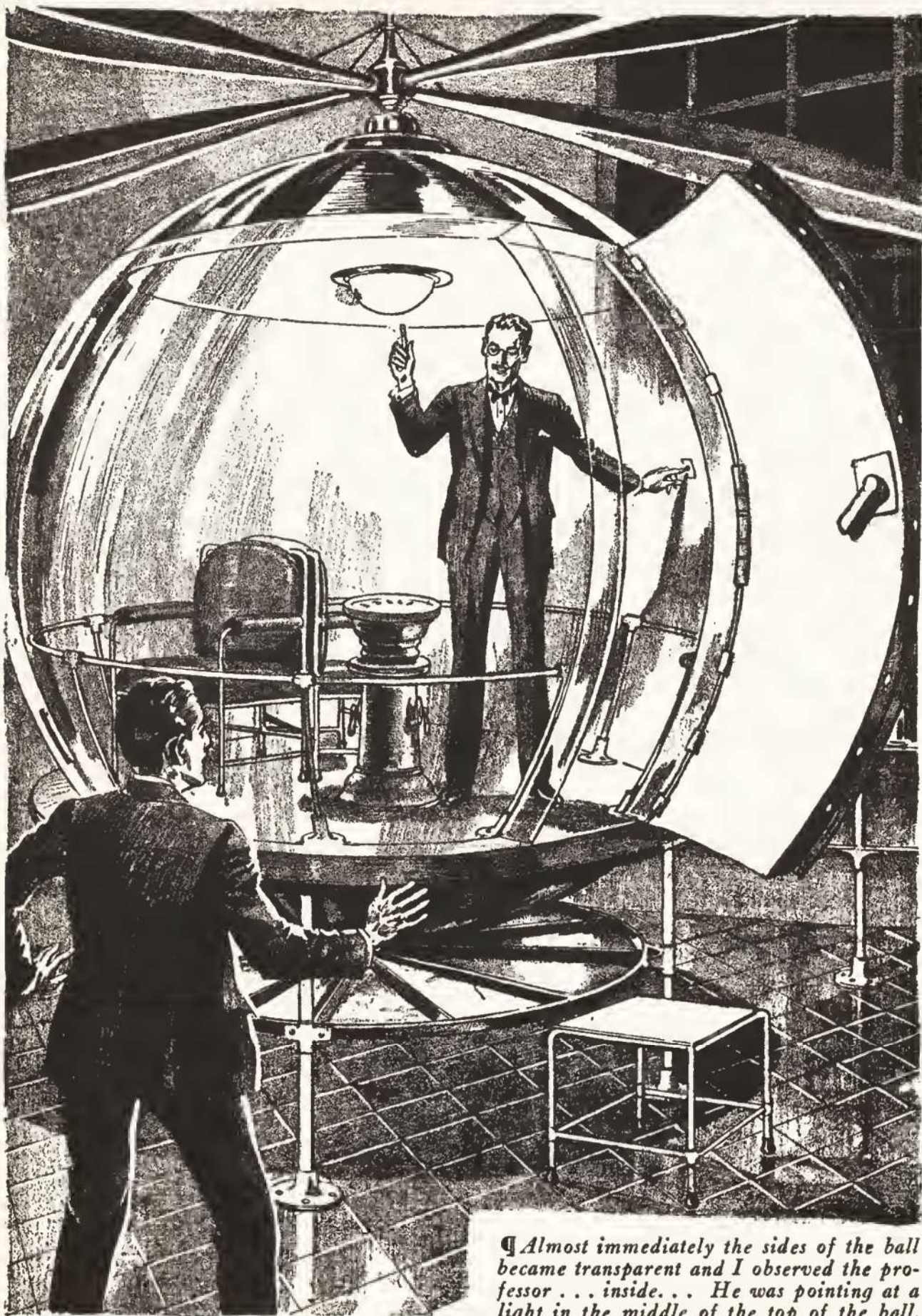




Q Almost immediately the sides of the ball became transparent and I observed the professor . . . inside . . . He was pointing at a light in the middle of the top of the ball. Then I saw his hand touch a button—

Fourth Dimensional SPACE PENETRATOR

By Julian Kendig, Jr.

WE have published a number of interplanetary stories, which have impressively presented great distances and magnitudes of space. Here we have a rather delightful phantasy of intra-atomic travel. The author does not hesitate to express his personal views about subjects of physical science and calls upon the data of science for the development of his absorbing tale. The reader may not agree with some of his views, but that makes the story only the more interesting, for novelty even in surmise attracts the thoughtful readers. Even those less devoted to science will enjoy this romance of the electronic world.

I HAVE at last succeeded in persuading Professor Longhorn to permit me to write to the public about our many remarkable experiences.

"All right," he consented, "I really see no harm in your proposal; no one shall believe you, as long as you do not present too convincing a proof. I do not wish it to be proved until the proper time has arrived. In four hundred years, no less, my twenty volumes, which I have so laboriously written, will be found in a state of perfect preservation, disclosing to the world a perfect description of all that I have learned and discovered. Would that the time were ripe to give it to them now."

I have known Professor Longhorn for years, both as my teacher and intimate friend. Why he singled me out of the millions to be his partner, I am unable to explain. I was still in college when he appointed me as his secretary. I readily accepted the position, for I knew him to be an unusual man, and a remarkable scientist. This unknown genius was at least from four to five centuries in advance of his time, scientifically.

He had penetrated the secrets of the infinitely small atom, and of the equally immense expansion of the Universe. To him also the mysteries of time were no longer a secret; nor were the dimensions which lie beyond our own simple three. In a sense, he knew everything which man could desire to know, and not a word of it did he breathe to the *populus*. This was partly due to his sensitive modesty, but there was even a more worthy reason—his charity and love for the human race.

Anxious to learn, I asked him about it.

"Why is the time for disclosing your secrets not ripe?" I asked. "Think of what it would mean: interplanetary transportation would be as instantaneous a process as stepping across the room. There would be no such factor as time or space. Things could be ac-

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WESSO

complished miles away in a few seconds that would otherwise take many years to complete. You could observe all this at your will; watch your plans revolutionize

civilization, and develop it to perfection. With such a gift, you would be recognized the world over as the father of science."

"I naturally take it, Perkins," he answered quietly, "that you do not understand human nature. If you did, you never would have made such a thoughtless statement. This velvet scheme of yours would be possible only provided that the world was inhabited by a race of perfect angels. The modern day crook, Perkins, has learned to put our modern sciences and inventions to even more practical use, from their view point, than has the general public, simply because they are organized. So it is with everything. That is the very trouble with our modern cities. They simply lack organization. The city government is too inefficient to accomplish the big things, and as long as such conditions exist, crime will remain unaltered. I have set four hundred years as the time necessary for entirely overcoming this great issue. I do not believe in giving such a foothold to the criminal, for the public is not yet able to defend themselves. As long as we are the only possessors of this valuable secret, we may ourselves become useful in rounding a few of them up for our own entertainment.

"However there is still a much more important reason, Perkins, which has to do with the influence on religion. You have witnessed indirectly many revolts against the existence of God, which have taken their origin from false scientific reasoning. If science does not progress too quickly for the minds of the people, religion will always be a jump ahead, and there will be no immediate danger. However, disclosure of my discoveries would undoubtedly bring about drastic changes which might result in the utter annihilation of religion. How

many times a civilization has thrived and disappeared into obscurity on this very planet, I am fully unprepared to say, but be there cause, as there is for everything, it may some day be traced back to the disregard for true religion. I personally know of four such civilizations, the last of which inhabited the continent of Atlantis about eleven thousand years ago."

The truth of this speech was too evident to be disputed. One thing was certain; one cannot take away a religion without giving a better in return. Even the religion of the ancient Romans was better than nothing.

It was with his permission that I finally began to write these chronicles of the many experiences that we have had together concerning our many very interesting scientific experiments. These chronicles are not to be told in the order in which the experiences actually occurred, but rather in the order in which I recollect them. You may then pass judgment as to whether the Professor is or is not a very remarkable man.

The following is an account of an experiment in which I personally assisted, and in which we succeeded in penetrating the impenetrable fourth dimension, in a manner hitherto undreamed of; and although the penetrating process is not so easily explained, the fourth dimension is really very simple; more simple than you might imagine.

IT was a balmy evening on the twenty-first day of June, when I was aroused from a comfortable position in a rocker on the front porch, to answer the irresistible call of the telephone bell. It was Professor Longhorn.

"Tonight," was his simple statement.

