unquestionably, I thought, he and Kora—or better, his soul and Kora's—had loved in the past, hence his present love for the Beautiful Princess was a thing of countless ages.

So, as I have said, I fear I rather muddled matters in my desire to comfort and sympathize with him by suggesting that he could see her.

"Do you think that makes it easier?" he flared. "Do you think a famished man finds his gnawing hunger appeased by being shown food he cannot reach? Almost I had rather shatter that prism, remove forever the possibility of looking upon her. But no, no, no!" he almost screamed. "I cannot! I *must* see her! And I *shall* find a way. I shall force nature to give way before my love! God, Inti, Kapak, cannot be so cruel as to keep us apart!"

He sprang to the prism. I followed. But Kora and her attendant maidens had disappeared. The temple was deserted. The people had resumed their interrupted labors.

Yet, at any moment the princess might reappear. For hours we remained, silent, gazing into that wondrous bit of crystal, until the failing light forced us to desist.

Reluctantly, Ramon withdrew from the prism. He seemed aged, depressed, utterly forlorn. With bowed head he plodded beside me towards the camp.

"She has gone!" he muttered. "But I shall see her again. I shall find a way to be with her. *Amigo mio,* this has been both the happiest and the saddest day of my life."

CHAPTER X

AFTER dinner I asked Ramon if he would not spend the evening with me, for I knew that he was depressed, rather miserable, and that companionship might cheer him up a bit.

He shook his head. "No," he said, with a rather wan smile. "Thank you just the same, *amigo;* but if it's the same to you, I'd rather not. I want to be alone to-night—alone with my memories and my thoughts. I know you think I need company, but not to-night, old friend. I want to be free to think, to concentrate by myself. I *must* find a way to be with Kora, to communicate with her. But, do you know, *amigo mio,* somehow I feel that she *is* near me in spirit, if not in person, as if, when I am by myself, she might appear to me. Perhaps it's ridiculous and, as you know, I am no spiritualist, but I have never felt this way before. So, *mi amigo,* I will leave you to yourself this evening."

"That's quite all right," I assured him. "I know how it is—how one wishes to be alone at times. But if you feel a bit lonely or decide to come over for a chat, don't hesitate to do so. I have a lot of notes to write up and shall be up late."

"Thanks," he said. "But I don't think I shall disturb you. I, too, have much to occupy my mind. Good night, old man—*Hasta luego!*"

While I busied myself jotting down my notes on the remarkable occurrences of the day and the amazing things we had seen—and which were of inestimable scientific value, it began to rain. As the big drops rattled like musketry upon the thatched roof of my hut, I found my thoughts wandering to the miniature people and their village. How were they faring in this downpour, and was Kora the Beautiful Princess also listening to the patter of rain? One thought led to another, and, presently, I found myself idle, my eyes half-closed, my mind revisualizing the scenes I had witnessed.

Again I could see the sun-drenched village, the temple, the figure of the dignified high-priest, the colorful multitude prostrate before him as the rays of the morning sun flashed like fire from his upraised golden mace; once more I visioned the rhythmic figures of the sun-dance; and once again I saw Kora the *Sumak Nusta* in all her glorious beauty at the head of her train of attendant girls. No wonder Ramon loved her! Even to picture her mentally set my blood a-tingle and my heart beat a trifle faster. It was all so vivid, so real and yet so dream-like that I could

scarcely believe it merely imagination, and, with an effort, I roused myself and resumed my work.

Gradually, almost unconsciously, I was aware of strains of music penetrating through the swishing roar of the rain, and I realized that Ramon was finding solace with his beloved violin.

I had forgotten to mention that Ramon, like most Peruvians, was passionately fond of music. Also he was an accomplished musician and played a number of instruments to perfection, especially the violin, and he was particularly fond of the haunting, plaintive melodies of the Incas. But when he really wanted to express himself, his favorite instrument was the Quicha flute or *Quena,* the old-time instrument of the Incas, and many a time I had listened to his rendering of *Ollantay, Cuando la India llora** and other Incan songs that seemed to tear at one's very heart strings.

But to-night the music that came floating across through the slashing rain was different, and I stopped my work and listened intently. I am no musician. I do not know one note from another, and I could not hum or whistle a tune to save my life. But I possess good ears and a most retentive memory. If I hear an air once, I never forget it. And I was sure I had never before heard the tune that Ramon was now playing. In some ways it was reminiscent of Incan music. It held the same pathos, the same inexpressibly pathetic appeal, and yet there was a strain of joyousness, of gaiety running through it as if through sorrow of the moment there were glimpses of a brighter future.

I wonder what it was, why Ramon had never played it before and, had it not been raining in torrents. I should have been tempted to run across to my friend's hut to ask him about it, even at risk of disturbing him.

Presently, however, the music ceased, dying out in a final long-drawn despairing wail, and once more I fell to writing my notes, at which, I must confess, I was making little progress.

But I had written scarcely a page in my notebook when once more, the sounds of music mingled with the incessant noise of the descending rain.

It was the same air, but this time the notes were mellow, sonorous, silvery sweet, almost as though some song bird were carolling the air. Ramon had abandoned the violin and was playing upon the Incan Quena. Entranced, I listened. I closed my eyes, charmed, almost hypnotized by the music that was, if anything, enhanced by the accompaniment of the rain. Never before had I been so affected by any music. It conjured up visions, visions of the past, of mighty temples and great palaces, of green fields and vast mountains, of brown-faced, gayly-clad people, of strange ceremonies, of golden images, of dancing Indians, of—I came back to full consciousness with a start. Suddenly, as if by some revelation, I had recognized the tune! It was the song the people had been singing as they had danced before the temple, while we had watched them through the prism! It was amazing, incredible! How *could* I recognize it? Not a sound had come to us from the lips of those microscopic beings, not a sound from the miniature musicians. And yet I knew, could have sworn, it was the same tune they had played! It was not so astounding that Ramon should have played it. I had abundant proof that, by some mysterious psychological phenomenon, he had been attuned to, if not actually (in spirit of course) a part of, the scenes I had witnessed. I had even seen him muttering the words of the chant and songs as if he knew them by heart, and it was no more remarkable that he should have known the tune, should have been able to render it upon his violin or his Quena.

But that I, who had merely seen, to whom everything was strange, new and utterly foreign, should have recognized the music, was little short of miraculous.

But there are many things which happen that are unaccountable and, pondering upon this, I fell again into a brown study, the while I remained dimly conscious of the distant strains of the music in my ears.

Then, abruptly, the music ceased. The next instant I leaped to my feet, startled, alert. Surely I had heard Ramon call! Or had it been the cry of some nightbird? The next moment my door was burst open and Ramon flung himself into the room, wet, dishevelled, wild-eyed, excited.

"Santisima madre de Dios?" he cried, relapsing into Spanish as he always did when greatly excited or under emotional stress. *"Gracias a Dios,* the miracle has happened, *amigo!* It is as good as done! It is accomplished! To-morrow, if God wills, I shall clasp my Kora in my arms! But come, come instantly, *amigo mio!* Come that you may see the miracle yourself, that you may not think me raving, mad! For the love of God come! *Dios en cielo,* was ever such happiness vouchsafed to man before?"

Seizing me by the arm, babbling in English, Spanish and Quichua, he dragged me to the door, into the drenching rain, towards his hut. Too amazed to resist, too astonished even to think of seizing my rubber poncho or a hat, wondering if he really had gone mad, wondering still more what had occurred, what it was all about, I stumbled, dripping wet, into his shack.

Ramon sprang forward and pointed dramatically at the table. "Behold!" he cried. "Behold the miracle that leads me to eternal happiness and makes Kora mine!"

I gasped, stared wide-eyed, incredulous, and sank speechless into a chair. I was still at a loss to know what Ramon was driving at, yet what I saw was enough to bowl me over. Upon the table, gleaming dully in the dim light of the camp lamp, was a great, spherical, golden object a foot or more in diameter. Covering its entire surface was an elaborate, deeply-incised design, and from side to side, it was pierced by a neatly drilled hole. In every way it was the exact duplicate of one of the minute golden beads, but hundreds of times larger.

Where, how, had Ramon secured it? What *did* it mean? What did he refer to when he spoke of the "miracle"? What had this mass of wrought gold to do with Kora?

*When the Indian woman weeps.

I WAS not to be left long in doubt. Ramon, wildly excited, was trying to explain.

"It is the Manabinite—the prism!" he cried. "Here, upon this table, was the first small prism I made. It was here, left as it was when last we used it. Before it was a tiny bead of gold no larger than a pin's head.

"To-night I sat there—where you now sit—playing upon my violin, playing a tune that had come to me, that was humming in my brain. It did not seem right played on the violin; the instrument seemed unsuited to it, so I tried the Quena. And as I played, my thoughts were all of Kora, of our great, eternal love; of my sadness, my hopelessness. There before me lay the prism, in it I could see the golden bead, magnified, enlarged. Slowly over me came hatred, detestation for the thing, for the prism that could bring the image of my *Sumak Nusta* before my eyes to haunt and torture my soul. Perhaps it was the hand of God. Perhaps the emotion in my heart—I know not what—made me forget the tune, which caused me to end the melody with a long-drawn, peculiar note. Dropping my Quena I sprang forward, intent on hurling the accursed crystal aside, maddened at thought of the suffering it had caused me. But as my hand shot forward, I yelled with pain. Where I had thought there was nothing, my hand had struck upon solid matter. *Valgame Dios!* What I had thought was but the image of the tiny bead, was real!"

"You mean?" I demanded. "You——"

Ramon interrupted me. "The miracle had happened!" he repeated. "The magnified image of that tiny bead had materialized! By some magic the bead itself, its very substance, had been transferred, enlarged, magnified bodily. It is incredible, beyond belief, supernatural! But there lies the proof. The little bead has vanished. There is its transformation! And, *amigo mio*, believe it or not, the prism itself has vanished—dissipated into thin air!"

Had Ramon gone mad? Had I heard aright? His statement, uttered jerkily, excitedly, was utterly beyond belief. Yet there was that great sphere of sculptured gold. Unsteadily, not knowing just what to expect, I rose, approached the table and extended my hand towards the gleaming mass. I had half-expected to find nothing, to find it was merely the projected, magnified image of a tiny bead. When I felt solid metal under my fingers, when I was forced to realize the gold was real, I actually trembled with the amazement of the thing. Was it possible that by some weird, unaccountable means the bit of Manabinite had transformed the little bead of gold to the golden ball under my fingers? Speechless with wonder I examined the table, passed my hands over it. Aside from the big gold sphere it was bare. But no, I must qualify that statement. Upon my finger tips was a gritty white powder, perhaps something spilled there by Ramon. But there was no trace of the crystal prism or of the original small bead.

Ramon was watching me intently, breathlessly. "Are you convinced?" he asked, when at last I gave up my search. "Do you believe me now?"

"I must!" I cried. "And yet—yet it is—why a physical impossibility. It is impossible for an object to be transformed to larger size by means of a bit of transparent mineral. It would be impossible by mechanical means. It's a law of nature. There was only an immeasurable amount of gold in that minute bead. In this sphere there are—scores—probably a hundred pounds of metal. Why, man alive, you, a professor of physics, cannot believe that definite amount of matter can be increased a thousand times and more without adding anything to it."

"God knows how it is done," he exclaimed. "All I know is that it *has* been done. And to me it seems no more impossible than many of the other things we have seen. Is it any more impossible than those tiny people? Any more impossible than to see atoms? And I care not a jot how or why it was brought about as long as it gives me my Kora!"

"Even if it *did* happen, I fail to see how it helps you in your love affair," I said.

"What!" cried Ramon. "You don't see? *Por Dios*, but you *are* stupid! Don't you see, *mi amigo*, that I can do for Kora what I have done for that tiny bead; that I can transform her to a normal-sized woman? To-morrow, as soon as day dawns, I shall do so. An instant later she will stand beside me, glorious, beautiful—my own forever!"

"In that case you will make her very miserable," I remarked, feeling still that he might be mad, for his words were assuredly those of a madman.

"Do you imagine that she could be happy when all her people—her subjects, remain microscopic, invisible?"

"No, I shall do the same for them all," cried Ramon. "I shall focus the prism upon the village, and by its magic, its miraculous power, bring the people, the village, the temple—everything—to normal size."

"How do you know it will not utterly destroy them?" I asked. "It occurs to me that a human being, suddenly and by some unknown power increased—many hundreds of times—in size might not withstand the transformation. And how can you control their size? They might be enlarged to gigantic proportions."

"*Madre de Dios;* you are right!" he cried, throwing himself upon the couch, in despair. "I must wait, must experiment, must learn to control the thing. I must test it upon some living creature."

"And now, Ramon, for Heaven's sake, be calm and sensible and tell me just how this 'miracle,' as you call it, happened. We know it is *not* a miracle. It *must* be explicable. We have seen the beads—countless objects—magnified by the prism, but nothing has ever before been bodily enlarged, physically magnified. What brought about this incredible effect?"

"My music!" was his astounding reply. "That last note upon the Quena. And now I know the secret of those cyclopean structures that have always puzzled the world. They were once small—built by normal sized, or possibly miniature, stone blocks. And then, then by means of a prism and a musical note, they were transformed to titanic proportions."

I COULD not restrain my laughter. "Nonsense!" I cried. "This thing has taken possession of your senses. It is marvelous, miraculous enough, and I do not blame you. But to assume that the pre-Incan structures—piffle, man! And how on earth can a musical note bring about such a thing?"

"I cannot say," admitted my friend. "But I assume it was owing to a certain vibration. As I told you long ago, and as you should know, everything in this world—and perhaps in the next as well—is due to vibrations. The Manabinite magnified objects—increased the vibrations of light. Is it so astounding, so incredible that, if the molecules, the atoms of the prism—were set into violent motion by the note of the Quena, that the altered, magnified light waves might be fixed, transformed to atomic waves? That would account for the disintegration of the prism. In performing the miracle, it exhausted, expended itself. And as for your statement regarding the physical impossibility of increasing matter without adding to it, that, *I* say is 'piffle.' What *is* matter? An aggregation of atoms, of protons and electrons, nothing more. And how do we know what electrons, protons, atoms, may not be so altered, so increased by such a medium as Manabinite that the so-called matter will be increased? But what difference does it make? I'm tired of trying to solve miracles by scientific reasoning. I know it's been done. What has been done once can be repeated. And I intend to repeat it, to win my Kora. Nothing else in the world matters to me."

I had been thinking deeply. If, as I knew, a certain note, a certain vibratory wave of sound, could utterly destroy and disintegrate an object—even a building or a bridge, then, after all, was it not equally possible that an object could be produced—conjure up so to say, by means of a certain wave? It was a poor rule that did not work both ways, and I for one could not see why such a thing was not within the bounds of scientific reason. Naturally, the object produced must be built up of matter from the object that was destroyed. And was it not possible, even probable, that the Manabinite acted as some sort of an intermediary to transform the molecules of the destroyed object into a new object? Granted that was so, then if, as we knew, the Manabinite magnified the object so immensely, was it not possible that the new form would be produced in the dimensions of the magnification? After all, as Ramon had so often pointed out, we know very little of the properties of vibratory waves. Light, heat and other waves are merely variations of the same waves producing varying phenomena under varying speeds of vibrations, so was it not possible that the molecular or other waves—whatever they might be called—that were actuated by the note of the Quena, and which destroyed one bead and created another, were the same as the light waves that rendered visible a vastly enlarged image of the bead? It was all an involved, a hypothetical matter, but the more I thought about it the less preposterous and inexplicable it appeared. And no matter what the solution, no matter what the cause or the effect, the unalterable fact remained that it *had* occurred. But if, as Ramon thought and as was undoubtedly the case, the phenomenon had been produced by a certain note upon his Quena, could he reproduce that note so as to repeat the phenomenon?

"Do you know what particular note resulted in your miracle?" I asked him. He smiled. "I do not know which particular note it was," he replied, "but I do know what combination of notes—what bar of music, contained that note. Would you care to hear it?"

"No, no!" I cried hastily, as Ramon reached for his Quena. "Good Lord, man, you must be careful! If you should strike that note when we were in range of the prism, we might be killed or enlarged to giants. For heaven's sake, don't start any experiments without taking every precaution."

Ramon grinned, the happiest expression I had seen on his face since morning. "You forget there's no prism here," he reminded me. "But I realize the truth of what you say. I *must* be very careful. However, as soon as it is daylight, I am going to start experimenting. I shall take that best prism—"

"No, you will not," I interrupted. "If your experiment works, you will lose the prism—it will vanish as did the one here. Then you could never see Kora, and you'd have no chance to experiment further. If you're bound to experiment, try your tests on the small pieces of Manabinite. If it works on one, it will work on another."

"Thanks, *amigo mio,* for reminding me," he said. "In my excitement, I forgot that the crystal is destroyed. But I must test it upon living creatures—upon ants and bugs. Then, if they survive, I will try it upon small animals—upon vertebrates."

"And if they do *not* survive, even if it is a complete failure as far as living organisms are concerned, you have at least discovered a means of becoming a multi-millionaire in a day. Think Ramon—" I laughed at the thought, "think of placing a worthless diamond, a mere chip, before your prism, playing a note on a Quena, and instantly possessing a diamond weighing several pounds! Or of transforming a pennyweight of gold dust to a gunnysack full of nuggets! Talk about the ancient alchemists or Aladdin's lamp! But of course you'd have to acquire your riches all at once. There is no more Manabinite after you have exhausted what we have here."

CHAPTER XI

NEEDLESS to say there was no sleep for us that night. There was far too much to discuss, and we talked over the matter and discussed it from every angle and every viewpoint. For one thing, I was very glad to see that Ramon's scientific interests had been aroused, that he had, temporarily at least, sidetracked his love affair, and that he was no longer morose, miserable and disheartened. Once more he was his old self—keen, alert, vivacious, thinking and reasoning clearly; once more he was the thoroughly practical scientist.

In a general way his views agreed with my own regarding the explanation of the phenomenon. But he put it slightly differently. "I have felt all along," he declared, "that the magnifying powers of the prism

of Manabinite were due to its optical peculiarities. You may remember that I told you so when I first discovered the prismatic form and its powers. If it had been purely optical, the refraction of light rays from an object, then the lens would have shown equally remarkable peculiarities. But the lens possessed little more magnifying power than ordinary glass or crystal. It was due, I felt, to some unknown, mysterious vibratory waves akin to light waves, but wholly distinct. There were several very remarkable features about it. First: the way in which the Manabinite itself became invisible when the enlarged image was viewed, although perfectly visible if seen from any other angle. In the second place, the remarkable way in which the enlarged image stood out. It never appeared as if it were in the prism; it seemed as if it actually existed as an independent image suspended in air several inches back of the crystal. You, yourself, spoke of this. You said—if I remember your words correctly—that it looked 'as if you could pass your hands completely around it.' In other words, I believe—and my belief is now confirmed—that the images we viewed were actual matter. That, by means of the prism and the mysterious waves which it collects and sends out acting for those waves, much as a galena or carborundum crystal serves to answer radio waves—that, through the medium of the Manabinite as I say, actual matter is transmitted. By that I do not mean that an object is moved from its place and enlarged when placed before a quiescent prism of the mineral, but that an attenuated portion of it, an aura or a phantom or some material portion of which we know nothing—is transmitted and magnified and that in so doing, some certain portions of the Manabinite are incorporated with it. Very well. Assuming I am right, then it is but a step, so to speak, from transmitting that shadowy substance to transmitting the entire substance. Obviously that step is taken by exciting the mineral by a certain note or sound wave. And just as the substance of the Manabinite in line with the plane of transmission becomes invisible under ordinary conditions, so, under stress of extreme vibration, the entire mass disappears leaving the transmitted object permanently enlarged. If my reasoning is correct, there is doubtless somewhere, another sound vibration, which would cause the opposite effect and would restore everything to its normal status. But that, *amigo*, does not interest me. If I succeed in establishing that living organisms are not injured by the process, and if I discover the secret of producing transmitted bodies of any desired magnification, then will I be content and happy beyond words, for Kora, my beloved princess, will no longer be unattainable."

"No doubt you are right," I agreed. "But if you materialize all those Indians at once, we may find them far from desirable neighbors. I think, Ramon, that if you arrive at the point where you decide to experiment with the princess, that you had best save a prism for future use, and when she materializes, ask her advice about bringing the rest of her race to normal size."

Ramon laughed. "Perhaps that's a good idea," he agreed. "But personally I should have no fears of the Indians. They would scarcely molest their princess's lover. And do you know?" he chuckled again. "Have you thought of the interesting and peculiar status we would occupy if they were to appear here as full-sized men and women? Why, *we* would be regarded as the interlopers, as the outsiders, and as those tiny people have never seen a white man, we would be as great curiosities to them as they are to us. However, there is much to be done, *amigo mio*. The sun is rising. Very soon now I will know if my dream is to come true, or if I am doomed to lifelong bitter disappointment and sorrow."

I need hardly confess that I was as deeply interested in the result of Ramon's experiments as was he. But I still retained more of my customary composure and common sense than did my temperamental friend, and I insisted upon a hearty breakfast before attempting anything. By the time we had finished, the rain had ceased and the sun was breaking through the lowering clouds.

THE extent of our interest and curiosity may be gauged by the fact that we barely glanced into the prism to see how the little people had fared and, once we were assured that they were quite all right, we did not even wait to witness their morning devotions and ceremonies, nor to watch for the reappearance of Kora the princess.

Fortunately, Ramon had quite a quantity of Manabinite remaining on hand. To be sure it was all in small fragments, for he had made use of all the largest and best pieces in building up the one large prism. But we felt sure that the small pieces would serve for experimental purposes, and Ramon declared that the fragment that had produced the big gold spheres was no larger than some of those remaining.

But it was slow work cutting and polishing the pieces of mineral to form a proper prism, and it was well along in the afternoon when the first prism was ready for its test.

As we had worked, several matters had occurred to us that we had overlooked during the preceding night. One of these was the fact that the gold bead alone had been enlarged; that no other object, not even the table upon which it had rested, had been affected.

"By Jove!" I cried, when I thought of this and called my friend's attention to it. "It may be that only gold can be enlarged bodily. Otherwise how can you account for nothing else being affected?"

"Possibly you are right in that surmise," he assented, "but," he added, "I doubt it. More probably only the object in direct line of focus, or in the absolute line of vibration, is affected. In fact, it may be the stress and strain of other objects—slightly out of focus, so to say—trying to crowd through, that disrupts the Manabinite. However, we shall soon see. The prism is ready. Now to get my Quena and put the thing to a test. Shall we try it first on an ant?"

"If it works we shall have a monster to contend with," I said. "Have you any idea how much this prism magnifies?"

"If the stuff follows hard and fast laws, as it un-

questionably does, then it should magnify approximately five hundred diameters."

"Then for the love of Heaven, don't try it on an ant!" I cried. "An ant five hundred times enlarged—an ant even if only one quarter of an inch in length—would be transformed to a monstrous terrible thing over ten feet in length! No, Ramon, let us proceed carefully, one step at a time, even if you *are* filled with impatience to attain your goal and your happiness. Let us first test the prism on inanimate objects. We know it has worked on gold. Let us try it on a minute grain of sand, on a minute sliver of vegetable matter. Let us be sure you are right about the extent of magnification and then try it upon the most minute and inoffensive creature we can secure—upon a thrips or a soft-bodied larva, for instance."

"I suppose that's sensible," admitted my companion, "but it seems a pity to waste this crystal and a day's work just to repeat a phenomenon."

"It won't be wasted," I assured him. "You must be sure of the note, and it will teach us a great deal."

"Very well," he assented. "But why not combine several objects? We'll try a minute grain of sand, an almost invisible vegetable fibre, and—yes, a speck of gold, just to make sure that your idea that gold alone responds is *not* correct."

I agreed to this, and very soon we had the three almost invisible objects sharply focussed in the prism. The grain of sand—a mere speck of impalpable dust, appeared like a large cobblestone; the tiny flake of gold, chipped from one of the gold beads, appeared like a golden shaving from a machine lathe, and the hair-like strand of plant fibre was revealed as a section of a rough, twisted rope.

Then, while I stood to one side and watched the table, the crystal and the practically invisible specks that marked the three objects, as I had never watched anything before, Ramon placed the Quena to his lips. The first few notes were those of the tune he had played the preceding evening. He was feeling about, searching for the final bar. And then, suddenly, so unexpectedly that I jumped, came the long-drawn wailing finale. I can swear I did not remove my eyes from the table for an instant. I can swear that as far as I could see, nothing happened to the objects there. Almost inaudible, through the notes of the Quena, I heard a peculiar twang, a rather musical sound, more like the sound of snapping a guitar string than anything else. For perhaps the tenth part of a second the table seemed to be blurred by a faint mist. That was all. I was still gazing at the enlarged, unaltered images of the grain of sand, the bit of fibre, the flake of gold.

"Evidently," I remarked with a laugh, "something is wrong, Ramon. Are you sure you had the right note?"

As I spoke I stepped forward to examine the prism more closely. A sharp cry rose from my lips. I staggered back! The prism had vanished! So had the original grain of sand, the fibre and the gold! In place of the magnified images were the actual, solid enormously enlarged objects themselves! It *had* worked!

The miracle *had* happened a second time!"

Never have I been so utterly dumbfounded. I had been amazed, staggered by what Ramon had shown me the evening before. But here it had happened again, had taken place under my eyes, under my closest scrutiny, and I had not even been aware of it! There had been no movement, no alteration in anything. It was exactly as though the intangible images of the things had been instantaneously solidified.

RAMON was as excited, as pleased, as I was, and more elated. He had every reason to be. Not only had he proved the truth of his assertions, he had demonstrated that he *could* produce the mysterious magical note. And the test had proved that the properties of the Manabinite prisms were not confined to gold alone.

I believe Ramon worked all that night without cessation. I labored with him until I could remain awake no longer, and I must admit that in the intense interest, the mad desire to experiment with this new discovery, I completely forgot my ethnological studies, my notes and everything else.

When Ramon roused me for breakfast, he announced that a second prism was ready, and declared in most decisive terms that this one was to be used in a test on some living creature.

I agreed to this, for I was really as keen on learning whether any living organism could survive the transformation, as was Ramon. So, as soon as we had eaten, and had taken another peep at our miscroscopic Indian village, we searched about for some tiny organism of a harmless character. It was not a very satisfactory collecting ground for a naturalist. Ants there were in abundance, ground-beetles, worms, spiny caterpillars and other good-sized insects; but nothing small enough and inoffensive enough to warrant risking transforming it to the size of a full-grown man. But at last I discovered a colony of tiny land-snails under a stone.

Here were creatures that would be harmless, regardless of size, and I called to Ramon. But he was not satisfied. Snails, he declared, were far too low in the scale of nature to prove anything. They might survive when a more highly constituted creature would not.

"So might an insect," I reminded him. "And there is no vertebrate in existence small enough for our purposes. However, if we can find a thrips, he may answer. If he *is* transformed to a gigantic beast, I believe we could manage him. But it would be a shame to be forced to kill him. Think what a sensation a fifteen-foot thrips would cause in the Bronx Zoo!"

Presently we found the thrips we sought and, selecting the smallest of the lot, proceeded to Ramon's camp and secured the new prism. To try the experiment in his hut would be foolish, for the creatures, if enlarged five hundred times, would more than cover the table, to say nothing of breaking it down with their weight, and it was not pleasant to think of a pulpy, six-legged, elephantine beast, twelve feet or more in length, occupying our restricted quarters.

Hence we decided to make the test out of doors. We

placed one of the snails before the prism, and to kill two birds with one stone, as it were, we placed the captive thrips upon the snail. Once more I watched intently as Ramon placed the Quena to his lips. Once again that startling, wailing note issued from the Incan flute. And once more nothing happened.

Fully expecting to find the gigantic image of the snail and the ferocious looking image of the thrips actually alive before me, I stepped forward and hesitatingly touched the surface of the huge snail's shell. My jaw dropped, my eyes stared incredulously. There was nothing there! My hand felt only thin air, then the surface of the prism itself! And there, just where we had placed them, were the tiny snail and the minute thrips. No change had taken place. The test had proved an utter failure!

Ramon was as nonplussed, as chagrined as I was. What was wrong? Why had the experiment failed?

"Are you sure you produced the same note as before?" I asked.

"Absolutely," he assured me.

"Possibly the prism is not precisely the same as the others," I suggested.

"It's within one five-hundredth of an inch of it," he affirmed.

"Hmm, do you suppose it's because it's out of doors?" I asked.

"No," he replied a bit sharply. "That couldn't affect it.'

"'Well, let's try it again," I said. "Perhaps it takes a stronger vibration in the open than in the hut. Get close to it this time, Ramon."

But the second test was no more successful than the first. Even when—risking any untoward event—we took the prism with the snail and thrips into the hut and made the test again, still there was no result.

Ramon bit his lip. I knew it was a terrible blow to him. He was totally at a loss. Then, slowly, deliberately, he placed a few grains of fine sand beside the snail and again blew that strangely penetrating note upon his Quena. The result was startling. Once more I heard that sharp musical twang. Once more I saw the crystal prism and its surroundings through a faint momentary haze. And, there before us, were three great uneven masses of quartz! Once more the magical prism had transformed the sand grains to boulders. But—that was the most amazing part of it—the tiny snail and its thrips companion remained unaltered, unchanged, still the same minute living organisms as before.

"That is the answer!" cried Ramon, throwing aside his Quena and sinking dejectedly upon his couch. "It works with stone, with metal, with vegetable substances, but it will not work with animate objects. I am lost—there is no chance of my winning Kora!"

Evidently he was right. The properties of the prism, linked with the sound vibration, did not extend to animals. Kora and her people could *not* be transformed to full-sized men and women. I was truly, deeply sorry for Ramon. He had counted so much upon it, had looked forward so confidently to the culmination of his experiments. But a sudden idea came to me. Almost an inspiration, I might say. It came so suddenly.

"Don't give up, old man!" I cried cheerily. "I think we can overcome the difficulty yet."

"How?" he demanded brightening perceptibly.

"This is the way I look upon it," I said. "A certain note or vibration creates a certain reaction or agitation in the prism. You happened to produce the note that aroused the energies that would react on metal.

"The atomic structure or vibrationary structure, or whatever you may call it, of stone, even of vegetable fibres, also responds to that certain note, or more probably to other notes that you included in that one bar from your Quena. But living tissues must of certainty consist of a totally different atomic or vibrationary structure. Somewhere in the range of musical vibrations there *must* be a note that will force the prism to act upon such tissues. All you have to do is to find that note."

RAMON laughed hoarsely, insanely. "That is *so* simple!" he cried sarcastically. "Have you considered the number—the range of vibratory musical notes? No, of course you have not! You are not aware that they run into countless, incalculable millions. Even could the human ear differentiate them, could any instrument devised produce them all, it would require a lifetime—several lifetimes—to run through the entire gamut of such notes. And to attempt to find one—*the* one—at random, would be worse than hopeless."

"Nothing is hopeless," I assured him with far more confidence than I felt. "You found the one by accident. You may find the other the first time you try. Don't give up, Ramon. Think of Kora, think of what it may mean to you both. Remember, there's nothing like trying. And in all probability the desired note is very close to the one that works on stone and other material."

"Oh, I'm willing to try," he declared wearily. "I *know* it is hopeless. But it's my one chance of happiness."

"Fine!" I exclaimed, slapping him on the back. "No time like the present. Let's start now. And," I added, as another thought flashed through my mind. "I may be wrong. Possibly the prism may act on some forms of life and not on others. Perhaps, if we tested it on a warm-blooded creature, on a vertebrate, it might work. We might try it on a bird—on a dove for example. Even the most gigantic dove would be quite harmless."

Ramon smiled. His old sense of humor and vivacity was returning. "I don't know about that," he said. "A dove, one hundred feet in length and with a wing spread of three hundred feet, might cause most unpleasant results by perching upon one's house-top."

I chuckled. "Yes," I agreed, "but such birds might solve the question of aerial transportation. Tamed and trained, doves of that size could carry a number of passengers or several tons of freight from place to place."

"And exhaust the grain supplies of the world in six months," Ramon added.

"However, I don't think we need worry. I don't believe a vertebrate will be affected any more than an in-

vertebrate. But we'll try. There are lots of subjects."

To recount all of the tests and experiments we made would be monotonous and of no importance. It is enough to say that we met with utter failure. We tried every form of insects, of mollusks, of crustaceans, even of reptiles that we could find—all without result. Then we decided to try the experiment upon a warm-blooded vertebrate and, after a deal of trouble, we captured a gentle little ground-dove.

"I'm so certain it won't work, that I'd be perfectly willing to stand before the prism myself," declared Ramon, as we tethered our captive and he picked up his Quena.

"You'd be perfectly safe," I told him. *"I* cannot play the Quena!"

All was ready, and, once more, Ramon placed his lips to the flute and again that now familiar note shrilled through the air. But the little dove was still tugging at its tether, no larger than before.

"Didn't I say so?" cried Ramon. "It's no use. Living creatures are immune."

"See here!" I exclaimed. I have an idea. I don't know much about music, but I've learned something from you. Isn't it possible there is not enough power—enough quality or, or what do you call it—penetration—to the notes from the Quena? If I am right, the same note—any note—can be produced upon any properly constructed instrument possessing the same range. Could you produce this same note upon your violin?"

"Of course I can," he declared. "But it would have the same effect. The vibrationary factor would be identical."

"Possibly," I admitted. "But how do you or I know. It won't do any harm to try. Get your fiddle, Ramon, and let's test it out."

Rather reluctantly, he agreed, and produced his violin. As he took up his position, I noticed that one of our burros was grazing near, and, in a half-subconscious way, I thought what a monstrous thing the jackass would be if he could be enlarged a thousand times or so. Near by, too, was one of our Cholo* laborers watching us at a safe distance, his dull brain probably wondering what deviltry we were up to, for our Cholos always regarded our scientific work as a form of witchcraft, and gave us a wide berth, for which we were duly grateful.

Then I turned to watch the result of this new test. Slowly Ramon drew his bow across the strings. Soft, beautiful notes came from the instrument, and then, with a sudden sweep of the bow, the wailing, piercing notes tore the air like a despairing scream.

Instantly there was the loud familiar twang, but far louder than before. Dove and crystal were hidden in a white cloud like a puff of steam. I fairly shouted with delight.

But my cry of triumph was drowned by a terrific yell from the watching Cholo.

"Madre de Dios!" he screeched, terror in his tone, "El *burro!* The donkey! The devil has taken him!"

*Indian or half-breed servant.

CHAPTER XII

I WHEELED. The Cholo was racing off as fast as his feet could carry him, screaming as he went. But the donkey that had been there an instant before was nowhere to be seen. He had vanished completely! What *had* become of him. What *had* the Cholo meant when he said "the devil's gone off with the donkey"? Evidently something had frightened him half out of his few wits. But what? It might have been the twanging sound or the vaporous cloud, but neither of those could account for his yell regarding the burro. All these thoughts raced through my mind in the fraction of a second. They were interrupted by a shout from Ramon.

I turned to see him staring, pop-eyed, utter amazement written on his features, at the spot where the prism had been. The next instant I was doing likewise. And no wonder! The prism had completely disappeared, but there, just as we had tethered it, was the ground-dove, exactly the same size as ever!

We were both absolutely speechless with wonder. Had the dove been transformed into a human being, into a stone idol, into a dinosaur, we could not have been more amazed, more dumbfounded. Everything had happened exactly as I had hoped, as I had expected, as it had always happened when an object was transformed to magnified dimensions. There had been that unmistakable twang, there had been the cloud of vapor; the prism had vanished; but—there was the marvel of it—the dove had remained unaffected! It was beyond me, utterly beyond my reason or my comprehension. Something *must* have been transformed, my inner brain was telling me, something *must* have been altered in order to produce that typical twang and that cloud of vapor. And yet——

An excited yell from Ramon shattered my thoughts. *"Dios mio!"* he cried, "I have it! I know!"