"You have it completed, Doctor?" I asked excitedly. I called him "Doctor" because he did have a Doctor's degree and that was the name which seemed to please him most, although he wished to be publicly known as Professor Longhorn.

"Yes," he said, "and would you mind doing a little errand for me on the way over?"

"Certainly not," I agreed.

"Very well then, stop in at a chemist's and get me a sample of every known element, except the expensive elements such as radium, which I happen to have anyway; and lug them over with you."

Of course I could not fathom his purpose.

After a few more seconds of incidental conversation, I started for the residence of Doctor Longhorn. I knew that the simple word "tonight" meant that he had completed his fourth dimensional penetrator, with which he was ready to experiment, but to save my life I could not explain his order for elements, most of which I knew he had up at his laboratory already.

When I arrived at his house, he seemed not the least bit excited about the unusualness of the event, for things like this were everyday occurrences with him.

We departed immediately for his laboratory, which was situated on top of a hill at the rear of his house and served also for an astronomical observatory. On the way up he tried to explain the fourth dimension to me.

"Define a dimension, Perkins," he commanded suggestingly.

"Any measurable extent or magnitude, as length, breadth, or thickness," I suggested.

"So says the dictionary. Both are partially mistaken."

"I'll bite."

"That is if science ever expects to find any more. By the process of deductive thinking, according to the definition, any thing that does not answer to that definition is not a dimension."

"Exactly."

"All very well, but the word dimension was in use long before the dictionary."

"Well, what is your definition?" I ventured.

"Observe this. A dimension is the part or direction of a motion or combination of motions."

"I'm a little confused."

"It is not so perplexing. What I mean is this: a dimension is not, as is usually supposed, a relative direction, in general but the relative path of a motion. Observe that you, as a whole, can only move in three dimensions, although you can move in an infinite number of directions."

"Yes."

"Therefore, the secret of dimensions lies not in the fact that you are composed of three dimensions, but that we are all free to *move* in so many dimensions. Nothing that we know is really made up of less than three dimensions, but any three dimensional object can *move* in any one of three dimensions—in a straight line, for instance."

"A piece of paper or a shadow are two dimensional, are they not?" I asked.

"A piece of paper has thickness, and a shadow is not a thing. But move in a straight line, and your motion, you will observe, only makes use of one dimension at a time."

"Suppose I were walking across the room," I ventured, "and suddenly took a notion to go up the chimney. Would I not be using two?"

"One at a time," assured the Doctor.

I smiled. "I am beginning to see light. When I wish to go up the chimney, I am going in a second dimension in relation to the first."

"Precisely, and if you go in any direction not in the same plane with the first two, you will be moving in a third dimension in relation to the other two. But you move in only one dimension at a time."

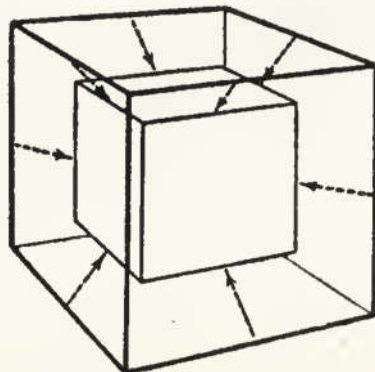
"Now suppose I want to go in a fourth dimension in respect to the other three: Then what?"

"Not so easily done, but altogether possible. You would merely have to become larger or smaller."

"Merely!"

"It is more easily explained by a perfect cube."

By this time we had reached his laboratory, in which were all his scientific instruments. However, the thing which interested me most, at that time, was a portable blackboard upon which was drawn the following figure:



"You will observe," he said, taking a pointer, "that the sides of the larger cube represent our three dimensions, in an orderly fashion, for its sides are all at right angles each to the other two. Now substitute the word motion for sides: then make the cube smaller. Observe that a new motion is created which is at right angles to the other three; for if you draw a line perpendicular to any side of one cube, it will also be perpendicular to the corresponding side of the other cube. Then as the inward motion is along these perpendicular connecting lines, the motion is undoubtedly perpendicular, or at right angles to the other three motions. That motion therefore is fourth dimensional in respect to the other three."

I gasped at the simplicity of it all.

"Then time is not the fourth dimension, as was supposed!"

"I doubt if time is any dimension, it is just possible that it is the fifth, and again possibly not."

"But, Doctor, it is impossible to move in that direction, so what good will come of it?"

"Aren't you taking a lot for granted?"

"You mean?"

"The secret shall be found in four hundred years. However that does not prevent us from making use of its possibilities. Did you bring the elements, Perkins?"

"They are on the test table."

"Excellent! I had you bring them all because I didn't want to take the time to specify particulars; a few additions to my store will not matter."

A large silvery ball, about eight feet in diameter, rested upon a *ring* table at one end of the laboratory, so that the bottom of the ball was plainly visible below the ring. On top of the ball was a large four bladed propeller, its shaft vertical as of helicopter design, as if the ball were meant for flying purposes. Directly below the table was a circular tray, divided into sections into which the Professor placed a sample of my elements. What could those elements possibly have to do with the fourth dimension?

WHAT followed directly causes my head to swim. I am writing with six large photographs before me, for the purpose of reminding me that it was not all just a fanciful hallucination, but a reality, a vivid truth. And it all happened within the four walls of Doctor Longhorn's laboratory. I am sorry I cannot publish these pictures, but the Professor claims that they would only prove the truth of my story, which proof he wants chiefly to avoid, on account of the damage it would undoubtedly do. I can well understand that no one will believe my story without the photographs; I can hardly believe it myself, despite this unmistakable evidence.

The first is a photograph of a city from an airship. What a peculiar city! But I am getting ahead of my story. The second, also taken from the air, was of a smoking volcano near which there is a canal. The third is a photograph of a great elevated highway bespeckled with traffic. The fourth is an inside view of a great temple, and the fifth and sixth are other views of the city. This concludes the set, although I have many similar views put away.

As I look them over, I half wonder, despite myself, how it all happened. I saw the Professor lock the door as we entered and I saw him place the key on the marble topped table.

But to get back to my chronicle.

There was a door on the side of the ball which had previously escaped my notice, into which the Professor disappeared. Almost immediately the sides of the ball became transparent and I observed the Professor moving about inside on a level floor which rested at about the table level and under which the ball retained its silver cast. He was pointing at a light in the middle of the top of the ball. Then I saw his hand touch a button and the ball again became its same old silvery self. Then the propeller began to rotate, faster and faster, until the ball began to rise off the table. Something queer was happening, or was I mistaken? It looked smaller. Nonsense. No, it *was* smaller. Yet how could it be. I shut my eyes for about twenty seconds so that I might be able to perceive any change if there were any, but when I opened them—

"Doctor!" I shouted. "Doctor Longhorn! I say, Doctor Longhorn!" It was gone, ball and Doctor. I glanced hurriedly at the key on the table and at the locked door, but both were intact.

"Good heavens," I thought, could anything have gone wrong with the experiment? Perhaps the Doctor's queer machine made use of some deadly ray which had destroyed them both. If only I had kept my eyes open, I might have been able to save him.

I was worried and irritated beyond all expression. A fly began buzzing around my head and bothered me considerably. I seized a fly swatter, and watched it hover over the ring table hoping it would land. But it didn't, so I swung at it impatiently. I don't know what it was that made me miss that fly; it may have been divine providence or my nervousness at losing the Professor. At any rate I did, and then it was, with cold perspiration in great beads on my forehead and my heart somewhere in my throat, that I perceived and realized that it was not a fly but a minute silvery ball with a small helicopter propeller suspending it. It was by the greatest of miracles that I had not assassinated Professor Longhorn. As I swayed on my feet, half dazed, I perceived that the ball was slowly returning to its original size. Finally, reaching its maximum and again coming to rest on the ring table, the door opened, and the Professor emerged. I must have presented a sickly appearance, for the Professor became suddenly alarmed and catching me as I fell, led me to a couch and fetched me a glass of water.

"Perkins, what on earth has happened?" he cried. "Speak to me. I did not think to alarm you. I should have warned you. Come, I beg your pardon my man; take this water."

"You do not understand, Doctor," I gulped. "If you only understood—"

"Perkins!"

I watched his face pale to silver as I described his narrow escape, in short gulps.

"Oh Doctor! It is I who owe an apology; I should have known; what shall I say?"

I saw him swallow hard. "Forget it," he said, smiling. "I should have informed you."

That ended it. We both shook hands, both of us slightly pale.