For Heaven's sake, *what* is it you have? *What* is it you know?" I demanded.

Ramon stooped and released the dove which fluttered off, mightily relieved at finding itself free once more. "It was the burro!" he exclaimed, his voice betraying his intense excitement despite his effort to speak calmly. "That's what the Cholo yelled about."

"I was quite aware of that," I remarked tersely. "But what has either the Cholo or the burro to do with this confounded prism going to pieces with its customary accompaniments, but without producing any result?"

Ramon burst into a wild, maniacal roar of high-pitched laughter. "Result!" he reiterated. "Result! That was it, that was the result!"

"Look here," I cried impatiently, "can't you stop talking in riddles or utter nonsense and explain what you *are* driving at? What *was* the result?"

"That burro, *amigo mio!"* replied Ramon, suppressing his hysterical outburst. "When the note of the violin sounded the prism responded and acted on the donkey."

"Have you gone completely crazy?" I ejaculated, involuntarily glancing about as if expecting to see a burro of titanic proportions in the vicinity. "If

that is the case, where's the enlarged donkey?"

"No, I'm not as crazy as yourself," Ramon shot back. "I don't know *where* the burro is, but he's not far away. Perhaps under your feet! Enlarged! No—just the opposite—he's been reduced. He—why it's as plain, as simple as the nose on your face, *amigo*. The donkey was in line with the prism, in focus, so to say, with the wrong end of it. And instead of the agitated prism enlarging the dove, it reversed the process and reduced the donkey! Don't you understand? Can't you see?"

"By Jove!" I exclaimed, as his meaning dawned upon me. "You mean—but no, that can't be. In the first place we've stood—I've stood— behind the prisms time and time again when you produced the note, and *I* haven't been affected. And why wasn't the dove magnified? If the confounded thing works on one animal, it must work on another. I can see, or at least I can conceive that it *might* be possible for the properties of the prism to reverse matters and reduce a normal-sized object to microscopic size, but if it did so, then, at the same time, it would also have enlarged the dove. No, no, Ramon, your reasoning is wrong."

"Is it?" he queried, a note of sarcasm in his tones. "Very well, I'll believe it when you show me that donkey."

Ramon had me there. There was no doubt that the burro had vanished. But I had a card up my sleeve, so to speak. "And," I informed him, "I'll believe you are right when you can show me the donkey in reduced form or can reduce some other creature."

"I might be able to do both," he retorted, "but to find a microscopic and probably terrified burro in this waste of sand is a lot harder than to reduce another one. Just as soon as I can fix up another lens, I'll prove I'm right. And—" he became very serious—"And, *amigo*, if it works, as it surely will, I shall have found a way to join Kora. I cannot transform her to normal size, but I can and I *shall* transform myself to her proportions!"

"No!" I almost yelled. "No, Ramon! You'll do nothing of the sort. Why, do you realize what it means? Even if it works, even if by some magic it is possible to reduce a living creature without injury, and you do this thing, you will be dead to the world, to all your friends! You might just as well commit suicide and be done with it. And, even assuming you could do it, think of the risk you take. You cannot control, do not know the powers of the Manabinite. You might reduce yourself to the size of an atom—to a size that would be as invisible to the princess as she is to ordinary mortals."

"All very true," replied Ramon calmly. "Nevertheless, I *shall* take the chance. If I die, if I lose in any way, I shall be no worse off. Without Kora I shall not care to live. With her, my friends, my world, would be well lost."

As he spoke, a sudden thought came to me and I laughed. "You *say* you will," I remarked. "But," I asked, *"how* can you do it? Who's going to produce the proper note to reduce you? *I* can't, that's certain."

"What is to prevent me from doing it myself?" he countered. "I shall stand back of the prism, in focus with it, and play the note myself."

"Hmm, possibly," I remarked. "But before we come to loggerheads over the ultimate sacrifice of yourself, wouldn't it be a good idea to make some tests to prove your theory, and, what is of more importance, to prove whether or not a living creature still lives after its reduction? If you were to be reduced to a miniature corpse, it wouldn't do much good either to yourself or to Kora."

"Of course I shall experiment," he declared. "And you will find I am right. To-morrow we will make a test on another burro."

"You will do nothing of that sort, Ramon," I informed him. "We have no burros to waste. Even the loss of one will hamper us when we pack out of here. Moreover, even if you did reduce another donkey you could prove nothing. He, too, would be forever lost in this place. No, you will have to experiment on something else, on some creature that you can place in your hut. Then, provided you can figure out the spot at which the reduced creature will be delivered, we can determine not only if it is reduced, but whether or not it survives."

"You win," smiled Ramon. "I admit you have more common sense than I have. But we cannot test it on a dove. It would be reduced to such small size, we never could find it. How about a dog? There are two or three mangy curs over at the Cholos' camp."

"A dog should answer your purpose very well," I replied. "But I doubt if you will ever see him after the test is made. In my opinion, the burro was not reduced in size but was absolutely destroyed, shattered into its atomic parts. Now, Ramon, promise me, swear to me, one thing. Promise on your oath that unless we can prove conclusively that a living creature can be reduced without the slightest injury or harm, and that the extent of the reduction can be controlled, you will not insist on carrying out your mad scheme."

FOR a time he hesitated. Then: "Very well," he said at last. "I will not make that promise. And now I'm off to make another prism."

At the time it did not occur to me, but later, as I thought over the past and remembered our conversation and our behavior, I realized that the calm matter-of-fact manner in which we discussed the whole affair was really most remarkable. But it only goes to prove how we had come to regard the amazing events we had witnessed. One astonishing thing had followed so closely upon another, that we had grown blasé, accustomed to phenomena, that, at any other time, would have seemed incredible. Ever since Ramon first discovered the properties of Manabinite everything had moved along by an almost unbroken chain, so to speak, each link of the chain being some new and more astonishing event than those that had preceded it. First there was the lapis idol, then the discovery of the Manabinite about the meteorite; then the lens with its truly marvelous magnifying powers; then the chance discovery of the prism form with its stupendous magnification; then Ramon's clever device for focussing,

his building up of a super-prism, and the sight of atoms. Following close upon that came our discovery of the microscopic people. Then the discovery that when, actuated by a certain note, the image of an object became the actual object itself; the fact that animal life did not respond to this action, and finally the vanishing burro. Any one of these marvels would, by itself, have left us awed, rather incredulous, perhaps in doubt of our own senses. But scarcely had we been thunderstruck at one when something still more astounding followed. Thus by comparison—and nearly everything in life is comparative, as Einstein proved by his Relativity theory—thus by comparison, I repeat, each previous marvel seemed to us almost ordinary and commonplace. Two or three days' earlier we had regarded the bodily enlargement of an object as a miracle, as almost magical, as being akin to the supernatural. But now we had become so accustomed to that, so familiar with it, that it seemed nothing very extraordinary, and even the idea of the prism having the power to reduce an object to infinitesimal size did not, once the first surprise was over, seem either preposterous or miraculous. In fact we took it rather as a matter of course, and went about our preparations for the tests as calmly and deliberately as we would go about any other scientific experiments.

But our interest was indescribable. In fact our interests in the properties of the Manabinite and our desire to determine its limits had become an obsession with us both. I had completely neglected my own work, my notes lay uncompleted where I had dropped them on that evening when Ramon burst into my hut with his amazing discovery. So engrossed had we become, that we scarcely gave any time to watching Kora's people. Each day, to be sure, we took a peep at them. Once or twice, too, I looked out of my hut at dawn to see Ramon at the prism and—perhaps unconsciously, prostrating himself and muttering the prayers and chants in unison with the people whom he was watching through the prism as they made their daily obeisance to their sun-god. Once or twice, also, we had caught glimpses of Kora, but evidently she seldom appeared in public, and I was glad of that, for each time we saw her ravishing face and figure Ramon was almost beside himself and, for hours afterwards, was miserable, depressed, morbid and blue beyond words.

Perhaps most significant of all, as proving our overwhelming interest in our experiments, was the fact that we were remaining at the spot despite the imminent danger of the heavy rains setting in. Before we had discovered the little people, I had been impatient to get away. I had insisted upon it, in fact. And yet, here was I, never giving a second thought to the rains, staying on day after day, and quite forgetting that, should the rains come on suddenly, we might be completely cut off, might find the rivers and ravines flooded and impassable, and might be forced to remain in this or some other equally bad spot for six months, or until the next dry season. That may not sound like such a very great catastrophe. But unless one has experienced a tropical rainy season on an exposed, unsheltered, restricted spot where there are no resources, no game, no inhabitants, one cannot fully realize just what it means. Of course, if we had planned to stop through the rainy months, and had prepared for such an extended stay, we could have been fairly safe and comfortable. We could have erected permanent, durable houses raised above the ground on posts; we could have provided ourselves with mosquito-netting or wire screens for doors and windows; we could have stocked up with provisions and supplies; and all would have been well enough. But I had planned to remain only until the end of the dry season. In rainy weather, excavatory work was impossible, and I had not foreseen anything else to keep me there. Hence we had not brought any suitable equipment or supplies to last over. So, as I have said, if the rains burst upon us, we would find ourselves in rather desperate circumstances. Yet I do not think that our danger, or even our possible discomfort once entered my head after we discovered the village of the little princess. And, very fortunately for us, nature was most kind. It rained off and on to be sure—often heavily—but the rains were merely showers, and in every case, they came on in the late afternoon or evening and cleared up after sunrise the next morning. And they were not the precursors of the seasonal rains by any means. I had lived long enough in the tropics to recognize these when they appeared; to know the difference between the short, vicious downpours of great blood-warm drops and the steadily-descending deluge, like a solid wall of water, that falls without cessation or let up for day after day, night after night. But even had these torrential rains arrived—and they were long past due and might put in an appearance at any time—even had they arrived, I say, I doubt if I could have forced myself to leave as long as Ramon's experiments were uncompleted.

BUT our Cholos held other views. They were impatient, nervous, sulky and insistent. Over and over again they demanded that we clear out, and I had begun to fear open rebellion, or at least desertion, when, happily, the incident of the burro completely altered matters. I shall never know precisely what the Cholo who had witnessed the thing told his fellows. No doubt he exaggerated tremendously. Very probably he averred, and swore by all the saints, that he actually saw the devil in person as he seized the donkey and whisked him away. But even if he adhered strictly to the truth and to facts, his story would have been enough. As I have said, the Cholos regarded our scientific work as a form of witchcraft and they probably—in fact, undoubtedly, looked upon us as exponents of the black-art; but as long as nothing particularly terrifying occurred, and they were well paid, well fed and were not molested, they were quite content to work for men who might be in league with the devil, provided the devil did not approach their hut, which was some distance from ours. But they were not sufficiently superstitious or awed by our supposedly-occult powers to prevent them from becoming a bit threatening when they found themselves facing a danger that was real, and with which they were thoroughly familiar.

But when the terrified Cholo reported what he had seen, they changed their minds. Here were white men who, by merely playing on a fiddle, could cause a donkey to vanish before their eyes—and there was ample evidence that the burro *had* vanished. And, so they reasoned, if playing a fiddle could whisk a burro from sight, was it unreasonable to think that, if the white men so desired, they could do the same with a Cholo? The result was that from that day on, the Cholos were as subservient, as humble and as deferential as anyone could wish, and never so much as mentioned the question of leaving.

But I am forgetting myself. I am wandering from my account of what took place. I must confine myself to the account of those events that had a direct bearing upon the ultimate outcome and Professor Amador's fate.

However, I thought it wise to mention the matter of the rains and of the men in order that my readers might understand how it was that, having been so intent upon leaving before the rains commenced, I stayed on now quite willingly.

But to return to my story. The supply of Manabinite was now getting very low and it was becoming increasingly difficult to obtain a fragment large enough for a prism. In fact, by the time of the disappearance of the burro, Ramon declared that in order to produce a prism that would be practical, he would have to build one up, much as he had constructed the one through which we viewed the miniature Indians. This, by the way, remained where we had placed it when we had first seen the Indians, for we feared that if we moved it or altered it in any way, we might never again be able to locate the village. Also we had made one or two somewhat important discoveries. We had found that the twanging sound I have described was due to the abrupt disruption of the Manabinite, and Ramon advanced the theory that it was the responsive musical note aroused by the vibration produced by his notes. I do not know if I can make my meaning wholly clear, for I am not a musician and musical terms are as Greek—or worse, for I can read Greek—as far as I am concerned. But from what I could gather from Ramon's somewhat technical exposition of the matter, every musical note has its responsive note. For example, if a tuning-fork is struck and placed near a stringed instrument, a faint responsive note will emanate from the strings. It is, in fact, a sort of vibratory echo, but instead of the echo being an exact reproduction of the original sound, as in the case of ordinary echoes, the responsive note may be quite different in tone.

To continue: Ramon's theory was that the twang was the responsive note, and that it was this sudden, terrific vibration of the crystal, this abrupt exertion, this throe of the atomic structure, that disrupted the mineral itself and that, in its disruption, the atoms or molecules or electrons reformed themselves—together with those in the object exposed before the prism—in the precise form of the magnified image. In other words, the vibratory waves that—according to Ramon, for I am quoting him and make no claim to a profound knowledge of physics myself—the vibratory waves, that controlled the atomic structure of both the crystal and the object before it, were so altered in the speed of their vibrations that they vibrated in unison with the vibratory waves that produced the magnified image, and thus solidified it. Perhaps I may, in a manner, compare it to filling some thin receptacle, even a transparent object, such as a toy balloon, with water and then freezing it. Of course that is not an exact simile, but the result was more or less the same.

PROFESSOR AMADOR, however, went much further, much deeper than this. He possessed a most profound, almost an uncanny knowledge of physics, and he evolved many theories as he labored at the new prism. But to me most of these were totally incomprehensible, being involved and dependent upon the most abtruse problems and equations in the highest mathematics, and which I never could master, being, I confess, a very poor hand at even the simplest mathematics.

But I could understand how, regardless of the physical phenomena involved, the process of the prism could be reversed, and an object reduced. But even Ramon could not offer any lucid or satisfactory theory as to *why* the prism should act backward—if I may use the term—on living tissues, and refused to act in the other direction.

We had also proved conclusively that the fine dust which I mentioned we had found on Ramon's table, was the visible remains of the prism, a residue that, for some reason, was not transferred to the magnified body produced. This, it also developed, was the cause of the peculiar haze or cloud that invariably appeared when the transformation of an object took place. We were both rather curious to learn what the material was, and Ramon wasted some time in attempting to analyze it. But his efforts were without definite results.

"Possibly," he suggested, with a grin, "If we could manage to enlarge a pile of this powder, we might create a piece of Manabinite."

But we had no intention of trying it, and devoted our energies to making the prism which meant so much to both Ramon and myself.

If it worked, if it actually reduced a living, warm-blooded creature—one of the stray curs at the Cholos' camp for instance— and if, after its reduction, the dog remained unharmed, then I knew I was fated to lose my dear friend forever. But if it failed, if the dog was not reduced or if, when reduced, it was killed or injured, or if it completely vanished, then would I hold Ramon to his promise. And despite my sympathy for him and my real desire to see him happy, even if in a microscopic way, yet I hoped and even prayed that the experiment might prove an utter failure.

Several times, as we worked, Professor Amador tried to induce me to join him on his mad venture. He argued that I would never have such another opportunity; that I would be able to study the habits, the lives, the religion of the miniature Manabis; that I would be content and happy; that I would have the companionship of himself, of Kora and of the high

priest, and that, after all, it makes little difference where or how one lives, provided one is content and has an interest in life. Naturally, I declined. I do not value my life more highly than others; I have many times risked it for the sake of my favorite sciences, but I had no desire to run such a risk as he suggested, even if the advantages he pictured were alluring. It was quite a different matter with him. In the first place, his disposition was very distinctly different from mine. He had the aborigines' utter contempt for life or for danger, and he was as thorough a fatalist as any pure-blooded Quicha. Also, he was absolutely convinced that he was fated to possess Kora, the princess, and his strange and truly remarkably vivid sensation of having met and loved her in some past existence, only made him the more convinced of this. And I could well understand that, with such a prize of loveliness and of love as a reward, he felt that the step he proposed to take, that life itself, was of little importance.

Indeed, I feel rather sure that, had I been younger and had such a vision of glorious womanhood lured *me* on, I should not have hesitated to have risked *my* life on the chance of winning her. And Ramon took no chance on the latter score. He loved her madly, devotedly, with every fibre of his being, and he knew, he was as certain as he was of his own existence, that she responded and loved him as deeply as he loved her. Just how he knew, he could not exactly explain. I talked with him a great deal about the matter, and about Kora for, somehow, as the time for the test drew near, we seemed to grow closer and even more intimate than before. Moreover, it seemed to relieve Ramon to talk to me of his passion and the princess.

"How," I once asked him, "can you be sure Kora loves you? How can you be positive that she even knows you—that she would recognize you if you were to stand before her? I know you *say* that you two loved ages ago, that your spirits have always loved. But is it not possible that you alone are aware of that? Is it not possible that her subconscious self, her soul or spirit, may be reincarnated in another body? Or even if that is not the case, that her spirit or subconsciousness might fail to retain the memory of the dim past as does yours?"

He shook his head and smiled enigmatically. "All those contingencies have occurred to me," he declared. "But I *know* they are not so. *I know,* I feel, that she saw or heard me on that first day. That even if she did not see me with her eyes nor hear me with her ears, still she knew I was near. And her eyes and her wonderful face were aglow with joy and love. Ah, yes, *amigo mio,* she knows, she remembers, she loves me as of old. You will see, my dear good friend. When I have vanished, then you will look through the prism at the village and you shall see Kora and myself, and shall witness our happiness. Yes, *Valgame Dios,* I promise, I swear, that no sooner do I find myself among her people and beside her than I will signal to you. Although I may not be able to see you, yet will I know my great, good and tried friend—a friend larger than a mountain—is watching us, and I shall raise my hand and salute you, for you will see us. And I will tell my Kora, my *Sumak Nusta* of you, *amigo,* and will ask her also to salute you—yes, even, *amigo,* to throw you a kiss from her beloved lips. Then, will you know that all is well, and that I have found happiness beyond words with my Kora. That the love of ages—of ten thousand years—has endured and has met its reward at last. Will you promise to look, *amigo?* Will you swear that you will? And then, my friend, do me one more favor. Destroy the prism, shatter it to bits and destroy all fragments that may remain about the camp. Some day, at some time, some one might discover its secret, and some one more adventurous than yourself might follow in my steps and intrude himself—perhaps intrude a crowd upon my Kora's people. Promise me then unless"—he grinned his boyish, happy grin—"unless you decide to change your mind and join us."

"I promise that I will destroy it," I assured him. "And of course I shall look through the prism—I could not resist that. But there's no fear of my changing my mind. Moreover, even if I did, I could not join you. You forget I cannot play the violin!"

CHAPTER XIII

WHEN at last the prism was completed, and the time came to put it to the test, I was a-tingle with excitement. In fact, I had never before felt my nerves so keyed up, so tense. Upon this experiment depended so much. It was the next thing to Ramon testing it upon himself. We had, so he thought, provided for every possible contingency. We had repeatedly tested the focal distances of the prism, in order to determine just where the dog should be placed and just where we might expect to find his reduced body, alive or dead. But we had a great deal of difficulty, and many rather heated arguments, over these details.

Although it had never occurred to us before, yet, when we came to look into the matter, we discovered that the prism did not act as a reducing glass, or in other words that we could not use it reversed as can be done with lenses in a telescope or field-glass.

It worked perfectly as far as magnifying an object was concerned—although its power was only about two hundred diameters—but when an object was placed behind it, and we looked into the opposite end, we saw nothing but the dull, greenish, semi-translucent Manabinite.

At this impasse, Ramon declared that the only way to determine the locations for our canine experiments and the resultant miniature dog, would be to reverse their positions when magnified. In other words, if a small object placed in front of the mirror was clearly magnified, then the spot where that object rested would be the spot where the reduced subject of the test would be found after the experiment had been made.

"But," I argued, "how do we know that? The image, as you know, is not at any real distance behind the prism. To be sure, it appears to be in mid-air, an actual thing of impalpable wraith-like material. But we cannot touch it, and the nearer we come to the

prism, the more it recedes before us, until it seems to be within the Manabinite itself. Where, in that indefinite range, are you going to place the dog?"

"It doesn't make any difference," declared Ramon. "As long as he's in the focal plane of the thing, he'll be reduced."

"You're merely assuming," I argued. "Think of the number of times I have stood back of a prism when you gave the note, and I have not been reduced, as I remarked once before. No, Ramon, I feel sure there is some exact and definite point at which the prism operates. That burro for example. He was at least twenty-five feet from the crystal. To my mind, the subject must be at a considerable distance. The reason I have not been affected is because I have always been close to it."

Ramon grunted. "Then how is it that a portion of the hut—my couch for example—hasn't been reduced?"

"Possibly the reduction process may not work on inanimate substances," I suggested. "If the magnifying process works upon inanimate things but *not* upon living organism, why shouldn't the reverse process work on living things and not on others?"

"Something in that," he admitted. "But it's all guesswork. Anyhow, we can try the dog at various distances."

"And if he vanishes, we may not find him afterwards," I reminded him. "It stands to reason that the point at which the reduced object appears must be in direct ratio to where the original object is located."

"We'll get around that difficulty," replied Ramon. "We'll build a sort of pen—an enclosure—in front of the prism, line it with white and then we'll be able to find the microscopic pup easily. But he won't be hard to find. If the prism magnifies two hundred times, it can't reduce to less than one two-hundredth of the original, and that wouldn't be an invisible dog. A little larger than a flea, that's all."

"I wonder if the fleas will be reduced also!" I laughed.

EVERYTHING was soon arranged. We placed a large sheet of white paper before the prism, turning up its edges to form a shallow tray within which we hoped—or at least Ramon hoped—to find the reduced dog after the test. The prism, I might explain, had been placed upon the floor of the hut in order that the dog might come within its focal plane. Then I brought out the victim. We had had him with us for several days, and never in his life had he been so well fed and cared for. Now he fawned and wagged his stump of a ragged tail in expectation of another feast. In this he was not to be disappointed. We had decided not to tie him up, for, if my theory was correct, the prism might not work upon inanimate objects, and complications might ensue if the dog were reduced and his leash remained normal. So, to insure his remaining in one spot, I placed a tin plate of food upon the floor where, as nearly as we could judge, he should be in focus of the prism.

As he wolved greedily at the food, Ramon picked up his violin, while I stood well to one side, my eyes fixed upon the dog. For a moment or two Ramon tuned his instrument with care. He tried a few soft subdued notes, and, the next instant, the shivering magic note came from beneath his bow. As the weird note rang out, and my ears recorded the peculiar twang from the crystal, I uttered a startled cry and involuntarily leaped back. The dog had vanished before my eyes! One moment he had been there, gulping down his food; the next instant he had gone, had dissolved, had instantaneously and completely disappeared. And with him had gone the meat, the bones, the grease. Only the empty tin plate remained, unchanged, unmoved, but as clean as though it had been washed and scoured! It was the most astounding, the most incredible thing yet! I felt as if I were in a dream; it was so unreal, so utterly beyond reason.

All had happened in a breath. All was over in the fraction of a second. Now Ramon had thrown aside his violin, and was stooping above the white paper examining it, searching it, for the transformed reduced dog he confidently expected to find there. I joined him, shaken, still dazed. But the white surface was bare. Not a trace of anything could be found, aside from the white powder, the remains of the prism that had fallen upon it.

"I must have miscalculated the powers of the prism," muttered my friend, "he was probably reduced to invisible dimensions. I—"

"It is just as I said," I declared, at heart vastly relieved that Ramon had not been successful in his search. "The poor dog was utterly destroyed—reduced to atoms—to impalpable dust. Now, Ramon, do you see what a terrible risk you would have taken had you not tested the prism on the pup?"

"Possibly you are right," he admitted, "but I do not agree with you. I believe the dog is here somewhere."

As he spoke, he rose, rummaged about, and produced the Manabinite lens he had made. "Now we shall see," he remarked, as he again proceeded to examine the prepared paper tray. But though we went over every inch of the surface, there was no trace of any object, alive or dead.

"Aren't you convinced yet?" I exclaimed. "Aren't you convinced that the dog has been utterly annihilated?"

"No, I am *not*," he asserted. "I may have made a mistake in my calculations regarding the prism. Even with this lens, the reduced dog might remain invisible. The only way to be certain is to expose the paper to the magnifying powers of our big prism. Come on, *amigo*, we'll carry it over and examine it with the prism. Then, if we cannot discover the dog, I'll admit you must be right."

Willing to humor him, anxious to convince him, and feeling greatly elated at knowing that Ramon would now refrain from his mad design, I helped him pick up the paper tray, covering it with a second sheet of paper to prevent any draught from carrying away its contents, and with him proceeded to the prism that remained focussed upon the Indian village in the sand.

"We will have to place it directly above the village,"

I observed. "I'm afraid your friends will imagine there is a terrific storm brewing. I hope they are not terrified."

"They will never know the paper is here," declared Ramon, "the interstices between the fibres are large enough, in proportion to themselves, to permit plenty of sun to come through. It may appear like a thin high cloud to them, but nothing more. But I do not intend to place it directly above them. I could not do that without walking over them and somehow—although I *know* it will not affect them in the least—I cannot bring myself to tread over my beloved Kora."

"Then how are you going to see it without moving the prism?" I enquired.

"We will move the prism," he replied. "We will first look through it at the village, and then gradually swing it about, until the outlying huts are just visible. Then we can always swing it back again."

This seemed a good plan, and once more we viewed the village with its people. For an instant we watched them, then, very slowly, we swung the prism about until we could barely distinguish the most outlying houses just within the sphere of vision.

"Now," said Ramon, "we will soon see who is right and who is wrong. Look through the prism while I place the paper. In that way you can direct me so I can place it directly in focus with the prism. All ready?"

Intently I gazed at the apparently vast expanse of terrific mountains and ravines, the deep canyons, the monstrous rock-masses, the wild chaos of boulders, stones and sand, that the prism revealed, and which, I knew, was nothing more than the immeasurably magnified sand before me. What, I wondered, would the paper look like when it came into view? Would I see the miscroscopic dog? Would he be dead, mutilated, or would he be unhurt, perhaps still munching a bone?

THE next second I uttered a yell as if I had stepped upon a scorpion. "Ramon!" I screamed. "Ramon! Quick! Come here! Am I going mad?"

No wonder I was startled! No wonder I could not believe my own eyes!

As I gazed into the prism, an animal had appeared from behind a mass of rocks. He moved slowly, sniffing suspiciously and cocking his long ears as he proceeded. There was no mistaking him. He was a donkey, a burro! And, instantly, despite my amazement, I recognized him. He was the identical burro that had so mysteriously vanished several days before! There could be no slightest doubt about it. Even our own brand upon his hip was plainly visible!

Dropping the paper, Ramon sprang to my side. One glance was enough. *"Nombre de Dios!"* he cried. "It is—it *is el Burro!*"

"Then I am not mad!" I exclaimed, relieved to find that it was no figment of an overwrought brain. "You see him the same as I do?"

"Caramba, yes!" he ejaculated. "The burro, the donkey that vanished before the eyes of the Cholo! Do I not know him? Do I not see the brand? *Gracias a Dios, amigo mio,* now do you believe? *Now* do you scoff! *Now* do you doubt that I, too, can become the size of my Kora's people? *Santissima Madre!* now I *am* happy! Now my life's dream is about to be realized!"

I could no longer doubt, could no longer question. I could not even advance any valid reason why Ramon should not carry out his mad plans. If a donkey could be bodily transformed to microscopic proportions without the least injury, then there was no reason why a human being should be injured by the same process. And as realization of this came to me, I felt a sharp twinge in my heart, a pang at thought of losing Ramon forever.

Meanwhile the donkey was proceeding slowly across the rock-strewn plain. Now and then he stopped, lowered his head, and apparently grazed upon invisible tufts of grass or weeds. Now and then he raised his head and obviously brayed, though no sound issued from his mouth. Indeed, so thoroughly natural were his actions, so familiar his appearance, that I could scarcely force myself to believe he was not still a full-sized burro on a normal stretch of earth.

Evidently, too, he was none the worse for his remarkable experience, for he appeared fat and sleek, though a bit nervous and ill at ease in such strange surroundings. So engrossed had we become in watching the donkey, that momentarily we had forgotten all about the paper and our search for the dog.

I was just on the point of reminding Ramon of the matter, when the donkey halted abruptly, pricked up its ears, wheeled about, sniffed the air, laid back its ridiculous ears, wrinkled its lips to bare its yellow teeth, and showed every unmistakable evidence of asinine anger.

"By Jove!" I exclaimed. "Look at the beast, Ramon! He's all ready to lash out with his hoofs! Being reduced hasn't changed his nature any. I wonder—"

The next second I gripped Ramon's arm until he yelled, I uttered a sharp exclamation of utter amazement, and stared incredulously. My half-formed question had been answered in a most astounding way!

Dashing towards the angry burro, leaping over the stones, was a dog? *The* dog! The unmistakable mongrel that, less than half an hour before, had been wagging its tail and munching its food in Ramon's hut!

Somehow I felt faint, weak, almost ill. It was too much, too weird, too much of the supernatural. I tore my eyes from the prism and stared about. No, I was not dreaming. Everything in the vicinity was as it should be. There were the huts, there was the sheet of paper where Ramon had left it. There was he, his eyes glued to the prism. There was no burro, no dog in sight. It must be true, I could no longer doubt it, and I again turned my gaze to the magical prism.

I was just in time to see the burro lash out viciously with his feet. But the Cholo's dog had not been brought up among burros without acquiring knowledge by experience. He dodged the flying hoofs, snapped at the donkey's flank, and, by his actions and attitudes, we knew he was yelping, barking, as he circled about, keeping well out of reach. Presently the inevitable

happened. The burro gave up and sought to evade his tormentor by flight. Away he galloped, the dog at his heels. Again and again he halted, prepared to fight, but each time the dog urged him on. Then, for the first time we noticed that the cur was driving the donkey in a definite direction, and suddenly it dawned upon me. The dog was herding the burro towards the Indian village! He was following out his former instincts, was doing just as—when he had been a normal size dog—he had done hundreds of times before. He had come upon a stray burro, his duty was to drive the donkey to its proper place. He knew that Indians were near at hand and he was seeing to it that the wandering burro returned to where he belonged.

Ramon had realized it also. *"Mira!"* (look) he cried excitedly. "The dog is driving the beast to the village! *Dios!* What will happen? What will the people think? What will they do when they see the burro, when they see the dog? Never, *amigo mio,* have they dreamed that such creatures exist. Quick, quick, *amigo,* turn the prism or we shall miss the fun!"

AS we turned the prism, the donkey, followed by the dog, raced past the outlying houses and dashed pell-mell into the village. If a full grown Megatherium in chase of a Dinosaur should suddenly appear in the center of New York, and should rush down Broadway, it could not create greater consternation and excitement than the unheralded apparitions of the burro and the dog in the Indian village. Never before had the villagers seen such beasts. To their eyes, no doubt, they appeared gigantic, ferocious monsters. With one accord every man, woman and child in sight dropped whatever they were doing, and screaming—although of course their terrified cries were inaudible to us—they dashed headlong for the temple. Pushing and crowding, tumbling over one another in their panic, heedless of everything but to reach the sacred precincts and the protection of their gods, they streamed from the village, and in an instant the burro and dog were left in sole and undisputed possession of the scene.

We both roared with laughter. It was like a comic movie, and yet I was at heart deeply sorry for the poor people who must have been frightened out of their wits.

Fortunately, however, the two beasts did not take it into their heads to follow the crowd or to approach the temple. Once more amid familiar scenes and in the presence of Indians to whom he was accustomed, the burro halted and, seeing a bundle of some vegetables dropped by the fleeing inhabitants, he at once helped himself and began feeding as unconcernedly as though he had been there all his life. And the dog, now that his mission was done and he had successfully brought the donkey to the village, abandoned the burro and, sniffing about, at last threw himself down in the shade of a house, perfectly at home.

Meanwhile, from their refuge in the temple, the Indians were watching with mingled fear and curiosity to see what the next move of the two creatures would be. And, realizing how the two beasts must have appeared to him, I could not but admire the courage of the high-priest who, pushing his way through the crowd, descended the temple steps and, holding aloft his golden emblem, advanced slowly towards the two animals, as if to exorcise them.

At that moment Kora appeared. I heard Ramon's short, indrawn breath as he caught sight of her, and again I felt the blood rush to my temples as I gazed upon her. For an instant she hesitated, glancing about as if wondering what had caused the excitement. Then she caught sight of the two strange beasts and I saw her start. But there was no terror, no fear in her eyes. Almost at the same instant the dog saw her. His stumpy tail wagged furiously, and springing to his feet, he leaped forward, fawning and barking. To us, familiar with the ways of dogs, he was very obviously intent on making friends with the princess. But to her he must have seemed a very terrible monster about to attack her. But Kora did not shrink, did not retreat. Though her face paled, she stood her ground, and we knew by their attitudes and expressions that a wail of despair arose from the watching people who expected to see their beloved princess torn to bits and devoured before their horrified eyes.

Then a strange, though perfectly natural, thing happened. The dog cowered at her feet, wagging his tail, nuzzling her ankles, rolling on the ground like a playful puppy anxious for a patting, and Kora, as though she had all her life been accustomed to dogs, bent and patted the creature's head.

I would have given a great deal to have been able to hear the shout that must have arisen from the Indians' throats as they saw this seeming miracle. But even if we could not hear them, we could see them as, with one accord, they prostrated themselves in adoration of their princess and her seemingly supernatural powers.

But I doubt if Kora heard or saw them. She glanced once more at the complacently feeding burro and then, as if drawn by some irresistible force, she turned slowly until she faced us, and lifting her face, gazed steadily towards us. Slowly her lips parted in a happy smile, and into her wonderful eyes came a look of ineffable happiness and joy.

"Dios en cielo!" gasped Ramon, "She knows! She sees! Oh, Kora, *Sumak Nusta*! I come—*apecha narcu cuel tak huam ira oka Kora.*"

With a wild longing cry he threw out his arms as though to clasp the princess to his breast. He had forgotten where he was, had forgotten the prism. His arms knocked the crystal to one side, and village, people, Kora and all vanished.

For a space he stood there, silent, intent, his eyes fixed upon the spot where the princess had stood. Then a deep breath that was almost a sob shook him. He ran his hand across his eyes, and slowly, as if coming out of a trance, he came back to earth.

"Now at last do you believe?" he asked in a hoarse half-whisper. "Now do you doubt, *amigo mio?* You have seen. The burro and the dog have survived, unharmed, unchanged except in size. So I, too, shall survive, unharmed, unaltered, except in size. Nothing

can now restrain me. Soon I shall be with Kora. And did you see, *amigo?* Did you see her look at me? Can you longer doubt, can you longer question, that she knows I am here, that she is waiting for me, that she loves me?"

I bowed my head to the inevitable. "No," I said slowly. "No, I cannot doubt now. *How* she knows of your presence, *how* she knows you are here, I cannot explain, I do not know. But little as I know of women, yet I know that no woman's eyes, no woman's lips can speak so eloquently of joy and of love save when she knows her beloved one is near and is gazing at her. And I can no longer raise an objection to your determination, Ramon. I have faith, I *believe* that you can accomplish your desire. But even if I felt you might fail, if I felt you might be destroyed, I would not try to dissuade you. No, Ramon, if I were in your place, if *I* knew that such a glorious being as Kora awaited me and loved me, I, weather-beaten old bachelor as I am, would take the step. May God be with you, Ramon, and may He bless you both."

CHAPTER XIV

RAMON was a changed man. He seemed to have been given a new lease on life, to have thrown years from his shoulders. He whistled, he sang, he fairly capered. He had been through a terrible strain. He had worked almost beyond human endurance. He had, no doubt, been as worried, as troubled, over the outcome of our experiment as I had been. And now that it was over, now that it had proved successful, now that he felt assured that he could reduce himself to the minute dimensions of Kora's people, the reaction was terrific.