"Will you enter my fourth dimensional penetrator?" he invited. "We shall see what we shall see." We entered and the door banged behind us.

"This time," he said, "in order to avoid any mistake,

I shall inform you as concisely as possible, just what we are about to do."

"I am very curious," I assured him.

"In the first place, we shall need light." So he opened the door, got out of the car, and turned on the lights, which were situated around the border of the ring table, and which cast a bright silvery light upon the elements below. This he had forgotten to do before on account of the excitement over his narrow escape. The door closed again and I could see the laboratory clock as plainly as if I were looking through glass.

"The walls of my penetrator," he explained, "are made of a substance of my own invention. It is only possible to see through it when there is more light on the outside than there is on the inside." He turned the light on in the car. "There," he exclaimed, "you cannot see out now, because the light on the inside is more intense than that on the outside. Awhile ago it was just the other way. That is why you were able to see me from the outside as you could now if you were on the outside."

And out went the light.

"I am curious to know what the elements are for," I ventured.

"When we have a fourth dimensional penetrator," he answered, "all we need is something to penetrate. Below us are samples of nearly all of the known elements, illuminated by the lights from my ring table. If we desire to ascertain the composition of one of the gases, we need merely to push through the valved stems of the valved glass vials. If it be a liquid of which we are curious, we need merely submerge ourselves in the open dishes containing them, much the same as with solids."

"Explore them?" I said. "What on earth do you mean? You talk as if we were starting for Mars when we are not even leaving the room."

"Not Mars of course Perkins, but who knows what might happen before we are through?"

"How convenient this fourth dimension," I thought.

I WAS very anxious to get started, for frequent experiences had taught me that the Professor's experiments were always extremely interesting, and often very exciting; and this one particularly had promises of being of a very unusual type.

I looked curiously about the sphere. In the center was a little round pedestal which I at first thought was some kind of a mariner's compass, but whose dials looked somewhat like those of a gas meter. Arranged in circular design were twenty-two little pointers, each with a separate dial of ten figures circumposing near their outer rims. Each one was labeled, starting at the top; units, tens, hundreds, thousands, ten-thousands, etc., up to what is known in the English language as a sextillion, or a thousand times a billion times a billion.

"What is this?" I asked.

"That," said the Professor, "is to keep tab on our existing size in diameters, which is the only way we have of measuring our progress through infinitesimal space."

"You are taking no chances, I see, Doctor, on overstepping your meter. Why, that would be about four times smaller than an atom."

"Ever so many times smaller than that, my dear Perkins. Perhaps you do not understand my meter. I shall therefore explain it to you. Our unit of measure, you will understand, is our natural size, which we shall call one. The meter works reciprocally; that is: when we

are actually one-half our natural size in respect to diameter, the unit hand shall point to 2."

He demonstrated accordingly by starting the propeller and reducing our size until we were about one-half our original size. The sensation was similar to starting downward in an elevator, as the room seemed to take on ballroom proportions. The meter correspondingly indicated "2."

"That indicates that our natural size is exactly two times our present magnitude," he explained.

My thoughts began to wander and I took time out to examine more closely the interior of the machine. An iron railing about two feet from the outer wall was to prevent us from falling through its almost invisible inclosure. The floor was simply covered with red carpet which fitted tightly to the wall and along with the two comfortable easy chairs, which occupied positions back to back on each side, gave the penetrator quite a home-like appearance. He opened a small trap-door which was placed inconspicuously on the carpeted floor. There we found food and water to last a month. There were also two large cameras, moving picture and otherwise, besides which were four loaded revolvers and a few boxes of cartridges.

"Good Heavens!" I exclaimed, "you would think we were flying to Africa instead of planning to be gone perhaps for a half an hour. Why all the riddles? Why the loaded revolvers? Hah! I have it," I said mockingly, "Burglars!"

"We should both perish if we stayed over half a minute," returned the Doctor.

"Be killed by burglars?" I asked.

"Joke if you like, Perkins, but I assure you that I am serious."

It was that that brought me back to my senses. Could I have dreamed how close we did come to losing our life, there would never have been any such mock seriousness on my part at all. I suddenly realized that this was no common experiment, and that almost anything unusual was liable to happen under such conditions where we were approaching an entirely new field of existence. From then on I became serious.

"What is the danger, Doctor?" I asked.

"Death of old age."

"I thought you were being serious, Doctor."

"I assure you that I am both serious and sane."

I sighed. I was glad to hear the last part of that.

"Leave it to me, Perkins. I see no harm in not telling you just yet, so I shall leave the enjoyment of mystery entirely to you; that is, unless you want me to tell you."

"I'll wait," I agreed.

I confess that I was wild with excitement. I could not imagine what the Professor was up to. My eyes fell incidentally on the laboratory clock which loomed up dimly in the distance, owing to our half size, and which read exactly twenty-six minutes after eight. If the Doctor was right we would either return at 8.26:30 P. M., a half minute later, or die of old age.

"It is now a question," ruminated the Doctor, "of the element which we shall explore."

"Since it is a matter of question," said I, "let chance decide for us."

I always carried a small pocket memorandum book, which by chance had a complete list of the elements, along with a table of their respective atomic weights. The Doctor shut his eyes and I handed him a pin, while I

held the book open to the proper page. After aimlessly groping around, he finally jabbed, and it was just by a quick rotation of the book that I succeeded in preventing him from pushing it through my thumb. It stuck fast in the "d" in Hydrogen, atomic weight, 1.008; the simplest of all the elements.

"Rotten!" I exclaimed.

"Terrible!" agreed the Professor.

"What shall we do?" I said, annoyed.

"We have left it to chance and we must accept her choice."

"Very well."

"Are you ready?"

"Yes."

"We shall be off then."

AGAIN I was conscious of that peculiar sensation common to the starting elevator, and again the walls of the laboratory seemed to recede from all sides. After we were fairly started, there was positively no sensation at all. While the tens hand was still on its ninth circuit, the walls of the room became hazy, finally fading into the blue distance, all appearing much like the blue sky. The lights on the ring table, however, still shone brightly from above, and the tray was still faintly visible far below. I watched the Professor's finger press the stopping button, as the magnitude meter read exactly one hundred. Then a peculiar thing happened: we were jarred roughly by the sudden stop, not forward, side-ward, or up, but inwardly, after which we seemed to resume our original stature.

"The laws of inertia, apparently, are not altogether strangers in the fourth dimension," explained the Doctor.

I have before said that there was no sensation, but if any living person cannot get a thrill out of such a manner of travel, he is a dead man.

"We shall stop more carefully hereafter," he announced. "However, we had better approach the hydrogen vial before it gets too far away." This we did without further delay.

Keeping the valve of the vial within our vision we began to decrease in size again until we could see space between the valve and its wall. The meter read "1000"; but it read "10,000" before we actually attempted to enter the hydrogen. The valve then became a long black tube, and as we approached the hydrogen end, we first saw its blue—a little hole in the distance—grow larger, and as we emerged it once more took on the appearance of the sky, except that it was of a very much lighter shade.

"You will recall, Perkins," suggested the Doctor, "that our little magnitude meter measures by diameters as does the microscope; however, actually figuring in respect to size, as the meter now reads '10,000' diameters, you are actually contained in your natural self, as many times as ten thousand cubed—or one trillion times."

"How many?"

"One trillion (1,000,000,000,000). Let me have your hat." It so happened that I had it on.

"If I should fill it with water,"—He made a motion as if to suit the action to his word, whereupon I protested, of course. He laughed, "It would take a trillion hatfuls of water to fill your hat once, the way it was when we started."

"Hm-mm, we ought to be seeing a few atoms by this time, oughtn't we?" I asked.

"Apparently not."

"So I see. Is there anything to stop us from seeing them?"

"Only their minute size; we are now approaching that point."

The meter registered nearly eleven and one-half thousand diameters, or a trillion and one-half hatfuls before we actually saw an atom, or rather its nucleus, which was about the size of a pea. The electron was as yet invisible.

We were actually seeing an atom! What was still more wonderful—this was being made possible, not with the assistance of the far-seeing microscope, but because we ourselves had been reduced so tremendously as to be far out of the range of the microscope.

When the nucleus was about three-eighths of an inch in diameter, a thin black line began to form about nine inches away. This proved to be the orbit of the speeding electron. It was then that we noticed millions of little black specks all about us, moving rapidly as if they were soot hurled about by the wind. A slight sensation as of a stopping elevator announced that the Doctor had stopped. Out came the cameras for the purpose of taking both kinds of pictures, for which I could see no use; for prints could have been made from the cinema, which could be enlarged. But the Doctor insisted that he knew how to get the best pictures, and since they were cameras of his own invention, I did not dispute him. He explained to me later that they were perspective cameras, which took pictures in relief.