He gabbled and chattered incessantly. He talked English, Spanish and Hualla by turn, and, had I not known it was an impossibility, I should have thought he was slightly intoxicated. For that matter, he was no doubt intoxicated with excitement, with joy, with love, and not with alcohol.

"At once I must prepare the prism," he declared, as he calmed down a bit. "I must make it with extreme care. But did you see, did you notice, that the dog and the burro were of precisely the right proportions compared with the people?"

I had, and I had vaguely wondered at it, and now that Ramon brought the matter up, I wondered still more. It was certainly remarkable that he had so calculated an unknown factor that both the animals had been reduced to precisely the right size, both in relation to each other and to the minute Indians.

"Yes," I replied, "you did that most cleverly—or was it just luck?" Ramon laughed. "Neither, *amigo,*" he declared. "Do you not remember that the prism we used for the dog was of only two hundred diameters' power, whereas that which operated upon the burro was over five hundred? No, there is a feature of the prism that you do not yet grasp, that I knew nothing of, but that I now know, and that makes all much easier, much simpler, much surer. The fact is, my friend, that the Manabinite can reduce objects only to one definite size, to one hard and fast fraction of the original size. There is the secret, the wonder of it!"

"You mean," I demanded, "that, no matter what the size of the prism may be, the result is the same as far as the dimensions of the reduced object are concerned?"

"Not the same dimensions," chuckled Ramon. "But the proportionate dimensions. No matter what sized or what powered prism we might have used, the dog in his reduced form would have been exactly the same size—a certain definite proportion to his original natural size. I feel sure of it. It could not be otherwise. And that is why my last doubts, my last fears are cast aside. Now there is no question of any miscalculation, no question of my being reduced too much or not enough. I will be exactly the same size in proportion to my present size as Kora and her people are in proportion to normal people. And, *amigo,* I feel sure of another thing. It will amaze you, astonish you; it may arouse your ridicule and your doubts. But I feel it is a fact. Those Indians—those microscopic people—were once normal; they were reduced by the same means which I shall use to reduce myself with!"

I halted in my tracks and stared at Professor Amador in utter astonishment. "Now you *are* mad!" I declared. "Why, you know as well as I do that they are still living—in the same way as did the Manabis hundreds—thousands of years ago; that they could never have existed as normal-sized Indians. What got that insane notion into your head?"

"You don't understand," he grinned. "I do not mean that those particular individuals—Kora included—were ever normal in size and were reduced. But their ancestors were. I can see it all now; I can understand everything. They knew the use of Manabinite. They used prisms of the mineral for making their gold beads, for doing their astounding sculptures. Perhaps they possessed vast quantities of it, perhaps they worshipped it and had a huge mass of it in their temple. Then, one day, probably by accident, the note that causes the Manabinite to exert its strange powers was made by some flute or some pipe, and instantly every person in the focal plane was reduced.

"Possibly many escaped. Very probably only comparatively few were transformed to miscroscopic midgets. But those that remained were terrified. Their friends had vanished before their eyes. Also, their mass of Manabinite had vanished. To them the place was bewitched, filled with devils. Nothing could induce them to remain. They left, wandered far and wide, died out or were absorbed by other tribes, while, all unknown to them, their fellows remained here, invisible but unharmed. No doubt they had a hard time of it at first. All their metal objects, their stone implements had been left behind, for you have seen, *amigo,* that only animal matter is affected. The dog's pan was left behind, the rope with which we had thought of fastening him remained. So, as I say, they must have had a hard time of it. They had no tools, no weapons, no implements—probably no garments except their feathers, their rawhide sandals and perhaps woolen ponchos. But they retained their knowledge of their arts, their religion, their civilization, and with

Indian stoicism and dogged determination, they went at it. For some reason—I do not pretend to say what—the reduced size was inherited, and so, through the ages, they have gone on, decreasing or increasing perhaps, but living, dying, being born microscopic Manabis. That, *amigo mio,* is the explanation; at least that is my theory. Have you a better one?"

"No, I have not," I admitted. "Possibly you may be right. I cannot conceive of any human beings created so minute. And since I have witnessed the incredible happenings here, nothing seems too fantastic or remarkable. Personally I do not see any reason why it should not have been as you say. The only point is, whether a condition brought about by such artificial means is perpetuated by inheritance. Still it must have been if the people were originally normal and were reduced as you assume. It would be manifestly impossible for microscopic women to give birth to full-sized children, and preposterous to think of microscopic infants growing up to normal-sized adults. And, if your theory is correct, it might also account for the scarcity of the Manabinite and the absence of finished prisms."

THINKING it over now, in my present surroundings, here in my library among my books, my papers and my pictures, looking back upon it while the roar of New York's traffic comes to my ears, with the phantasmal forms of great skyscrapers and vast apartment houses like dream-castles in the summer haze, with the honk of motor-horns sounding from the street below, the whole affair seems dreamy, unreal, almost ridiculous. To imagine myself calmly, seriously discussing the probability of men and women being bodily transformed to minute, invisible beings; to think of arguing on the chances of a fellow scientist being able to reduce himself to the same size, savors of a deranged mind and utter nonsense. At times I can scarcely convince myself that anything of the sort ever occurred, or that I personally ever actually witnessed the things I have described. But there is Ramon's violin, there is his beloved quena, there is the ingenious device he made for focussing and adjusting the Manabinite prism through which we viewed the princess and her people. There also, locked in the safe-deposit vault of the museum, is that great golden bead, and finally, there is the fact that Professor Amador has disappeared from the sight of men. But I am getting ahead of my story, am anticipating, though, after all, it makes little difference, for everyone knows he *has* gone, and my narrative was undertaken with the avowed intention of explaining his disappearance.

But to resume. Though it all appears so dim, so unreal, so visionary now, yet, at the time, it seemed quite natural and matter-of-fact to discuss Ramon's theory. As I have said, we had become accustomed to weird, incredible things, and nothing seemed either impossible or improbable.

At all events, whether or not he was right in his surmises, it really made little difference. The all important matter, the tremendous, the dramatic feature of it all was Ramon's intended sacrifice; if such I may call it.

And, for the next few days, all his efforts and attentions were centered on making his preparations for the climax of his lifetime. I aided him as much as possible—despite my inmost desire to hinder, to prevent him from carrying out his plans. But even when I was not devoting my services to his cause, I could not put my mind to anything else. I was restless, nervous, uneasy. I was about to lose a very dear and valued friend, no matter what happened. Regardless of what the ultimate result might be to him, there could be but one result as far as I was concerned. I had not the least doubt that he would vanish. To be sure, if, after he had gone, I looked through the prism and saw him happy and content with the princess, I need not grieve for him. But suppose I did not see him, never learned his fate? Even so, worrying would do no good, and though I could not control my uneasiness, my nerves, yet I *did* manage to put my worries and my pessimistic fears aside. After all, death is not the worst thing that can befall a man, and Ramon would not be the first to die for science or for love of a woman.

He, however, was absolutely confident and was not in the least nervous. The only thing that troubled him was the necessary delay in making the prism. Although he insisted—and offered what I admitted were undeniable proofs—that neither the size nor the power of the prisms affected the size of the reduced objects, yet, for some reason or other, he was determined to make a large prism, the largest, in fact, of any, with the exception of the one through which we viewed the Indians. Indeed, he cast covetous eyes upon this, and even hinted that he might use it. But here I was adamant. I was bound that I would follow out my promise to see if he attained his goal, and I felt that I was warrented in insisting that I should at least have the satisfaction of knowing whether or not he survived his experiment.

Besides, I could not see the sense in destroying the prism just to make a larger one, when, according to his own statements, a small prism would serve his purposes just as well.

But, as I have said, Ramon at times could be as obstinate and as set in his ways as any pure-blooded aborigine, and this was one of those times. He had made up his mind to have a large prism and have it he would, even though he raved and ranted and complained over the time that slipped by. So much of the Manabinite had already been exhausted in our numerous tests that comparatively little remained. But there was the lens he had made, there were a number of small fragments, and very patiently and skilfully Ramon cut, ground and polished these, fitting the angular pieces together to form one prism, until at last he had produced a prism almost as large as the one we had preserved.

"If you are wrong in your theory," I declared, "you will have made a great mistake in constructing a device of that size. Of course, if the power of magnification bears no relation to the power of reduction, then you are quite all right. But, Ramon, if you have erred, if there is any ratio between the two, then you will be reduced far too much for Kora ever to see you."

"I am not worrying over that," he assured me. "In the first place I am convinced that the size and power has no bearing on the scale of reduction, as I pointed out days ago. And in the second place, although this prism is larger than the others, its magnifying power is certainly no greater—possibly less. The quality of the mineral is inferior—I have foolishly used the best in my experiments—and a compound prism does not possess the power of a prism made from a single mass of mineral."

"Well, it's your affair, not mine," I said resignedly, "but I *am* anxious to see you successful and to know that you and the princess are happy. When do you expect to take the final step?"

"To-morrow," he announced. "I shall attempt it just after the birth of the sun ceremony, when Kora appears in the plaza."

"I'm afraid you'll terrify the people as much as did the burro and the dog," I said. "And are you sure about your clothing? It would be rather embarrassing, to say the least, if you suddenly appeared before the princess and her maidens in a state of nature."

RAMON laughed. "Don't think I haven't foreseen that," he assured me. "Animal matter of any kind responds to the prism, and I shall wear nothing but wool. In fact, I have decided to attire myself as nearly as possible like the Indians. I shall wear my Quichua poncho, my sandals, and a woven woolen *llauto* or headband. My great regret is that I must leave my violin behind. That, I feel sure, will not be reduced."

Of course, during all this time, we had not failed to watch our friends of Kora's village. In fact, since the arrival of the donkey and the dog, we had been intensely interested in events that transpired there. As soon as the princess had demonstrated that the dog was friendly, the people had evidently taken courage, for when we next looked into the prism, we found them once again in their village, working and playing as usual, with the donkey near at hand and the dog frolicking among them. But we had to laugh at the transformation of the two, particularly the burro. Whether the people regarded the donkey as a deity or a gift from the gods, I do not know. But he was obviously looked upon as sacred. From head to tail he had been glorified. Brilliant feathers or objects resembling feathers, which I strongly suspected were the scales from the wings of some minute *microlepidoptera* (butterflies), adorned his ears. His head was almost concealed under gold ornaments; golden bands were around his legs; his brushy little tail was wound with bright-colored strings, and his shaggy body was clothed in a shimmering iridescent blanket. The dog was not so elaborately attired; probably he had resented being hampered and had ripped off most of his decorations; but he, too, was gay with colored streamers and a collar of gold beads.

"They have found their Paradise," I remarked, as we watched them.

"And I shall find mine there as well," said Ramon almost reverently.

"Amen!" I said. "I only hope and pray that you may, Ramon." And now we are approaching the end.

I HAVE gone through a great many tense moments in my adventurous life; I have been under many nerve strains, and I have more than once had that strange sensation that is best described as having one's heart in one's throat. But never, in all my years of exploration and of discovery, of venturing among savage tribes, of hunting savage beasts, of running rapids, —even of being shipwrecked—have I felt so keyed up, so nervous, so tense, so shaky-kneed, as on that eventful morning when Ramon announced that he was ready for his spectacular experiment.

Everything was in readiness. The new prism had been carefully placed beside the other one, adjusted until we could see the village and the houses through it, although it was not sufficiently powerful to reveal the people plainly. We had sent the Cholos off in order that they might not by any chance see what took place, and, in their terror, desert me. Ramon had attired himself in his poncho, his sandals and his head-band, and all that remained to be done was for him to take his place behind the prism and draw the bow across the violin strings.

Somehow, I felt as if I was taking part in an execution. And, as is so often the case when one is under the stress of great emotions, I remember the thought crossed my mind that Ramon was about to act as his own executioner, and that I considered it rather humorous. Ramon, however, seemed brighter, happier, more elated than at any time. He was confident, sure, convinced that in the twinkling of an eyelid, he would find himself beside the woman he loved.

Never was Christian martyr more exalted, more happy at taking the step into the unknown, for, like the martyrs, Ramon believed implicitly that his final step would lead directly to his eternal happiness.

And seeing him thus, knowing how he felt, realizing how much it meant to him, and remembering the reward that awaited him if he was successful, I could not be sorry for him and could not be selfish enough to grieve at the thought of losing him.

"I'd better say *adios, amigo,*" he said, as he took his place, violin in hand. "If all goes well, as I know it will, you'll see me down there in the village within a few seconds. And—" he laughed boyishly, "don't forget what I promised you—a kiss blown to you from the loveliest, most adorable lips on earth. You don't know how you are being honored and rewarded, my friend. The kiss of a princess—of the *Sumak Nusta,* is a most precious thing, a priceless gift, even if it is thrown to you and not bestowed in person. But, seriously, *amigo mio,* my very dear good friend, the one and only regret I have is that I must bid farewell to you. It is not yet too late. Will you not alter your decision? Will you not go with me? It was for that I made this prism of such size—because I hoped that, at the last moment, you might join me. It is large enough to transform us both, my friend."

I shook my head and I fear my eyes were wet. I loved Ramon deeply, and now that I was about to lose him, I fully realized how much I valued his compan-

ionship and friendship. But even so, I could not accept his offer. I had no beautiful woman awaiting me in the village. Though I might, though I knew I would, find it intensely interesting and of the greatest scientific value, I also knew, however, that I would never be happy unless I could publish my discoveries to the world, that to live the rest of my days among Indians would be most unpleasant. And—I am almost afraid to admit it, for it was a rather childish and unworthy attitude—I knew I should be miserable in the presence of the consummated love and happiness of Ramon and Kora. To be near such complete happiness, to see them, watch them, hear them, would, I knew, make me very lonely, very miserable, very blue, for I would continually be mentally comparing their state with my own solitary, loveless condition.

So, with an unsteady but determined voice, I again refused to join Ramon, and grasped his outstretched hand. He gripped my hand firmly. Then, in a sudden impetuous movement, drew me to him, threw his arms about me, patted me on the back and kissed my unshaven cheek in the fervent Spanish salute of farewell.

"Now, *amigo,* will you please do me the last favor?" smiled Ramon, though I noticed a suspicious moisture in his eyes. "Take a peep through the prism, and watch for the coming of Kora. When she appears, let me know. Are you ready?"

I nodded and glanced into the crystal. The people were dispersing from their morning sun-dance, the musicians were leaving. Then I saw the Indians gather, their eyes turned toward the palace. My heart beat hard and fast. I felt weak, cold, almost ready to scream. Then from the palace door Kora appeared. I hardly recognized my own voice as I turned toward Ramon. "She is coming!!" I said hoarsely. "She—"

"*Adios,* then, my beloved friend!" cried Ramon joyously. "Go thee with God always. I go—I go to my beloved!"

I saw the flash of his bow through mist-dimmed eyes. As if in a trance I heard the swiftly rising, wailing note of his violin. As from a vast distance I heard the sonorous twang from the prism. And then I seemed to be losing consciousness; I felt smothered, blinded, and as if sinking into a bottomless abyss.

What Do You Know?

READERS of AMAZING STORIES have frequently commented upon the fact that there is more actual knowledge to be gained through reading its pages than from many a textbook. Moreover, most of the stories are written in a popular vein, making it possible for any one to grasp important facts.

The questions which we give below are all answered on the pages as listed at the end of the questions. Please see if you can answer the questions without looking for the answer, and see how well you check up on your general knowledge.

1. What possible source of energy as yet unused may become available to mankind? (See page 8.)
2. What is the basic function of explosives and machines? (See page 8.)
3. How may the ultimate structure of atoms be described? (See page 8.)
4. Where is energy stored in great quantity, yet is inaccessible to man? (See page 8.)
5. Can we control radioactivity? (See page 12.)
6. What physio-chemical reactions are beyond our control? (See pages 12-13.)
7. What might be the effect if ether waves could pass around an object as air around a streamline obstacle? (See page 26.)
8. What is the action of spray made up of droplets in sunshine? (See page 46.)
9. What are the characteristics of the mind of the aboriginal South American Indian? (See page 54.)
10. How are they affected by danger to life? (See page 71.)
11. What is the famous law of contraction of bodies in motion, the "Lorenz-Fitzgerald Contraction"? (See pages 82-84.)
12. Would a body become invisible if approached so rapidly that the red rays of the spectrum were shortened to ultra-violet length? (See page 91.)

FREE

TO OUR READERS

"I would greatly appreciate it if every reader of AMAZING STORIES would read this personal message."

H. Gernsback

Editor "Amazing Stories"

I WISH to present you with a new and unpublished scientifiction story of the interplanetarian type, entitled *"The Vanguard of Venus,"* by Landell Bartlett. This is a full-length story, such as we usually publish in AMAZING STORIES, but this particular story will never be published anywhere else, and the only way you can get it is to write for it. There are no strings to this unusual offer. All I ask is that you sign the coupon below. There is no charge of any kind connected with this offer. I do not even ask you to spend one cent for return postage. Just sign the coupon, forward it and the book is yours, by return mail.

WHY DO WE DO THIS?

It is necessary, for circulation purposes, that we know where our readers are located, in what cities, and from what newsdealers they buy. Perhaps you do not realize it, but magazines are sold unlike any other commodity. We put out 150,000 magazines a month, and trust to luck that they will all sell, every month. Very frequently we do not sell more than 125,000 copies. The balance will then go to waste, which we have to take back and credit the newsdealers for. In order to cut down this waste, we must know just where our readers are located, and supply the newsstands with only those copies where we know a demand exists. This will save us thousands of dollars a year, and in turn, we can well afford to present you with a free copy of "The Vanguard of Venus."

This story, by the way, I assure you is one of the best I have ever read. It is a real interplanetarian scientifiction story, and is different from most others of this kind.

I therefore ask you to sign the coupon printed below to take advantage of this great offer. No strings to it.

If you are a subscriber, we will not discriminate against you. You can have the book by filling out the coupon, just as if you were a newsstand reader. But act quickly. The supply of these books is limited.

H. GERNSBACK
Room 1600
230 FIFTH AVENUE
NEW YORK, N. Y.

"The Vanguard of Venus" absolutely FREE to all readers of AMAZING STORIES

DON'T WAIT

USE COUPON write NOW!

Your Full Name.....Occupation.....

Your Street and Number .....

Your City and State.....

If you are a subscriber, put an "X" here ☐

Name of Newsdealer from whom you buy AMAZING STORIES Magazine.....

Dealer's Street and Number.....

A. S. 4

SLOWLY I opened my eyes. My head reeled, my eyes burned, every muscle of my body ached. Then full consciousness swept over me. I remembered Ramon, the sound of his violin's note, the twang of the agonized prism. What had happened? What had rendered me insensible? With an effort I raised my head and glanced about. From head to foot I was covered with a fine white powder. Coughing, sneezing, tears streaming down my cheeks from my irritated eyes, I stared. Ramon had vanished! There, where he had been standing, lay his violin and its bow. He had gone! What had been his fate? I leaped to my feet, scarcely aware of the agonies the movement cost me. I must look through the prism, must see if he was with Kora.

The next instant I staggered back. The prism had vanished! There was its stand, there was the metallic adjusting device. But not a trace of the prism remained! Dazed, uncomprehending, realizing only that I could not see my friend, could not learn his fate, I cursed, raved, groaned. Then slowly, gradually, my brain began to function properly. With a great effort I controlled myself, calmed myself. What had happened? What had become of the prism? Why had I lost consciousness?

Then it came to me, dawned upon me! Ramon's prism, the one he had used, had been too close to the other. What short-sighted, stupid fools we had been! The note from the violin had affected both prisms. By the narrowest of margins, by the sheerest piece of good luck, I had not been in line with the prism. Had I remained looking at the village, had I not stepped aside, I, too, would have been transformed, utterly destroyed or reduced to a microscopic being! I had come within a hair's breadth of joining Ramon, despite my own wishes. And no doubt it was my proximity to the line of activity that had resulted in my being bereft of my senses temporarily. Or again, it may have been the choking, irritating cloud of dust that had enveloped me. Probably I shall never know. But of one thing I was certain. I could never learn how Ramon had fared, I could never see him beside Kora, I could never see her blow that promised kiss to me. But they would never know it. They would be unaware that I could not fulfill my promise.

Then I laughed hoarsely, hysterically, as I thought of that other pledge I had given Ramon, of my promise to destroy all vestiges of the Manabinite. I had no need to do that now. The matter had been taken from my hands. As far as I knew, not a fragment of the mineral larger than a pea existed.

Almost reverently, I picked up Ramon's violin and bow. As I did so I saw that the strings had vanished from both. They, too, had been of animal matter; they, too, had been reduced.

Slowly, with bowed head, I stumbled to my hut. It was all over. Ramon had gone. Never would I see him, never would I hear his voice again.

And never would I know his fate. Never would I be certain whether he had been utterly destroyed or whether he still lived, supremely happy, wtih his beloved Kora, his *Sumak Nusta.*

THE END.

In this department we shall discuss, every month, topics of interest to readers. The editors invite correspondence on all subjects directly or indirectly related to the stories appearing in this magazine. In case a special personal answer is required, a nominal fee of 25c to cover time and postage is required.

OUR COVER CONTROVERSY

FOR a long time, the battle regarding our somewhat lurid covers has been waxing hot and heavy. One faction contends that a more dignified cover will be better for the magazine, while the other, and equally strong faction maintains that the present covers are acceptable to them, and, as a matter of fact, first attracted them to become readers of the magazine.

The publishers themselves, had no fixed opinions as to this, and they were willing to try it out, to find out which faction was right. Here are the results:

The September, 1928, issue of AMAZING STORIES contained a highly dignified cover. It was quite scientific in its aspects. It depicted, as you probably know, our trade mark of scientifiction, of which you will see an illustration on the editorial page.

This certainly was a dignified cover. It was strictly scientific and was done in good taste. In order to be quite sure that no mistake was made, we departed from our usual policy and the design was printed on a white background. In other words, the entire cover was made as tame and unsensational as possible.

Yet, sad to relate, from a selling standpoint, it proved a huge disappointment. The number preceding, *i. e.,* the August issue, sold 14 per cent. better. The next issue, the October issue, sold almost 16 per cent. better.

This, however, is only part of the story, because for the September issue, we put out an average of 20 per cent. more copies than of the other months, to make a real test and satisfy ourselves whether there was anything in the dignified cover idea or not.

The result as given above, reduced to percentages, proved conclusively that the public at large is not attracted by a dignified or more or less meaningless design, but on the other hand IS attracted to the newsstands by the more lurid designs, which may not be aesthetic, but which, after all, sell more magazines.

Nor is this result surprising. AMAZING STORIES is strictly a newsstand magazine. Here it has to fight with several hundred other magazines, and unless it manages to out-yell them it is put under the counter or buried by other magazines. It is, therefore, an endless fight for the survival of the fittest, and it would seem to the publishers, through long years of observation in the business, that the desired end can only be brought about by two means:

1. Make the cover as attractive and as colorful as possible in order that the newsdealer himself will give the magazine good display. It should be noted that this is important with all magazines selling less than 300,000 copies monthly or thereabouts.

2. If, on the other hand, the magazine has a large circulation, obtained through expensive advertising in newspapers or through other efforts, and if its sale is above 300,000—in this case, the newsdealer will receive so many copies on the stands that he cannot possibly bury all the copies—*i. e.,* he must stack them up—then the design on the cover can be more modest.

In conclusion, until AMAZING STORIES reaches a net circulation of some 300,000 copies, which, at the present time, does not seem likely for some months, at least, it will be necessary to continue with the present colorful designs.—EDITOR.

A COMPLIMENT FROM ONE WHO KNOWS

Editor, AMAZING STORIES:

I am a very ardent reader of AMAZING STORIES but cannot subscribe as I do not have a permanent address.

I am a private investigator by profession and my work takes me to all parts of the world, but you can bet your last dollar that AMAZING STORIES is always with me, no matter where I am or what I am doing.

I wish to say that I sincerely believe that AMAZING STORIES is the very best book of its kind in the world, meaning—"Educational and Recreational"—and a book that holds your interest through the whole time you are reading the stories. The writers are very excellent in every respect.

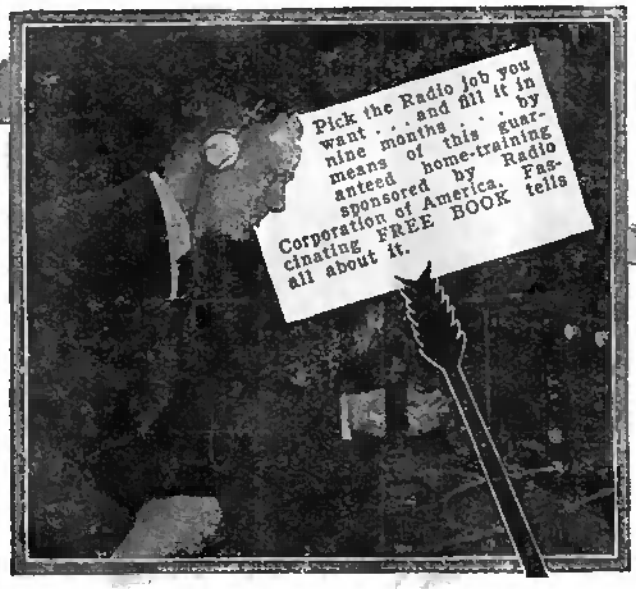
I have found many a solution to some of my most important cases and I sincerely recommend AMAZING STORIES to any human being that is a reader of good books.

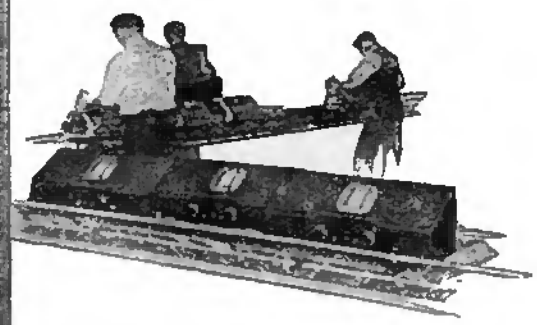
WM. P. KELLER,
62 West Elm Street, Chicago, Illinois.

(We have had occasion to publish a number of uncomplimentary letters in these columns, "brickbats" as they are sometimes called, so it really rests one a little to receive a letter like this. You cannot force anything down the public's throat, as they say, but AMAZING STORIES needs no special forcing. It is taking very good care of itself. It is interesting to have the professional criminologist Prof. Keller, pay such a tribute to our humble efforts.—EDITOR.)

(*Continued on page 82*)

MEN...*an amazing* SHORT-CUT *to* SUCCESS *in* RADIO!





MEN . . . here's a contract! No matter how little you may know about Radio . . . no matter what branch of the industry you'd like to get into . . . here's a short-cut method that guarantees you absolute satisfaction...or no cost to you!

As a result of this unique home-laboratory method, hundreds of ambitious men everywhere, are making the biggest money of their lives. Their days are full of adventure and success! For Radio is today one of America's greatest industries.

A Tremendous Opportunity

Over 20,000,000 Radio sets need servicing. Thousands of ships carry Radio transmitting and receiving apparatus. Long distance Radio telegraph communications are being opened in more and more countries. Hundreds of broadcasting stations are in operation. The number of Radio dealers has increased to 50,000. And the number of Radio manufacturers has increased to 4,000. And now Television and Radio-telephony too are opening up hundreds of additional opportunities! Thousands of men are needed! The pay is big and the opportunities for success and adventure are limitless! Don't pass it by!

This Home-Laboratory Method Teaches Faster Than Text-Books

Radio authorities are astounded at this new short-cut to success in Radio. For it cuts the time of theoretical study down to the lowest minimum! This expert training gives you the real *practical* side of every phase of Radio! As part of the course you get a magnificent outfit of fine standard Radio apparatus. With it you work out with your own hands and mind the Radio problems that command big pay. With it you can build many fine sets and dozens of different circuits. So that when you complete the training you will not be just a theorist . . . but a practical, down-to-earth Radio expert!

Training Sponsored By the Radio Corporation of America

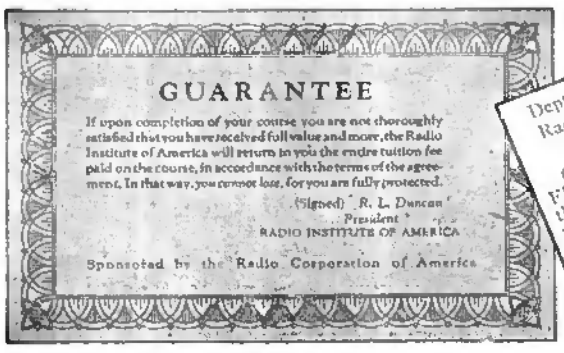
Our graduates are in big demand everywhere. They enjoy greater success because they're posted right up-to-the-minute in *everything* in Radio. Radio's progress each year is measured by the accomplishment of the great engineers at work in the research laboratories of the Radio Corporation of America. This Radio organization sets the standards for the industry . . . And because it sponsors every lesson in the course, you know you are getting the real "dope."

Money Back If Not Delighted

The fascinating lessons prepare you for success in all phases of Radio manufacturing, servicing, selling, ship and shore broadcasting, Photoradiograms, Television, and airplane Radio equipment. A signed and sealed agreement assures you of complete satisfaction upon completion of the training—*or your money will be refunded.*

Read This Free Book

It tells you all you'd like to know about Radio. Its 50 fascinating pages and photos describe Radio's brilliant opportunities for adventure and success. It describes in detail the famous training that has enabled us to place thousands of our students in fine positions, usually from 3 to 10 days after graduation! Read this great book . . . it may mean the turning point in your life! Mail the coupon now—the book is absolutely free! Radio Institute of America, Dept. M-4, 326 Broadway, New York.



MISTAKES IN CRITICISM

Editor, AMAZING STORIES:

Your magazine is a wonder, if it wasn't, I certainly would take no interest in criticizing. Up to this time the larger part of the material contained has been based on some scientific law, but your last issue, the September number, to be exact, had some rather obvious scientific mistakes in it that even a poor scientist like myself could perceive.

In the "Skylark of Space" there are two things that I think are absolutely incorrect. First; the author describing the machine mentions that the Skylark has a protective covering against meteors, made to a large extent of copper, why of that metal I do not know, although the story is based largely on copper. A covering of no type would protect your space machine from meteors. One of the causes of heat is concussion, and in SCIENCE AND INVENTION for May 1926, an article entitled, "The Origin of the Earth" by Prof. Donald H. Menzel, gave one of the theories, the idea that when two meteors collide at tremendous speeds the impact causes them to become gaseous in form. Traveling at a billion miles a second, as the characters in the story in question did, would probably turn a meteor and the Skylark into their original atoms. Which I believe would sadly end our heroes' adventures in space.

And now the second grave fault, Speed; in the April issue of the SCIENCE AND INVENTION for 1924, there is an article, "Traveling on a Light Wave," by Ernest Brennecke, in which it states a scientific law compounded by Prof. Henrik Antoon Lorentz of the University of Leyden, which says; The length of a body in motion is equal to the square root of its length at rest, minus the square of its velocity divided by the square of the velocity of light. According to this our adventurers would not only be several hundred feet tall, but they would also be turned inside out, hearts on the wrong side of their chests, thumbs on the wrong side of their hands and etc., which I imagine would be very uncomfortable. The Skylark itself I have no reason to doubt would also be rather distended. But this is not all; in an article called "Can We Visit Other Planets" by Don Holmes in the SCIENCE AND INVENTION for February, 1924 it mentions as one factor of the problem, that, at the comparatively small speed of seven miles a second, there would be a weight of approximately fifty tons, on the human body; and imagine the pressure at more than a billion miles a second. It is no wonder that the various characters fainted away. I think, that the Skylark would have been blown to pieces at such an enormous pressure, and there is no doubt that no one could have lived through it, even with springs, as there is no metal I know of that could stand such a strain, and the strange metal "X" was not used.

That's enough of what I think are uncontestable facts, now I want to ask you some questions. Would it be possible for any life, as we know it, to live on a planet so filled with copper compounds as the one described in the "Skylark of Space" as the home of the Mardonalians? Practically all copper compounds are poisonous, blue vitriol, the most common compound, is used for insecticides and to kill various plant growths in water, and we all know what happens to the vegetation around copper smelters due to the copper compounds in the smoke, principally the cyanides.

There is one other story in your September issue on which I have some questions to ask: "The Ambassador From Mars." Would it be possible for a planet to become so weakened that it could be blown to pieces in the manner described? Internal heat is caused by external pressure and if the pressure is lessened naturally the heat would be also. Along with this comes the fact that if a planet had as many cracks and craters in it as Mars was supposed to have, there would be plenty of spaces by which heat and steam could escape. If this could happen to Mars, why couldn't it happen to our own moon? All the planets and satellites are of the same composition and governed by the same laws.

And here is one more explanation needed. In the same story it was mentioned that a large part of the planet broke away and became a comet. Now I always understood that a comet was a ball of gas with no definite shape or composition, heated to incandescence. The earth has passed through the tails of comets several times and there is nothing to lead us to believe that a comet is as solid as a chunk of Mars. In my theory that piece would gradually begin to resemble these small planets called the Asteroids.

As you can see by this long letter, your magazine has certainly stimulated my thinking apparatus, for which I am exceedingly grateful.

They Could Hardly Believe Their Own Ears — when I Switched to *Ground Wave Reception!*

"IT'S no use trying to listen in tonight," said Bill as I took his hat. "Jane and I tried to get reception during dinner but all we got was static. It's usually this way—just the night they broadcast Paul Whitman's band or some other good program it's spoiled by howls and fading. Why own a radio at all?" he ended up disgustedly.

"Perhaps my set will do a little better," I suggested. I had a surprise in store for him!

"He looked doubtful as I turned on the set switch. I had left my old aerial antenna attached on purpose and soon the room was filled with an ear-splitting excuse for music. Manipulation of the dials only served to make it worse or to choke down reception until it was hardly audible. Occasionally it faded out altogether and I could picture the roof aerial swaying helplessly in the strong wind. Then the jumble and howls would start up again until my wife finally shouted above the din, "Turn that thing off—it's terrible!"

"Satisfied, I laughed and disconnecting the old aerial and ground wires, I then attached the lead-in wires of my new underground antenna, which I had installed just before dinner. "Now listen!" I commanded.

The Thrilling Test

"As though by magic, the sweet high notes of violins, the stirring sobbing of saxophones, the clear pure notes of a clarinet brought Bill to his feet! Jane looked dumbfounded. Even my wife, who had not paid much attention to my preliminary tests, was amazed. "What did you do to it?" she demanded. "I think he bewitched it," Jane accused. The music went on, clear and strong, with only a long moan or slight jumble now and then to remind us of the storm raging outside. The static was so greatly reduced that we hardly noticed it. The important thing was—we were getting one of the year's best programs with scarcely any trouble on a wild, stormy night.

"You see," I explained later to Bill, "I buried my new underground aerial about two feet below the ground, where wind and storms can't affect it so easily. It has certainly been proved tonight that radio waves are just as strong in the ground as they are in the air. They call this thing "Subwave-Aerial" and it's insulated some way to keep out interference and noise. It's combined with a scientific ground so I'm sure now that I have the correct ground connection. And all this isn't costing me any more than my old aerial antenna that I've nearly broken my neck repairing after wind storms like this. And last but not least," I finished triumphantly, "I'll never need to touch it again. It's guaranteed for 25 years."

"Hardly necessary to say that Bill went home with the name and address of the Subwave-Aerial manufacturers in his pocket."

SUBWAVE-AERIAL GETS DX INSTALLED 50 FEET FROM 60,000 VOLT POWER LINE

Underground Aerial Products,
Suite 618, St. Clair Bldg.,
St. Clair and Erie Sts., Chicago, Ill.