It suddenly dawned upon me how great was our little experiment. Was there no limit to smallness? What was to prevent us from continuing to grow smaller forever? What kind of a wall could possibly stand in the way of the infinitely small? My mind became confused, thinking of it.

"Confound it," I said, "is there no limit towards which we are approaching?"

"No," said the Professor, there is no such thing as dimensional limit. Although it is hard to recognize this truth, it is even harder to imagine a limit, for no matter how distant a limit is set, there must always be something beyond. As three dimensional lines can be limitless at both ends, so can all fourth dimensional lines, like those over which we are traveling."

"It's a rather confusing proposition," I agreed.

"Oh no, not necessarily. It is just another way of stating that there is as much space within my laboratory as there is outside."

"Impossible!"

"Can you compare the two infinities by saying that one is greater than the other?"

"True. Still, I do not see how it is possible."

"The fault is neither yours nor mine. We were born under certain conditions by which we have lived. Our eyes have grown naturally accustomed to visualizing objects as they seem, and not necessarily as they are. It is an old story. A worm may walk across a wrinkled piece of paper and see only the polished surface. The three dimensions with which we are familiar are not defective as we know them, but either the fourth dimension is warped or our own three are—relatively.

"By way of illustration, we shall represent all the first three dimensional lines by three straight and ordinary pencil lines, but when we come to illustrating fourth dimensional lines we are confronted with a much greater

difficulty. There is a physical phenomenon, whether you think so or not, which is so ordinary that we do not even begin to wonder at it. You have noticed many times while walking up a long avenue, how the other end of the street seems to come to a vanishing point. This is only an illusion, for you know it to be a fact that each side of the street is geometrically parallel. This may illustrate the difference between the fourth and third dimensions. The fourth dimensional line, therefore, is a line which appears to vanish at one end and spread out at the other but which actually is infinite in length at both ends, for if you follow the line out with my fourth dimensional penetrator, you will find that it is actually the same width all the way down."

"I'll take your word for it," I said jokingly, "at any rate Einstein wins; it is relativity."

And so we progressed towards the vanishing end of the line, with the nucleus becoming larger, the electronic belt broadening, and the Doctor's moving picture camera ticking away merrily. I began to notice a peculiar closeness about the penetrator and was wondering how the Doctor had provided for ventilation, when he suddenly stopped taking pictures and turned a valve which let fresh air into the room. The magnitude meter revolved harmoniously to the tune of nearly twelve thousand diameters.

"You could put a billion of those on the head of a pin," said the Doctor by way of suggestion, pointing to the near-by atom.

We held our course very close to one in particular, and finally, when the orbit of the electron was about eight feet across, we maneuvered in such a way as to be directly over the speeding electron.

SLOWLY the nucleus grew larger, through the stages of size, which were equal to a cherry, an orange, a basket ball, a pumpkin, etc. By that time we could actually see the electron, although it was flying past us at the rate of nearly fifteen times per second.

"How distant would you judge the atom nucleus to be from us now?" he asked.

"About thirty feet."

"It's at least a half mile."

"A half mile! Why, to be visible at that distance, it must be immense."

"Not so very large."

"At least five hundred feet in diameter, surely," I cried.

"It is actually too small to be seen with a microscope."

"Don't! I'm nearly crazy as it is; my mind can not hold it all. Please don't mention it again."

"I was only joking, Perkins," he apologized. "We are dealing with relative size only, for the present, for it would not be practical to use our standard measures upon a thing so small that it cannot be measured by even a small fraction of that standard."

He drew a foot rule from his pocket and held it up to the light. "Does this not prove relativity, Perkins," he continued, "when, with the unfailing assistance of my penetrator, it is made physically possible to measure interatomic space with a foot rule."

"Or fourth dimensional space," I added.

"The atom, my dear Perkins, is undoubtedly matter of the third dimension and not of the fourth, and is thereby measurable relatively by feet and inches, but the fourth dimension, as I said before, is different. Our magni-

tude meter has served us sufficiently in measuring it for us. I have with me a fourth dimensional linear scale, which is of no earthly use as far as I know, outside of being useful in explaining questions which I foresaw we would undoubtedly come to, sooner or later. You will observe that it's really a scale of inches. Fourth dimensional space, unlike any other space with which I am at the present familiar, varies as does light, inversely as the square of its distance from a fixed plane, such as our own. This rule records this variation accordingly. At one end we have a unit which, compared to the third dimensional scale, does not fall far short of a true inch, and reading from left to right, we have a half of that, a quarter, an eighth, a sixteenth, etc., until the progression becomes of infinitesimal value." He set the two rules side by side. "That is the difference between the dimensions."

It was odd to admit that I actually knew what he was talking about.

"This remarkable experiment not only proves relativity," he continued, "but it proves a far greater thing; it proves there is a God. Could such a Universe with all its immenseness, order and complications, come into existence in any other way? Why do men try to depreciate mentally, the magnificence and wonder of the Universe in order to bring it into the scope of man's reasoning? It is far better for man to try to bring his reasoning within the scope of the magnificence and wonder of the Universe. Why is it that eminent scientists insist incessantly upon placing a limit to that which they cannot understand? It is because they have in a few years reached the rung in the ladder which signifies knowledge of all, and as, with all their knowledge, they cannot conceive of anything without a limit, there is naturally nothing to suppose, but that there must be a limit, and let it go at that."

All talking ceased while we watched the electron slowly grow larger, and seemingly decrease its speed, until it passed below us at the comparatively slow rate of one revolution per second.

Suddenly I recalled something which caused cold beads of perspiration to form upon my forehead. It was extremely unpleasant to think about, and so I concluded my thinking with a loud and startling shout.

"Stop! Quick!" I shouted. "The time!"

"What's the matter, have we collided with an atom?"

"No, the time! It's nine o'clock!"

"Surely you are mistaken," he replied.

"I know, Doctor, but you said—"

"I recall stating that if we were gone more than half a minute, that we should die of old age."

"Exactly."

"Let me see your watch. Excellent! We have been gone no longer than fifteen seconds. We have plenty of time yet."

"My watch says nine o'clock," I argued.

"Your watch is of a very good make and I assure you that it does not err. However, your watch was not made to indicate more than one time—the present. My clock, which is now some trillion miles over yonder (that is, just across the room), is also of a very good make, and reads at the present precisely not later than 15 seconds after we started."

"Einstein again triumphs, I see."

"Unless Einstein lives to be four hundred, he shall never learn about his victory."

The electron increased to the size of a golf ball, and now we caught a glimpse of it only once every ten seconds. Then our penetrator showed some other remarkable qualities. With a loud wher-r-r, the Professor accelerated the machine to follow the electron around in its invisible orbit. It took us seven six million revolutions to finally overtake it, and hover directly over it. Strange to say, even at that terrific speed, we were not acted upon by centrifugal force, due to some contrary force.

Then a remarkable thing happened. Suddenly everything became dark.

"Doctor!" I cried. "The table lights—they have gone out."

"Do not become alarmed, my dear Perkins," he said.

"What is wrong?"

"We have merely exceeded the speed of light," announced the Doctor, calmly.

Wonder of wonders! More than 186,000 miles per second around a point so small that billions would fit on the head of a pin.

"But," said I, "the light is from the table, is it not?"

"The light was."

OUR little conveyance was now brilliantly lighted with a soft bluish white light, which, however brilliant, was not blinding unless one was inclined to look curiously towards its source. That minute nucleus of a hydrogen atom was now a bright and glowing sun, of enormous proportions; while directly below us, the lover's delight, shone alluringly as a new and more beautiful Diana. A great blue half moon of majestic beauty was our once infinitesimal electron. And what was even more curious was that it stood not alone, for sharing its light was a sister satellite about one-fifth the size of the other, doubling the beauty of that more than awe-inspiring spectacle.

I shall not bore you with descriptions. Try to imagine yourself smaller than an atom, traveling faster than light, receiving all your illumination from a great bluish sun (an atom nucleus), and gazing down upon an enormous electron accompanied by a satellite which reflects with its sister the unusual blue tints graciously bestowed upon it by its mother sun. It is impossible to describe, so I leave the rest to you.

For one glorious ten minutes the Doctor retarded the penetration of the little ship, while we sat and gazed in wonderment. Nor were Sol and Diana our only neighbors. Now that the penetrator had decreased its speed to (approximately) one revolution per minute in proportion to our size, and since we were traveling with it just as slowly, we found ourselves surrounded on all sides by a great curtain of stars, thousands of distant atoms, shining as only stars can shine on the highest mountain peaks. A great milky way not unlike our own, but seemingly much brighter, stretched around the entire sky in a great belt.

"Showing that the atoms of hydrogen are also bound in nebular formation," remarked Doctor Longhorn.

Of course we took pictures and I regret to say I forgot to read the magnitude meter at this point. Our next movement was to approach the electron, and as we descended, we noticed that at the very closest part of it to us, it was covered by a small white circle which we judged might be a polar ice cap. It was so small in proportion to the rest of the planet (as we may now call it)

that we also judged that it must be summer in the North.

"It appears as though we were going to find life," he said.

"Could it be possible, Doctor?" I asked, much excited.

"Relativity is the answer."

"But such small people must necessarily have a very minute brain."

"It is large enough for them," he replied.

"But what I was referring to, Professor, is this: A few days ago I read a book which stated in so many words that the smallest brain that can exist with reasoning power weighs two pounds."*

"The statement was undoubtedly correct as far as it went, Perkins, because any smaller brain would be out of proportion to the environments of the earth; however, here we have an entirely new system of standards. Even the light is different from our own. Here even an atom nucleus has enough internal pressure to burst into blue hot flame. This sun must be ever so many times warmer than our own red hot system; that is, relatively. Therefore there may even be a race of intelligent and civilized people living on this electron, as there may even be on countless numbers of others."

"Indeed, considering the number of other electrons there are on the earth, it only hints at the titanic size of the Universe."

"One always learns new things, Perkins. If we did not, our little experiment would be worthless, even though we have exceeded the imagination of man which cannot otherwise comprehend this unusual venture; of man whose insignificant microscope with which the surface, only, is open to exploration; even then, when we are actually able, through the assistance of my penetrator, to explore the interior of matter, I should never have started without a purpose. To learn, hear, and touch; to see with the eyes, even to realize, to fathom the abyss which separates the beginning from the present, and the present from the end, and still greater the beginning from the end; into the bottomless infinity.

"We shall not find 'The Creator' here, for we are not on his plane, which is beyond. But it proves that there are many other places, some very close to us, of which science has never dreamed. Most narrow minded men conceive of no possible place, outside of our own paltry Universe. The stupid pretenders! We have gathered from our experience that the Universe is divided into seven great orders: three of which man has lived throughout the ages; the orders which proportionize length, breadth and thickness. Then there are a set of three others of which man, so far, has had but a dim conception. Man has measured time for years without knowing exactly what it was that they were measuring. Time is relative, as we have now proved, with two other orders; that of internal and external space through which we are now traveling; and that of the proportional progression of the ethereal and material rings. The seventh order is the great Universal order which governs the other six together. Here may we find 'The Creator of all things'."

"I flatter myself that I followed you distinctly until you mentioned the Ethereal rings, Doctor," I admitted.

"Some day in your spare time, Perkins," he suggested, "look up a diagram of the solar system. You will notice that the orbits of the various planets, if the diagram is

*See "Animals of the Past," by Frederic A. Lucas. Page 93, N. Y. 1913 Handbook.

to scale, increase in distance respectively by some form of progression." [If you are bored at this explanation, continue reading again at the foot of this paragraph. I assure you the explanation interested me greatly.] "This progression has been called Bodes Law, after its discoverer. The unit of measure is the earth's distance from the sun, which was set at ten. By actual measuring, it is found that the distance of Mercury from the sun is 4; that of Venus 7, or 4 plus 3; that of the Earth 10, or 4 plus 6; that of Mars 16, or 4 plus 12, the Asteroids or minor planets, 4 plus 24; Jupiter, 4 plus 48; Saturn, 4 plus 96, etc. In each case you will notice that the number which is added to 4 is always twice the preceding addendum, and since the distance of Mercury, the nearest planet, is 4, we may call this the base and say that starting with Venus with 3 as the multiplicand, we find that the following planets are always twice the distance of the previous orbit, from the orbit of Mercury. Bode, however, did not see, or at least did mention, this last fact about Mercury being the base, and so I have made this little addition, which I believe to be true. The same law holds true with the satellites of Saturn, but Jupiter, with its four larger moons which were all that were known about in Bodes time, has 7 for a base instead of 4. The truth of the matter is that there is evidently an unoccupied ring within the nearest, for I am positive that the natural base should always be 4. That led me to suppose that all the rings existed before the planets, and if so, these rings must exist around every known body. I thought of the atom with its system of rings. Everything that existed must then be composed of these little rings. From this I became convinced that even the ether must be also composed of these rings, and if by chance their motion was in a contrary direction to the direction in which everything else seemed to be moving, this would explain how ether is frictionless and allows the earth to move about the sun without resistance. The same effect may be obtained by putting two rollers together. If they are moving both at the same speed in opposite directions, there will be no friction between them. It was all this that led to my building my machine, which uses this system of rings as a medium in which to travel."

If there is anything you don't understand about the Professor's explanation, it is probably what he meant when he mentioned the progression of rings.

The atom nucleus had long since ceased to become smaller, for as we progressed, our relative distance from it increased, which made it appear about the same size.

"What is it that makes the atom nucleus self-luminous?" I questioned finally.

"This light which we are now conscious of," he explained, "is traveling at the relative speed of about 186,000 miles per second, much as does our own, but if not relatively speaking, it is traveling at a much greater speed. As we approached the atom, it first appeared as a little black speck, showing that our own light was bright enough to make it seem black. Now that we have gone beyond our own light we find that it is very bright compared to the blackness of interatom space. Relativity simply."

Silence followed, as we both curiously watched the electron grow. I became conscious of a slight change in our position. "Is anything wrong?" I asked.

"I fear we should freeze if we should attempt to land on the pole."

"Land?"

"Surely. To come so far without landing would be an inexcusable failing."

Never did I forget that sentence.

THE electron continued to grow until it was no longer perceptible as a ball. Clouds announced the presence of an atmosphere. Then the Professor announced that we had reached a comparatively natural size at what he supposed would be equal to the size of electronic inhabitants if there were any.

We burst into the electronic atmosphere as the darkness was again transformed into a bluish white daylight, by the diffusing of the sunlight by the atmosphere. About five miles below us were myriads of fluffy white clouds, which I believe were about six miles high.

After we had finally broken through these, we discovered below us as far as the eye could see, a vast stretch of forest-covered mountain country, whose brownish shade suggested autumn. These trees, unlike our own in autumn, were more of a reddish brown than natural.

I remarked the fact.

"That may be explained," he answered. "It is not autumn as you supposed, but midsummer."

"Then reddish brown is their natural color?"

"Just as green is ours,"—meaning, of course, the natural color of our trees—

"Then unlike our trees," I deducted, "they do not depend upon chlorophyll for their color?"

"It is only natural to suppose," he continued, "that since we have a red sun and trees whose color is opposite to red, that a blue sun would give light to trees whose color was opposite to that of blue, which would be approximately brown."

"Why?"

"Because the most soothing color to the eye under a red light is green; and under a blue light, brown. That is the reason red has always seemed so brilliant to us."

As if to prove it, the Professor's blue necktie reflected, in place of its ordinary dull shade, a brilliant and alluring shade.

We drifted southward and downward toward their arctic circle, but no signs of civilization appeared.

At about the forty-eighth parallel we came upon the first signs of animal life in the form of a little domelike hut out of whose tubular chimney smoke was rising.

"Man!" I exclaimed.

"Primitive," he agreed.

I was for landing immediately to be more informed, but the Doctor wisely decided to continue farther. From then on we passed an occasional hut. In another hundred miles or so, we came upon a small village of little domelike houses like the one which we had just seen, arranged in streets and avenues. There was a larger hut in the center, from which all streets radiated, which were connected to each other by cross avenues, somewhat similar to a spider web, but in almost perfect circles.

"Not so primitive," I surmised.

"No, there is in that town, Perkins, that which hints unquestionably at civilization."

"What is that?" I asked.

"A motor car."

"A motor car!"

"It is on the east side upon a street running east and west."

Indeed it was, for nothing else could have gone as fast. From our altitude of about twenty-five hundred of our feet, we also saw many little specks, which were undoubtedly people.

"We shall not bother to stop at a small town," said the Doctor, "for there will probably be cities in a world where there are motor cars. At any rate there must be other towns."