Gentlemen: Regarding a test with your underground aerial, "Subwave-Aerial." On January 27, 1929, Mr. Frank Smith and I drove out near the Sanitary District power plant in a Ford Sedan. We stopped about 50 feet distant from the plant's 60,000 volt transmission line and dug a small hole, into which we dropped the Subwave-Aerial. We left the two sets we brought with us in the sedan, attaching the lead-in wires of the Subwave-Aerial first to one, then the other. One set was a 5-tube Freshman—the other a single dial Atwater-Kent, Model 35. We used the Ford battery. At 15 minutes to six we got WCCO, St. Paul, Minnesota. It came in loud and clear at 27 on the dial. There was not the slightest interference from the 60,000 volt power transmission line only 50 feet away. At 20 minutes after six, we got Toronto, first on one set and then the other. We plainly heard the program, which was being sponsored by a Spartan Radio dealer.

It was impossible to get reception at all with an overhead aerial under the same conditions.

Yours truly,
F. Bennett Smith,
Harry R. Jackson.

Test It Yourself—Free!

The above story illustrates the results for which the designers of the Subwave Aerial struggled for months. At last, enthusiastic reports such as this from Radio Experts reproduced here, proved that they had succeeded. Now you have a chance to prove the merits of this great new radio development for yourself. Try, if possible, to pick a night when static is bad and make the thrilling test. It's fun! And if you are not more than pleased with Subwave-Aerial, the test won't cost you a cent. We feel safe in saying, however, that once you've heard the amazing difference in reception and realize the wonderful convenience of this modern combined antenna and ground, you'll wonder how you ever put up with the old-fashioned, dangerous, inefficient methods. Be sure to send at once for all the interesting details on the development of Subwave-Aerial. It's the newest, most thrilling thing in the romantic world of radio! Use the coupon below. Fill it in and mail it NOW!

UNDERGROUND AERIAL PRODUCTS
Suite 618, St. Clair Bldg.
Dept. 827-E.W.,
St. Clair & Erie Sts.
Chicago, Ill.

Underground Aerial Products,
Suite 618, St. Clair Bldg.,
Dept. 827-E.W.,
St. Clair & Erie Sts.,
Chicago, Ill.

Rush illustrated literature on the new Subwave-Aerial and details of your Free Test Offer.

Name.....

Address.....

City..... State.....

What stories you have now are fine, but put in a few more illustrations and make it bigger, it looks big now but I think that's due to the thickness of the pages.

Hoping to see my letter in print so that these questions will be cleared up in my mind. I remain,

C. N. COOK.
Frankfport, S. D.

(A considerable latitude must be allowed to a writer of interplanetary stories. Our readers want interplanetary stories as we note from their letters. And in every good interplanetary story there is bound to be a good deal of correct science, which can readily be distinguished from fiction. We naturally would not like to answer for the safety of the Skylark traveling at the speed assigned in the story. The Lorenz-Fitzgerald, contraction to which you next refer, is to the effect that a body in motion is contracted in the dimension coinciding with its path. According to the Lorenz-Fitzgerald law the travelers in a sleeping car are *shorter* when the car is in motion than when it stops. The Skylark travelers, according to this law would be very minute indeed, unless we can imagine having it negatively, and the Skylark would be contracted, not extended as you say. Speed in itself has no effect upon weight; it is *change of speed or acceleration which changes weight.* The trouble with the Skylark would be to get up to the high speed which it is supposed to have attained without too rapid an acceleration. Mere speed would not trouble its inmates. You, dear reader, travel 65,000 miles per hour, which is the speed of our earth as it moves along in its orbit. Copper compounds as far as its ordinary compounds are concerned are non-volatile and could not have the effects you describe unless taken into the system. Injury to vegetation around copper smelters is not due to copper, but to sulphurous oxide.

Something might happen on a planet enough to produce an explosion irrespective of external pressure. Jupiter is supposed to be in an eruptive condition. Whether it is incandescent or not it has a definite composition and the explosion of Mars might supply proper material.—EDITOR.)

A GOOD WORD FOR THE PLAY "JUST AROUND THE CORNER"

Editor, AMAZING STORIES:

Since your very first issue of the AMAZING STORIES I have been an enthusiastic reader. I am not much on judging literature, but my opinion of the AMAZING STORIES is that it is absolutely the best magazine I have ever read. To me, stories of scientifiction are better than any other type anyone could possibly show me.

I have just finished the September issue and the summer edition of the QUARTERLY. In "The Ambassador From Mars," why didn't the people of Neloia send Jack Conway back to the earth as ambassador instead of Frank Chandler? If they had sent Jack, he would have been early enough to save Neloia. As a whole, the story is one of the best. "The Sunken World," in the QUARTERLY was a fine story except for one little thing. And that is at the very beginning of the story. In one instance the author described the crew fainting and the sides of the X-111 caving in. Then Harkness was awakened by a sudden jolt. Why didn't the sides keep caving in as they sank deeper? The author said no more about it. At one time they could hardly breathe, then as they sank deeper, the crew moved about and talked, it seems, with little difficulty!

In the July issue a play, "Just Around the Corner," was published. I enjoyed this play more than you can imagine. I hope that in the future you will publish more of them.

Really the main object of my letter is to compliment Paul on his wonderful illustrations. Although I am only 16, I do know a little about art, and I'll admit Paul cannot draw modern people very well, but when it comes to people of the future and people of some author's imagination, I think Paul is a genius. He gives a fellow a better idea of how things really are in the story. And also his mechanical ability to draw all sorts of fantastic machinery and apparatus is incomparable. It would improve the magazine 50 per cent to have more illustrations throughout the stories, as in the Annuals and Quarterlies.

I don't see how Paul illustrates as much as he does. I know that he does almost all the illustrating in the AMAZING STORIES, which includes the cover picture; he also illustrates the stories in RADIO NEWS and SCIENCE AND INVENTION; he draws the cartoons for Radiotics in RADIO NEWS and the cartoons for the Scientific Humor in SCIENCE AND INVENTION. How he could possibly take care of all this each month is a mystery to me. My heart goes out to an artist who has the imagination of

Paul. I would like to ask two questions. What is his full name? And how does he get the ink-spattered effect which he has used lately for backgrounds and shading in his illustrations? Again I compliment Paul and send him my best regards.

DICK PITTS,
2124 Kenmore Ave., Charlotte, N. C.

(It is always very interesting to read such criticisms as this correspondent makes, in order to know how other people are affected. The full name of our artist is Frank R. Paul. We feel that he has been a very great accession to our staff. It is necessary to illustrate our stories, as in many cases so much that is scientifiction may be in the scene taken, and a lot of mechanical apparatus may be involved. This well thought out letter is especially interesting, as the writer is only a boy. The fate of an editor is to reject as well as accept. Often the rejection of a manuscript in which a writer has taken a great deal of pains is quite pathetic, and in no case is it an agreeable thing to do. But we have to think about the public.

The ink-spattered effect you refer to may be obtained with a tooth brush dipped in ink and with a pencil rubbed across its bristles so as to throw little droplets through the air upon the paper. The air brush, now much used by artists, throws a spray, but it is so finely divided that it will not give the spatter-work effect that you refer to.

The play which we published does figure as an innovation, but it impressed us as extremely good, and we are glad to have your opinion confirm ours. —EDITOR.)

THE VIEWS OF AN ENGLISH READER. IMPOSSIBILITIES IN SCIENTIFIC STORIES

Editor, AMAZING STORIES:

I won't waste time in preliminaries, but go straight to the point. Some people have a hazy idea of what an amazing story is. It is something hard to believe, they say, but that is not enough. A story is only amazing as long as it is not impossible. By impossible I mean something that can be proved impossible. You may say that nothing is impossible, as a matter of fact you have already said it, but I do not agree with you.

As I read a story from your magazine, I expect it to be amazing, but if on reading I come across impossibilities one after the other, the story just becomes a piece of writing at which I smile, with a feeling of disdain.

Let me come to some concrete examples, beginning with our very much discussed H. G. Wells. I could find fault with none of his stories until I read "The Invisible Man." The said man is invisible—in other words, light goes through him with very little or no refraction, reflection or absorption. The lens of his eye, therefore, does not focus the rays of light, which go clean through the retina without the slightest effect upon it. How, then, could the Invisible Man see?

Following the argument that sound cannot exist without some human ear hearing it, came the opinion that light cannot exist without someone seeing it. Is this right? Supposing the light of a star leaves its place of birth today—now; suppose again that the light takes twenty years to reach the earth. If the human race is exterminated two years after the departure of the beam of light, would it (the light) become non-existent?

Such stories as "Below the Infra-Red" and "The Blue Dimension" have a very weak base on which to stand. They not only take matter to consist of vibrations—which is unlikely—but they mix these vibrations up with light vibrations. What has the Infra-Red (which is light) got to do with the vibrations constituting matter? If there is such a thing as a blue dimension, what color is ours? When we take photographs with plates sensitive to infra-red rays, do we see pictures of giants on another "plane?"

As regards time traveling; either the time traveler is visible to the people outside or he is invisible. Let us take the first case. The time traveler goes back fifty years. He goes to see his grandfather. On a certain morning the grandfather sees the grandson, whereas fifty years "before" nothing of the sort ever happened. Again, the grandson shoots the grandfather, incidentally committing suicide; therefore being unable to build a time machine. Therefore—the time traveler must be invisible. If he is invisible, by the same reasoning as that of the "Invisible Man" he must be blind. Not only that, but he would be deaf, as well, to the noise that the past is making. If a man tries to go to a place, but on reaching it finds that he can neither see, nor hear, nor make himself heard nor seen, as in "Baron Muenchhausen," with the additional fact that he cannot feel nor be felt, nor smell nor be smelt, can that man be said to have been there? The answer decides whether time travel is possible or not.

Again in scientifiction, superstition should not be brought as the starting point. I am referring to "Lakh-Dal, Destroyer of Souls." Madness was anciently thought to be caused by the moon's rays—hence the term lunacy—but why bring this superstition into a scientific story?

"The War of the Worlds" is a very much discussed topic, the chief idea in the criticisms being that the English people were a bit of a defenceless lot. I can quite imagine some of you saying—I wonder if they are like that; we wouldn't have done that—don't you believe it, the human race is too frail and too confident. Why! any new method of attack would destroy humanity. If you want to attack the story, say that you do not know the scene of the battle and that it is therefore dry—but then I do not know U. S. A. and yet I enjoy the stories by American writers.

The only thing that I do not like of Jules Verne, or of any other French writer in fact, is that his characters do not change; the one or two millionaires, the servant and the inventive genius who turns his invention against humanity.

But then I do not expect other people to agree with me—that is why I write, because I like discussions and each new thought brings new discussions.

R. A. EADES,
67 Westfield Rd., Surbiton, Surrey, England.

(Our correspondent complains of finding impossibilities in our stories. When we consider the advances in science which are certain to be carried out in the next generation, if we look back and see what has been done in the last few decades, we will be slow to give the characterization of impossibilities to things described in our pages. Again, if the imagination of our authors, and imagination is an important factor in science, should be tied down so that nothing but the coldest facts could be given, our writers could not touch on such things as perfected television. If the imagination is not allowed to conceive of a few other planets, in which our impossibilities are to be everyday doings, our magazine would certainly suffer. We firmly believe that if an imagination was to be restricted by us in our editorial treatment of the stories, AMAZING STORIES would be very dull reading. Much of the character in the stories, which are appreciated by many readers, is due to the fact that the imagination of our authors has very free play. Even superstition, to which you so strongly object, in many cases has its bases in fact. You are mistaken about Jules Verne. His characters do change. If you will read the few stories which we have given by him, you will find many different characters.—EDITOR.)

THE STORIES OF DR. KELLER

Editor, AMAZING STORIES:

AMAZING STORIES, since its beginning, has filled a heretofore vacant place in my literary category, and up to the present I have enjoyed without exception all the stories in it.

However, in the summer edition of the 1928 QUARTERLY, I find a group of stories written by a David H. Keller, M.D., which utterly offends my sense of decency and which are totally out of place in your magazine.

There is a possibility that "David H. Keller, M.D." is a great author, but those stories belie him the title. He has chosen a subject delicate at the best, and by his harsh and ofttimes brutal treatment of it, has built up a picture so repulsive as to be propagandatory.

Needless to say, a story built up on race feeling, and of such an agitative nature can have no place in a magazine devoted to science, a science of fiction, but science just the same; the incidental science contained is of no concern in such a story.

If so, then behold the spectacle of science—sticking out its tongue and calling names—of wisdom—dabbling in gutter mud!

Let us hope that we have seen the last of such unworthy material and that AMAZING STORIES will continue to be in the future, as in the past, a journal of science, a magazine of the highest ideals.

GERALD ADAMS,
2870 Pinkney, Omaha, Nebr.

(We are printing this letter here, mainly because it is the only one that we know of that has been received reacting unfavorably against Dr. Keller's stories.

We are quite certain that Dr. Keller had no race prejudice in mind when he wrote the stories. The theme itself was such, that there was no other solution to it, and inasmuch as no other brickbats were received on these stories, it would seem that they were accepted at their face value. From our correspondents' letters it is clear that Dr. Keller is one of their favorite authors.—EDITOR.)

SIGHT AT EXTREME VELOCITIES, SUCH AS THE SPEED OF LIGHT. A GOOD POINT ABOUT ACCELERATION AND WEIGHT

Editor, AMAZING STORIES:

Allow me to add my voice to those voices of the many who contribute to your "Discussions" and seem to be so unanimous in their request for a saner cover. I realize, of course, that you believe in the Biblical "Hide not thy light under a bushel," but I am sure that you err in that, though the light is far from hidden, the reflector used is very faulty and distorting. Not that Paul does poor work or is unjust in his portrayals of other than, perhaps, the human face—quite the reverse. But the lurid cover is too blatant—the name too misleading. I'm a college instructor, in chemistry at that, and I wouldn't dare be seen with a copy by one of my students. The flaming cover, the staring title, are too prejudicial; so much so that several of my friends have refused even to look over the pages within the cover, so thoroughly are they convinced that there can be nothing but trash to be found on them. Let us read and still retain our reputations.

I disagree with your somewhat guarded statement anent the vision unfolded to one traveling at a rate of speed greater than the velocity of light made in answer to Mr. Hewton in your October issue. Assuming the possibility of such speed, an eye traveling away from the earth at such a speed would see nothing of or on the earth whether or not he looked toward or directly away from the earth—unless it were moving at something like twice the speed of light. According to either the wave theory or the quantum theory, light is a disturbance in the ether. The sensation of light in the eye is caused by the focussing of this disturbance on the retina—or rather, such ether disturbances over a certain frequency range falling on the retina cause a certain sensation of light—focussed there arises an image. Now an eye moving at a velocity only slightly greater than that of light would encounter no disturbances caused by light from the earth unless it were faced away from the earth, thus overtaking impulses which would apparently be coming from points ahead of the observer. But these impulses would be unrecognizable as light unless they fell in the frequency range necessary to stimulate the eye. A normal image could not be obtained unless the velocity were exactly double that of light. Then the eye looking directly away from the earth would see the earth rotating in a reverse direction, though the rotation would be no more rapid than the actual rotation. Increasing the velocity of the eye would have the effect of causing the colors to be displaced so that normal red would appear yellow, etc., slowing down would have the opposite effect. Displacement of the velocity from double that of light could not be great before the disturbances giving the sensation of light, i.e., affecting the eye, would no longer be those normally perceived but would be either in the infra-red or the ultra-violet of the normal range and things would appear totally different. At a velocity not greatly lower than double that of light nothing at all would be seen because of the absence of the frequencies, the extreme ultra-violet and X-ray region, which would then make up the visible portion of the spectrum.

The foregoing, incidentally, is apparently overlooked in the "Skylark of Space" by Edward Elmer Smith, which is concluded in your October number. "—and recognized that the yellowish-white star directly in their line of flight was the sun of their own solar system." The car supposedly was moving at a speed much greater than that of light and the sun would then appear well into the blue white. This is rather a minor point. More objectionable was the handling of the whole situation of the narrow escape from the very heavy, dead star. In the first place it could hardly have been seen. Again, such a powerful gravitational field extending so far into space that there was time for so much action once the car was seized, is a little too much of a good thing if one is also to swallow the described velocities. With an acceleration of a mile per second, it would take two days to reach the velocity of light. This would have the effect of increasing the weight of a normal man to perhaps ten tons which would be fatal—yet the Lark went further than that. I agree, it is a darned good story—the best I have read so far in AMAZING STORIES, if one is to mean by best the story that most powerfully holds the interest—but not flawless science. However, tell Mr. Smith to hop to it and give us the sequel or sequels so clearly offered by following up the nefarious operations of Du-Quesne or perhaps by the ferrying of a cargo of salt to Osnome *en route* to another cargo of X. I don't care if he kills off the passengers at the start so long as he lands them alive and kicking.

ROSCOE H. SAWYER,
Gray, Maine.

(Can you tell us any way of writing interplanetary stories in which distant bodies are visited, unless the travelers are subjected to destructive acceleration? There must be some "poetic" license allowed. So if you want more of what you call "darn good stories" about interplanetary travel, you will have to overlook the acceleration question and enjoy them as much as you seem to have enjoyed the "Skylark of Space." A body which radiates ether waves radiates a number far outside of the band affecting the retina. High velocity would shift, outside of our vision, the band by which we see, but would bring in other waves, to form a new visible spectrum, due to shortening the infra-red rays. Your letter is most interesting, and we certainly wish that we may get more as good.—EDITOR.)

OUR ARTISTS AND THEIR WORK. SOME FAVORITE AUTHORS. PROFESSOR POOR AND THE FOURTH DIMENSION

Editor, AMAZING STORIES:

The long put off time to write to your "Discussions" column is at hand. I am a sophomore chemical engineer at the University of Michigan, and have been reading your publications since the old ELECTRICAL EXPERIMENTER. I have all the copies of your magazine which have yet appeared except two or three, and on an additional sheet enclosed here you will find my orders for them, and for the renewal of my subscription.

I have so much to say that I hardly know where to start, so I will note the various things as they come to me.