A little mud road led southward from the town, through the mountains. We followed it carefully down a long but beautiful valley in hopes of finding a city. We saw three towns, nestled deep in the side of the mountains, and laid out on a similar plan to the first, through which the road passed, and from which other little roads radiated. The forest then became farm country, cleared of trees and planted with grains. A larger town appeared, through which the mud road changed to stone. (Remember all this was going on in the Professor's laboratory.)

As this new improvement continued on out of the town, traffic upon it increased, which in turn increased our hopes.

"And to think," I said, "that scientists have been trying to destroy the atom for years."

"The atom will never be destroyed," assured the Doctor.

"Nature has provided for that by providing the electron with more force than any outside force is able to destroy. No one can so much as even retard the motions of the earth which has no more force behind it than is behind the electron. You have many times heard the story of the things that could be accomplished if the force behind the electron could be harnessed; better to try to harness the earth. If ever man *should* obtain enough power to destroy an atom, you must remember that the destruction would be very slow, for at least a trillion electronic years fly past every second. This also goes to show how ridiculous these scientists are, when they say that the earth will probably not sustain life more than a billion or more years, a mere second in the time of the Universe."

"These scientists have an authority for this," I reminded him, "they are only using the moon, which has long been cold and dead, for an example of what might happen to the earth."

"The moon," he replied disgustedly, "the moon; do you know what the moon is for? It is up there to laugh at these, 'would be scientists,' who can only see one side of everything. We can only see one side of the moon, and probably we never shall see the other. Then these remarkable men who are cocky enough to call themselves scientists are willing to state as fact that the moon is nearly cold enough to liquefy air and is absolutely uninhabitable, when they have never seen the other side."

"They judge that the other side is much like this side naturally."

"Perkins, you make my blood boil. Just to convince you that there are people on the other side, I'm going to take you to the moon as soon as we return and show you. I know how it is possible; and what is more I know exactly how it came that the moon shows only one side, and how those volcanoes came to be there." (He did, and I can assure you that the Professor's words were not mere idle boasts.) Strange how we talk about the hidden side of our satellite.

VERY soon we made a new and more startling discovery. The little stone road which we had followed for the last ten miles suddenly ended and intersected a giant highway, about two hundred and fifty feet wide at least, bespeckled with all kinds of motor vehicles. The stone road entered the main highway by means of a ramp which approached at the center of the highway. It was clear that the fastest traffic moved closest to the outside, to allow for slowing down before entering the ramp.

But this was indeed a very remarkable highway; straight as an arrow, and level as the sea, through hill and over valley by means of tunnels and bridges, and bordered from end to end as far as the eye could reach with a cement border fence, inclosing the road and sidewalk and supporting in turn a long stream of night lights.

"No doubt," said the Professor, "such a highway must lead to a city; we shall follow it."

"By all means," I agreed.

Our choice of direction was made when we discerned a thin blue line on the left horizon which indicated some large body of water; and accordingly we made for the seashore.

We soon learned that we were not the only airships in the sky. Great wings supported giant planes and even dirigibles, which cut the clouds at tremendous speeds; while many smaller aircraft buzzed around us as flies, in the form of little winged motor cycles and such.

At the end of the road, which we were approaching, a curious little ring of smoke was visible just above the blue horizon. Along the road, in dome contour, were many houses of many sizes, some of which were much larger than the first which we saw. Some were even two and three floors high, wherein they took on a more cylindrical shape.

Presently the city loomed up, a great expanse of marble splendor, with a most unusual display of architecture. Great cylindrical skyscrapers, constructed in ever decreasing sections, towered skyward; one even a thousand feet or more. There were many, however, which were the same diameter all the way up. We were quick to see its advantages, for it allowed for rounded intersections at the crowded street corners. This great city, like the smaller towns, was built on the spider web plan, with all the main streets radiating from the center, and connected by great circular avenues which circumscribed the entire city. The circular avenues were all elevated above the others, and entered by ramps; and each was from seventy-five to one hundred feet wide.

Five great canals entered the city at equal distances apart, which were nearly five hundred feet wide, and one which was a thousand led to the near-by ocean. Great stackless liners, passenger and otherwise, moved swiftly in and out. The smoke ring, we learned, came from a volcano, which was about five thousand feet high, and which was situated between the city and the sea.

We hovered about the city for a few minutes, in order to become more acquainted. A huge Grecian temple, as it appeared, held a prominent position in the city. It was of titanic dimensions, being about half a mile long, fifteen hundred feet wide and about four hundred and fifty feet high, with huge pillars supporting its heavy masonry roof. It was of a beautiful snow-white marble, which reflected the light of the blue white sun alluringly.

Coming towards us, we noticed one of the many flying cyclists. He was not a great ugly beast, a hideous spider

man, or a curious all-metal being; he was simply a human being. Curiously we watched him, but as he could not see us, he continued on his way. He wore simple breeches tucked in stiff white boots, and half hidden by an overhanging waist, which was also of a creamy hue. Nothing covered his curly hair.

Following a passenger dirigible we finally located the main air landing field, which was a huge round elevated platform supported by great round pillars. On this we attempted to land, and as we came gently to earth a great flock of curious people collected about us. A great silvery ball with a helicopter propeller was strange to them.

We hesitated to dismount at first for fear of the crowds; but our worries were soon diverted, as ten armed sentinels pushed through the crowd and surrounded the machine.

"We're either wholly welcome or under arrest," predicted the Professor. "We shall optimistically hope it is the former."

A SLIGHT hissing noise announced that the Professor had put into action the vacuum cup, which I learned, constituted the bottom of the penetrator and held it fast to the platform. We had landed near the edge of the platform so as not to interfere with other air traffic. After taking one last look at the penetrator we stepped out to meet the sentiment of the mob.

The leading officer stepped forward and began asking questions in a very musical and pleasant-sounding language, which was entirely foreign to us.

The electronic satellite at that moment appeared above the horizon, and as we were forced to indicate that we were not of their earth, the Doctor calmly pointed toward the minor Diana and then to ourselves.

A murmur arose from the crowd, the sentinels looked at each other. After a little exchange in conversation, we were directed to follow them. Four were left to guard our penetrator, and it was well that we locked it, for immediately the crowd rushed forward and climbed up on the ball.

We followed the leader down by a flight of steps which led under the platform and from there across the street to an unusually broad building of about ten stories in height. Curiously, we discovered that each floor was only a large single room, accessible by the cylindrical elevator shaft which passed up through the center of the building.

We were escorted directly to the top floor, a rather cool and refreshing room about which there were thirty-six windows, arranged in groups of three. Between each group was a railing of marble or some such substance, in semi-circular design, behind which sat as if in deep thought, living statues, twelve in all, occupying comfortably cushioned seats. The floor was carpeted with a deep blue velvety cloth, which, contrasted directly against the white marble wall, had a very beautiful effect.

Nor did the thinkers wink an eye until they were addressed by the chief officer. After a brief conversation, the particular statue addressed, blew a little silver whistle, and all the other statues responded immediately by walking towards us. We were then ushered into the semi-circle and made to take two seats of honor against the wall, while all the other thinkers filed in and were seated in a row along the inside of the semi-circular wall.

The first one spoke. I hardly realized that he was

speaking to us not by word of mouth, but through the mind, each thought being impressed upon my mind as he spoke.

"It has been reported, O welcome strangers," he began, "that you are from the satellite, Mertile. If this be the truth, let us hear from you some form of introduction. Give us your purpose for the visit, what led up to it, and how you managed to accomplish such a remarkable feat. We are the twelve secretaries of science, headquartered in the capitol city of Tenonia, in the great country of Asperia. This planet is called by us, 'Phema'."

"We must apologize for a slight error in the location of our origin," replied the Doctor, and strange to relate I could feel his thoughts just as I did those of the secretary, and still more strangely we can converse thus together to this day.

"As we were not from your world and as we were not able to communicate, we used your satellite to indicate that we were from another world."

"You are then from a distant sun?"

"No."

The secretaries stole a glance at each other.

"Then as I perceive that you are not spirits, and as you are not from our world, where in creation are you from?"

The Doctor firmly believed in that when you are in Rome, do as the Romans do, and so he adjusted his conversation accordingly.

"Our story is strange, O inhabitants of Phema. We have come through a great expanse of space, from a world billions upon billions of times larger than your entire universe, as you know it. It is so large that your great planet is but an infinitesimal electron, trillions of which form one of our elements." The Doctor told then his story exactly as we know it, while the twelve secretaries sat stupefied.