The first and most important item is this: I believe that if your covers were just a little less *fantastic,* you would have a much larger circulation. I have repeatedly had people, *who had never seen the magazine before,* take one look at the name and cover design, and immediately say, "What do you read that imaginative trash and bunkum for—what good is it?" I have even seen people on the buses look at a copy under my arm and openly give me a pitying look. I have noticed that some of your other readers agree with me entirely on this point. I do not say that your artists are not good—on the contrary, I think they are excellent, but their efforts are merely a little too brilliant.

By all means let us have the pleasure of reading some more stories by Murray Leinster and G. McLeod Winsor. I think that the latter's "Station X" was the best story you have ever published, with "The Land That Time Forgot," "The Color Out of Space," and "Treasures of Tantalus" close behind. I have also much praise to offer your doctor-authors, Drs. Keller and Breuer, and Mr. Bob Olsen for his plausible explanation that the fourth dimension *could* exist, in "Four Dimensional Surgery."

I am much in favor of having the QUARTERLY—perhaps in time AMAZING STORIES will be a semi-monthly magazine. Do you intend to publish another annual this summer, or have I missed it?

The comments of so many readers on the theory that "time" is or is not the fourth dimension amuse me greatly. Although I agree with H. G. Wells when he says that an "instantaneous cube" could have no real existence, nevertheless I would rather take the viewpoint of Bob Olsen in "Four Dimensional Surgery."

If one is going to start adding other "dimensions" to the linear ones, why not group all the linear dimensions under the one word "position?" Then the other necessary "dimensions" could possibly be taken as "time" and "mass." For example, an object such as a chair could not exist without being located in some one place; it could not exist without a definite size and weight, nor could it exist if it had no time of existence—that is, if it never existed. I realize that I have mixed up my meaning of mass by putting in the words size and weight—it would have been simpler to just say mass. Of course, I am not saying that this is my "pet" theory—it is merely my way of showing that it is hard to say which are dimensions and which are not.

In your editorial comment on Mr. L. A. Maple's letter in the September issue, you quote something from Prof. Poor's book, "Gravitation vs. Relativity," which I question.

". . . As the speed of my room increased, my desk clock would run more and more slowly; each tick would represent the passing of an hour or a day . . . of our ordinary earthly time. . . . At the end of half an hour by my clock, I would have traversed the depths of space and returned home. . . ." Prof. Poor then goes on to say that he would find that time on earth had progressed several centuries while it was only a half hour to him. Now the ordinary span of human life is somewhat less than 100 years. Why, then, would he not die of old age during his "half hour trip?" On the other hand, if he in some manner managed to prolong his life and did return to the earth after several centuries, surely the effects of traveling through space must have slightly injured his clock, as it only registered a half hour.

I realize, of course, that if what Mr. Einstein says is true, that time varies with motion, that an hour is not always an hour, then I am wrong; but otherwise I cannot understand it.

Hoping to be enlightened in your column, I will close with best wishes for your future success.

HARRY H. PURCELL,
16583 Lawton, Detroit, Michigan.

(We cannot promise much enlightenment on the much discussed subject you speak of. We would suggest that you read Prof. Poor's book on "Gravitation vs. Relativity." Some new matter in this field is now forthcoming. Perhaps that may clear things up a little. Then Edward Slosson has written a chapter on "Einstein, in Words of One Syllable." You might try that.

Mass and weight are not the same thing, for weight is mass acted on by gravity.—EDITOR.)

A TRIBUTE TO OUR CORRESPONDENTS. EINSTEIN AND RELATIVITY. PROF. POOR'S OPINION OF THE SAME

Editor, AMAZING STORIES:

I am a constant reader of AMAZING STORIES, and that means that the majority of the stories interest me. The illustrated cover of AMAZING STORIES fits exactly the title. Many of your authors seek the grotesque by using an insect or other form for their new people, but as the interest of their tale is in the social or scientific development of the new world they portray, why use other than the human for the physical body?

Probably the most interesting part of the magazine is in the letters from your correspondents and your comments. We are in a period of great unrest in social customs, religion, science; we are sensitive to portending changes, and we are trying to anticipate the forms that will emerge from present confusion. AMAZING STORIES is a medium of expression, and we might say a psychological necessity of these times.

Some of the new thought forms are bizarre, and controvert age-long experience, and they attract the notice of the fringe of scientists who are so desirous of being in the forefront as leaders of thought, that the more bizarre, the more eagerly they accept the new idea. Bertrand Russell is an example of that type, and he jumps from mathematical-philosophical to sociological ideas, hoping to find something that will show that our civilization and science has been built on false foundations.

Your usual answer to criticism of Einstein is to say that few people understand him, and of course "abracadabra" would be equally effective as an answer. But I was surprised to see in the letter of H. L. Purcell (January issue) that you quote Prof. Poor in "Gravitation vs. Relativity" as asserting that time is slowed in a fast-moving system. Prof. Poor has been a consistent opponent of Einstein and his time equations, and in this very book shows that the so-called verification of Einstein in regard to the perihelion of Mercury, the displacement of light rays passing near the sun, is not a verification.

One of the fundamentals of Relativity is the impossibility of determining the absolute velocity of any system by measurements within the system, so our whole cosmos might be speeded or retarded, but the watch mechanism, based as it is on the *rotation* of the earth, would not be affected.

When we read a book on Relativity, there always comes a mental hiatus such as we can imagine an electron would feel when it jumps from one orbit to another. After long phrases about the imperfections of our instruments for measuring space or time intervals, we suddenly find the author talking about the space or time interval we are trying to measure, and ascribing to it the imperfections of our measuring instruments.

Another fundamental of Einstein and Relativity equations is the impossibility of the velocity of light being exceeded, yet Sir J. J. Thompson, in his lecture on "Beyond the Electron" in attempting to explain the latest discoveries in regard to the electron, shows the necessity for there being higher wave velocities than light.

Our advance in science is built on the accumulations of the past, and though we may seriously modify past assumptions, we preserve the solid foundations, and find they are still useful, such as the Ptolemaic epicycloids, the perfect elliptical planetary orbits of Kepler. Einstein's bid for notoriety was the bold attempt to overthrow past science, and Prof. Poor calls attention to the absurdity of the oft-quoted Minskowski—statement of Time and Space becoming unsubstantial, but their union remains a firm reality.

C. S. STANWORTH,
18 *Pelham Place, Norfolk, Va.*

(The writer of this comment on your interesting letter agrees with you in many respects; in other

words, he is a bit old-fashioned in some of his views. In the domain of Einstein, the Lorenz-Fitzgerald contraction seems a very difficult thing to believe. We have given a number of interplanetary stories, but none of our writers have seen fit to diminish the dimensions of the travelers in the line of their motion. According to this "contraction," the rails carried on a moving freight car would be shorter than when it stops and the wheels would be elliptical when the car is in motion.—EDITOR.)

THE DETERIORATION OF PAPER

Editor, AMAZING STORIES:

I am enclosing a coupon for copy of the story "The Vanguard of Venus." It is with a great deal of pleasure that I look forward to receiving your magazine every month and also your QUARTERLY, when it comes out. I would like to see your magazine as a semi-monthly or even weekly, or else double the size of the present magazine, and charge double the price, as it is worth fifty cents or more a month to me.

I wish to offer a few criticisms. I possess all the numbers of this magazine which have been issued and I find that the paper used is beginning to deteriorate badly in the first issues. This is a real loss to me as I wish to keep them all. As to the contents, I can only say, I hope you keep up to your high standard in the future as you have in the past.

One of the neatest stories which I have ever read is one which appeared in the last QUARTERLY under the title "Out of the Sub-Universe." There is food for a world of thought in the time difference in our universe and in that of an atom. Our sun and its planets may only be an atom in some complex molecule in a larger universe. The one reason this theory has always appealed to me is that it offers infinite possibilities for inhabited worlds now and for our future lives after we leave this planet.

This is a somewhat rambling letter, but I trust you will gather that I have no fault to find with the science used in your stories, except that it makes one think a little more than usual, and that is good for one.

OLIVER L. DAVIS,
98 Washington Avenue, Morristown, New Jersey.

(We have in our files bound copies of AMAZING STORIES and we have not found that the paper deteriorates. The deterioration of paper is a feature affecting modern journalism. The daily papers go to pieces in the libraries. This is so recognized that it has even been proposed to print a limited number of the dailies on expensive paper for preservation for future ages. Milton speaks in "Paradise Lost" of bad angels discussing subjects so obscure that they find no end in wandering mazes lost, and certainly your statement about infinite possibilities for inhabited worlds seems to carry out the great poet's idea. We feel that for the present the combination of the MONTHLY and the QUARTERLY gives our readers a very good supply of literature, and striking an average, may be taken as meeting the general wishes of our readers.—EDITOR.)

AN INGENIOUS FOURTH DIMENSION SUGGESTION

Editor, AMAZING STORIES:

Apropos of the letter in 'Discussions" from D. L. Cummings, (issue of April) let me ask a question!

All things in human knowledge are in three dimensions but—for instance take a cube. There you are: length, breadth, height. Get this cube in front of you on the table. It sits there for a second, a minute or a year and you can see it.

Suppose, by some means this cube was whisked in, getting on the table and whisked out in one millionth of a second. Could you see it? No, it, the cube, has to remain on the table for a duration of time before you could see it. Anything has to have three dimensions and endure for a space of time.

Whatever the size or description of an object, it has to be there for an instant or a million years. Have we not a "fourth dimension" here?

S. E. DAVIS,
Duncan, Okla.

(We quite like your suggestion of the fourth dimension at first sight. It seems to be affected by the fact that time is hardly to be considered in the fourth dimension, but the work of Einstein has so mingled our conceptions, it makes the acceptance of your view easier.

Perhaps you are in the region of pretty high mathematics.—EDITOR.)

"OUR MAGAZINE" IN THE ANTIPODES; AN APPRECIATION FROM AN AUSTRALIAN READER

Editor, AMAZING STORIES:

I have followed the course of "Our Magazine" with great interest and in my opinion it fills a long felt want in the literary line.

So far there are no stories which I dislike, and while some are a little hard to understand, they make very enjoyable and instructive reading.

As this is my first letter to you, I will not "criticize the critics" too heavily, but I think some of the writers in the "Discussions" columns show their ignorance in a very marked manner. As for condemning stories as impossible and absurd, don't you think that there is very little impossible in the light of the scientific achievement of the last hundred years?

The letters of certain people in the "Discussions" columns remind me of a funny story I once heard. An old sailor was telling yarns, "the most exciting time I had," he said, "was in the South Seas. It was very hot and I stripped and dived overboard. Suddenly I saw a huge shark coming at me, and, whipping out my knife, I stabbed him until he was dead." "But," said one of his audience, "how could you get your knife out when you were stripped?" "It's not a yarn you want, it's a blooming argument," was the answer. If one looks, one can pick out many faults (or so-called faults), but the authors are only human, and therefore imperfect.

I am particularly interested in atomic stories as I believe that that is the solution to interplanetary travel, and of course every man is entitled to his own opinion.

Before taking up AMAZING STORIES my favorite author was Jules Verne, but since then I have placed Wells, Burroughs, Verrill, Coblentz, and others, on a par with him.

I think the best story in AMAZING STORIES was "The Sunken World," by Stanton Coblentz. It was so vivid that I really thought that I was in Harkness' shoes. It was a wonderful story.

I would rather have AMAZING STORIES a monthly, as it gives one time to think over the author's ideas, which after all is only what a story amounts to. By doing this, I find that my formerly very meagre stock of scientific knowledge has been greatly increased and my views on various matters widened considerably.

Although I am not ashamed of being seen with "Our Mag," I agree with another letter writer in suggesting you change the name to Scientifiction Magazine, as AMAZING STORIES is rather bizarre.

Well, I will not impose any more on the space of the waste paper basket. I will close with, Long live "Our Mag."

P. H. ECCLESTONE,
Sydney, Australia.

(Our correspondent from Australia is most interesting in what he writes, and we are glad to see the views which have been expressed in our editorials about the possibilities of science so well put by this writer, and his story of a sailor exactly fits much of our correspondence. There is an expression we note with considerable pleasure; your terming AMAZING STORIES "Our Magazine." We want it to be our readers' magazine and the space and amount of matter in the "Discussions" columns certainly give it a claim to the very nice title which you confer upon it.—EDITOR.)

A VERY YOUNG SPEAKER

Editor, AMAZING STORIES:

Enclosed you will find a clipping from the Boston *Transcript* of today. This is interesting because of the story in the September issue entitled "Unlocking the Past." It would seem in the case of the child in the clipping, that the past had been unlocked for her in so much as the English language is concerned. The clipping says she spoke at the age of seven months.

The new cover of the magazine is a great improvement and makes a better impression on people who are not at the present time subscribers, it seems to me. Several of my friends have taken to reading it just because of the change in the cover. They say that, with the old cover, they thought the magazine was one of the many catering to the thrill seeker.

Keep up the good work and I am sure that AMAZING STORIES will go over bigger.

ALANSON GRAY, JR.

(The clipping to which this letter refers tells of a seven-months-old child that speaks plainly. We certainly have no right to name any age, below which language cannot be used. Yet, if one of the authors had put this incident into one of the stories, we are sure that it would have been pronounced impossible. So it is not safe to say any longer whether one thing is possible and the other is not.—EDITOR.)

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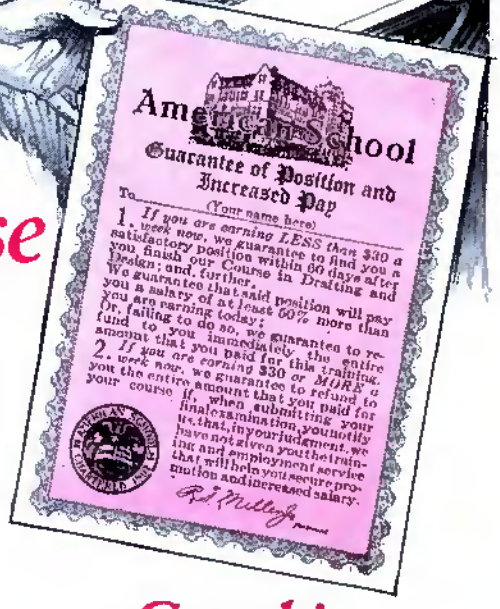

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O. C. Miller

Director Extension Work.

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Name.....

St. No.....

City.....State.....

Age.....Occupation.....

"What? Learn Music by Mail?" *they laughed*

"Yes," I cried, *"and I'll bet money I can do it!"*

IT all started one day after lunch. The office crowd was in the recreation-room, smoking and talking, while I thumbed through a magazine.

"Why so quiet, Joe?" some one called to me.

"Just reading an ad," I replied, "all about a new way to learn music by mail. Says here any one can learn to play in a few months at home, without a teacher. Sounds easy, the way they tell about it."

"Ha, ha," laughed Fred Lawrence, "do you suppose they would say it was *hard?*"

"Perhaps not," I came back, a bit peeved, "but it sounds so reasonable I thought I'd write them for their booklet."

Well, maybe I didn't get a razzing then!

Finally Fred Lawrence sneered: "Why, it's absurd. The poor fellow *really* believes he can learn music by mail!"

To this day I don't know what made me come back at him. Perhaps it was because I *really was* ambitious to learn to play the piano. Anyhow, before I knew it I'd cried, "Yes, and I'll bet money I can do it." But the crowd only laughed harder than ever.

Suppose I Was Wrong—

As I walked upstairs to my desk I began to regret my haste. Suppose that music course wasn't what the ad said. Suppose it was too difficult for me. And how did I know I had even the least bit of talent to help me out. If I fell down, the boys in the office would have the laugh on me for life. But just as I was beginning to weaken, my lifelong ambition to play and my real love of music came to the rescue. And I decided to go through with the whole thing.

During the few months that followed, Fred Lawrence never missed a chance to give me a sly dig about my bet. And the boys always got a good laugh, too. But I never said a word. I was waiting patiently for a chance to get the *last* laugh *myself.*

My Chance Arrives

Things began coming my way during the office outing at Pine Grove. After lunch it rained, and we all sat around inside looking at each other. Suddenly some one spied a piano in the corner. "Who can play?" every one began asking. Naturally, Fred Lawrence saw a fine chance to have some fun at my expense, and he got right up.

"Ladies and gentlemen," he began, "our friend Joe, the music-master, has consented to give us a recital."

That gave the boys a good laugh. And some of them got on either side of me and with mock dignity started to escort me to the piano. I could hear a girl say, "Oh, let the poor fellow alone; can't you see he's mortified to death?"

The Last Laugh

I smiled to myself. This was certainly a wonderful setting for my little surprise party. Assuming a scared look, I stumbled over to the piano while the crowd tittered.

"Play 'The Varsity Drag'," shouted Fred, thinking to embarrass me further.

I began fingering the keys, and then . . . with a wonderful feeling of cool confidence . . . I broke right into the very selection Fred asked for. There was a sudden hush in the room as I made that old piano talk. But in a few minutes I heard a fellow jump to his feet and shout, "Believe me, the boy is *there!* Let's dance!"

Table and chairs were pushed aside, and soon the whole crowd was shuffling around having a whale of a time. Nobody would hear of me stopping, least of all the four fellows who were singing in harmony right at my elbow. So I played one peppy selection after another until I finished with "Crazy Rhythm" and the crowd stopped dancing and singing to applaud me. As I turned around to thank them, there was Fred holding a tenspot right under my nose.

"Folks," he said, addressing the crowd again, "I want to apologize publicly to Joe. I bet him he couldn't learn to play by mail, and believe me, he sure deserves to win the money!"

"Learn to play *by mail?*" exclaimed a dozen people. "That sounds impossible! Tell us how you did it!"

I was only too glad to tell them how I'd always wanted to play but couldn't afford a teacher, and couldn't think of spending years in practice. I described how I had read the U. S. School of Music ad, and how Fred bet me I couldn't learn to play by mail.

"Folks," I continued, "it was the biggest surprise of my life when I got the first lesson. It was fun right from the start, everything as simple as A-B-C. There were no scales or tiresome exercises. And all it required was part of my spare time. In a short time I was playing jazz, classical pieces, and in fact, anything I wanted. Believe me, that certainly was a profitable bet I made with Fred."

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