When he had concluded, the Secretaries again regained consciousness enough to continue speaking.

"Your story is indeed strange," he said. "It is hard for even us who are Asperia's foremost scientists to believe your story. However we hold this position, because we are broadminded enough to believe anything that is logical." He then turned to the other eleven secretaries and asked if they had any further questions.

The Secretary of Mathematics spoke.

"This fourth dimension is an entirely new contribution to our scientific field, for we have never found it necessary to progress so far geometrically; however, your strange excuse for using such a dimension will be the birth of extended research in that line. May I ask if you believe that there are any more such dimensions?"

"I believe that there exist seven different dimensions, one for every corresponding order of existence in the Universe. Beyond that is merely a repetition of the first seven. The seventh which corresponds to Universal order, is a dimension which constitutes progress through the dimensions."

The Secretary of Science was equally inquisitive.

"How many planets revolve about your sun," he asked.

"Eight."

"You spoke of our planet being an electron in one of your elements, a while ago. What is the atomic weight of that element?"

"1.008."

"You have supplied me with a valuable piece of information," he approved, "You shall be rewarded presently."

"You are scientists, I suppose," resumed the Secretary

of Astronomy. "Perhaps we shall be able to assist each other from a scientific standpoint."

We agreed.

"You are now welcome to ask questions and free to move about in our city. We shall supply you with guides, or we ourselves shall gladly take that responsibility; just as you wish."

"We should be glad to have your kind assistance," we agreed.

"It is now approaching sunset. Perhaps you would like to join us in watching it from the roof. We assure you that it is a most inspiring spectacle."

We were delighted to accept his invitation.

The elevator continued through the top of the roof where a wonderful view of the city met our eyes, and the sun with all its blue white splendor was just above the sea lined horizon.

The light of the great blue sun, now dulled by the evening mists, was just as blue as our sun is red on similar occasions, while sun, sky and clouds, mocked by the becalmed sea, presented an alluring sight indeed. This soft light, again, on the great white structures, which was reflected and re-reflected, was still more pleasing to the eye. It was the distant trees that again reminded us of their peculiar color.

The Secretary of Botany was quite interested in our description of our green trees, as a result of our red sun.

"Imagine the beauty of a red sunset," he said to his companions. Whereupon we assured him that *his* sunset was far more beautiful than our own.

After the sun had set, the clouds intercepted the light in many colors, among which, purple, green and blue were predominant; all of these secondary colors, of which blue is a part. At home we never come across blue in the sunset, but only those colors which are tinted with red; thus there was no blue in this sunset.

The dusk having arrived, the city became fiery with lights.

"Are you familiar with electricity?" The Secretary of Physics asked.

"To a certain extent; our cities are lighted with electricity, though perhaps not so brilliantly."

"What is your source of power?"

"Water and steam."

"Indeed, I believe we are a step in advance. All our power is supplied by the magnetic forces of the planet, which seem to be inexhaustible."

"Our world is not ready for that as yet; however, the time will come."

DINNER was served on the tenth floor, on little trays which we held in our laps. These people never used a table as an aid to eating. The tray was divided into eight sections, which contained in all an eight course meal; it was about two inches deep, one inch being monopolized by the depth of the compartments, and the other was a twofold hollow liquid container, one compartment of which was supplied with water, and the other with some kind of fruit juice. The food was taken to the mouth by long handled side ladles; nothing more; the meat being already cut. Glass straws were fitted through little holes in each end of the tray, through which we were supplied with the iced drink.

The Secretaries were then anxious to show us everything. We were first directed to the laboratory of the Secretary of Physics on the ninth floor, where the labora-

tory of the Secretary of Botany was also located. The first thing he exhibited was a shelf containing a bottled example of every known element, labeled in Asperian hieroglyphics. The labels, we were told, contained the name of the element plus the atomic weight. These numbers were based upon a system of ten much like our own system.

The first, we recognized as hydrogen. But the Doctor hastily seized another with a shout of delight. The startled Secretary, anxiously begged him to be careful not to break it.

"What is it?" I exclaimed, "Why all the excitement?"

"Excitement! Excitement! Indeed! Read the number on that, Perkins!"

I glanced at the figures which were written thus on the paper label: "V-Iox" which translated meant "2.059."

Hurriedly I glanced down the list in my little notebook to find out what gas (for the bottle looked empty) had such an atomic weight. But there was none to be seen.

"My table doesn't seem to be complete, Doc," I apologized. "What on earth is the element?"

"That's the question. What is it?"

"It is coffinia," explained the Secretary. (English pronunciation)

This, of course, was unfamiliar to either of us.

"There is no such element on our earth," explained the Doctor.

The Secretary seemed surprised. "That is a remarkable piece of information," he agreed. "Would you mind picking out all the elements which you do not have?"

It was not long before we discovered that it would be much easier to pick out the elements which we did have.

Hydrogen, oxygen, argon, nitrogen, carbon, cobalt, calcium, copper, iodine, mercury, neon, silver, tin, zinc, iron and radium, were the only elements out of our whole system of 92 elements which were in existence on the hydrogen electron. All the rest were strange. All eyes watched the Doctor laboriously sort them out on the table, and when he came to the little metal bottle in which the radium was kept, he showed unusual surprise. There was at least a pound in it.

"That bottle would have been worth the wealth of a nation back home," announced the puzzled Doctor.

"You may have that bottle as a gift," said the Secretary, "It is not worth much to us, for I have plenty more."

The Professor overshadowed his gratitude.

"I shall give you anything I possess in return," he said. "I shall give you the plans for my fourth dimensional penetrator."

"We should like nothing better," they agreed. "Also in return for a supply of your elements, we would be glad to give you a sample of each of ours."

"I regret to state that that would be impossible."

"Indeed, would it be too much trouble to return to your laboratory and secure for us the necessary samples?"

"If trouble were the only difficulty," the Doctor explained, I would gladly do it, but you do not understand. It would be physically impossible for me to return in less than many trillions of years."

"I do not understand your words."

"You take, I understand, a period of 634 of your days to complete a solar cycle, or one year."

"Right."

"But by the time I could again retain my normal mag-

nitude, and secure for you that which you desire; your planet will have completed no less than countless trillions of revolutions about its sun nucleus."

"I believe I understand you now. Our time is so very much different than yours."

"And even if time were the same to both of us, I should never be able to re-locate your sun out of the billions of others."

Thoughtful silence followed.

"However," the Doctor continued, "if anyone out of curiosity, would like to return with us, he may, remembering, of course, that it would be absolutely impossible to return."

All shuddered at the very mention of it.

"And be tortured with the remembrance of the fact that all our friends had disappeared in a single second, after we had left our world; and that every second after that, ages were passing by, like the wind, and taking with them all that is dear to us? No. It would be unbearable. Try to imagine yourself, leaving your own world to become a being of the next larger planet, knowing all the time that you could never return, unless by chance, an infinite number of years later to find your world a new and altogether different home, where you had once before lived with all your friends."

It was useless to suggest further, although I believe the Doctor would just as soon become a giant cyclops as become a midget, even on that scale.

I could write volumes, describing the strange plants and animals that were there, and the many strange phenomena of nature; but I shall leave that for the Professor in his works, for that is more along his line. These things were all shown to us within the same building, where all the scientific research apparatus in the country seemed to be collected together. The observatory was on the roof.

I SHALL describe a little of our visit to this, however, for here we learned much of interest. The telescope was not just what we expected, for it was composed of but a single lens, mounted and pivoted in such a way as to be conveniently focused in every direction. I knew then that the lens was not made of glass, for it would have been impossible to use a single lens of glass in astronomy.

"That is merely a simple element," explained the astronomer, "whose atomic weight is approximately '105'. It is called Ranasium."

"That lies between palladium at '106.7,' and rhodium at '102.9' on our scale," replied the Doctor after a few seconds recollecting, "Silver is '107.88', evidently all the elements which you have lie between our own. By the way, do you have an element with an atomic weight of eight?"

"Poleritic gas ('8.4,') and it is highly explosive."

"Bad news, Perkins. We are citizens of the third electron from the nucleus of an atom of a highly explosive gas, to which some giant may even now be placing a match."

"What matter," I said. "The explosion would be so slow to us that we would not even notice it."

"That is just it. As I was saying before, there is no force existing which can destroy the atom, so why worry?"

The sky, you may as well be informed, was at that time fiery with stars, massed in many strange constellations.

He naturally supposed that we would first like to examine the surface features of the near-by satellite, but we informed him that already we had passed relatively close to it, and that we were far more interested in the more distant objects. He then decided that the nebulae would be an excellent choice, which indeed they were.

There is something about viewing distant atom-nebulae through a telescope, that causes a feeling of wonder. To think that I was composed of Sextillions of those great luminous clouds, some of which were many light years separated.

"The closest star," said the Astronomer, "is about fifteen trillion miles from here." That was about ten trillion miles closer than our nearest star.

The sky was suddenly transformed by a brilliant aurora borealis, which made all further observations impossible. However, the aurora was magnificent, and showed that even an atom nucleus is not immune from solar disturbances. This led the Astronomer to show us some photographs of their sun, which, not unlike ours, was bespeckled with sunspots.

A faint rumbling sound, as if made by distant thunder, was just audible.

"Thunder?" asked the Doctor.

"Old Titanus, the volcano, has been doing that for months. However there is no danger of eruption, for it has done it many times in the last thousand years without emitting anything but smoke. The last eruption, it has been told, occurred thirteen hundred years ago, at which time this part of the land, on which the capitol now lies, was formed. Since then, it has been extinct, outside of the smoke."

As we had no place to go that night, we accepted the kind invitation of the Astronomer to stay at his house until we intended to leave. We were immediately driven there in a little egg-shaped, magnetic power-driven vehicle, through the brilliantly lighted streets of the city of Tenonia. During our conversation we learned that the planet turned over a day once about every twenty-seven and one-half hours, whose sum annually totaled up to about two of our years. This, according to Dr. Longhorn's ring system placed it out about the distance of Mars, from its nucleus.

The suburban district of the city was mainly composed of the now familiar round houses. The Astronomer's house was unusually large, and was divided into fourteen triangular rooms, with the apex toward the center, where a little sky-lit hall was just large enough to provide for the fourteen doors from all the rooms.

The first room, that is the one directly behind the front door, was a form of reception room, gaily decorated for the benefit of visitors, with all kinds of metal ornaments and pictures. The walls were all marble. In addition to the door leading to the center hall, there was a door on both sides of each room at the end nearest the outside, leading to the adjacent rooms. The proud Astronomer lead us through them all: library, dining room, kitchen, pantry, bedrooms, and bathroom in which there was a magnificent fountain. The library was made up of great rolls of paper kept in boxes, altogether somewhat like the modern music-roll, with the title printed on the end. Their contents were read by inserting the roll on an axle and pushing a lever which released a spring when you wished the roll to continue.

In the morning we enjoyed breakfast in much the same manner as we enjoyed the dinner the night before,

after which the Doctor began to collect those things which he had taken with him. He collected first a goodly supply of science books or rolls, and a large sample each of all the elements, especially that of ranosium, the wonderful magnifying element, and radium.

"We must take advantage of our good fortune," he said, "the chances are a million to one that we shall never find another planet advanced so far along in civilization."

It was not long before we found that the penetrator was not half large enough to hold it all. Wondering what we could do about it, we were wandering down an avenue with the Astronomer, when we came across a dwarf. In a flash the Doctor saw his chance. With the Astronomer as interpreter, he asked the dwarf how he would like to become of normal stature. The dwarf became indignant, and asked us to stop making fun of him.

"I really mean I can restore you to normal size," insisted the Doctor.

The dwarf, finally convinced that we were not joking, consented to try anything once, if we were sure it wouldn't hurt.

After again unloading the ship of everything but the radium, the Doctor swore the dwarf to secrecy and showed him how to make the ball larger and how to stop it again when he became of sufficient height.

Nervously he hopped in and shut the door. He could easily see us, but of course we could not see him. Then we anxiously watched it expand, fearing that he might become over ambitious. He took no chances on still being too small for he again emerged, a seven foot giant.

The penetrator was now large enough to hold everything, and we hastily piled it all in and still had plenty of room for twice as much. The dwarf assisted us gratefully, and presented a comic appearance indeed, with his big fat baby face, for as he increased skyward he also increased laterally.

About midday we had a violent thunder shower, which was possible, because the necessary elements were not among those lacking, for as you will remember, nitrogen, oxygen, and argon, of which pure air is composed and hydrogen, the first element in water (oxygen being the other) (H_2O) were among those which both worlds possessed.

THAT afternoon the Astronomer ushered us to the woods after the earth had been freshened by the rain. The electronic fowl, as the air was cooler, were singing at their loudest in numerous complicated airs.

To be walking through a forest of brown leaved trees in a paradise of many unusual birds, and with a hundred strange plants growing about you, is something to live for, especially in a forest free of insects as this was.

"Have you no insects?" asked the Doctor.

"We did have, not many years ago, but we have invented an instrument which kills insects by sound. We have an element called, cita, which can be made to vibrate as many as seven hundred thousand times per second. When set to vibrating, all the insects within a radius of two miles die, except those which are covered with earth. This leaves enough for the birds."

There were trees resembling evergreens, maple, oak, and birch, and many others which did not resemble any variety I know. One tree had curious octagonal leaves, three of which I have preserved to this day. We collected seeds for as many trees as possible. There was a wood mouse with a tail about thirty inches long.

At a farm house of the regular dome type, we saw many milk-giving animals, much like the goat in appearance, which were also used to pull the plough.

That night we saw the sunset from the great temple which we first saw from the sky. The sunset was not nearly as beautiful as the interior of the temple, which was constructed entirely of white marble. The first thing that caught our eye as we entered, as it naturally did for anybody, was a great fountain in the center, which hurled its sparkling waters two hundred feet in the air, which then fell tumultuously, as a mighty cataract, into a giant bowl, from which it overflowed into a pool below. Inside, as well as outside, great marble pillars, forty feet in diameter, reached gracefully toward the great ceiling, four hundred feet above us. The very base on which they rested was twenty feet thick in three steps. Between the several pillars were titanic statues of ingenious sculpturing, representing life, knowledge, music, etc.; but you will understand they were not Gods, for they worshiped the one unknown God, just as we do. He was beautifully represented by many lights at one end of the building, which were directed in many colors upon a mirror from hidden sources. This temple was the prime temple of the whole nation and was thus erected purposely in the capital at a great expense.

The country, we learned, was a huge island about the size of the United States and was inhabited by over a hundred million people. The capital was the largest city, housing over seven million alone. The great highway led to another large city, known as Palmita.

The next morning we were up bright and early to take photographs of the city as an everlasting souvenir of that wonderful experiment. Pictures from the air, about thirty of them of the city alone, were taken with great care to get the light exactly right. Pictures of the air-ships, temple, volcano, canals, ships, forests, roads, houses, buildings, people, vehicles, birds, animals, sea, and all forms of nature were photographed. It took us nearly a week to secure them all.

The seventh day we were there the Astronomer took us out on the sea to an island which was about ten miles in diameter, and where he told us a collection of animals had been gathered from all parts of the world—a form of outside zoo.

"The animals are so vicious," he said, "that they have built a network of bridges across the island from which the animals may be safely observed. They are all allowed to run free, except those which are liable to prey on the weaker, who are isolated from the rest."

They were taking no chances I thought, for the bridge proved to be about forty feet high.

"Good Lord! Is that alive," exclaimed the Doctor, as we viewed the first animal. It was a——? At least it was amphibious.

"A Brontosaurus! Or I'm not Dr. Longhorn."

"A which?" I said, surprised that anyone could guess a name for that.

"It's prehistoric; one of the largest of the amphibious dinosaurs."

"The beginning and the end, together," I said, "just another knock at evolution."

The brute was indeed large. He was sixty feet long and about fourteen feet high. That same day we saw a Diplodocus, and the Morosaurus, both something like the first; a Triceratops, he of the three-horned face; The Horned Ceratosaurus, who walks erect, and a

Stegosaurus, the armored dinosaur; all hideous creatures of the past. There were many others, some even more hideous, but most of these never existed on our earth. The Doctor was so overcome that he even arranged to secure a young Brontosaurus to take home with him.

I shall never forget the trip to Palmita the next day, at the speed of a hundred and fifty miles an hour in a little egg-shaped vehicle, which the Doctor later jokingly called the omelet. We went for the sole purpose of securing photographs, and by a lucky stroke of coincidence we took only the stationary camera. The only difference between the two cities was that Palmita, being the older of the two, lacked the elevated cross streets.

We started back that afternoon, and even though the distance was sixty miles, I knew we would be back in twenty minutes. The sun was halfway down in the west and the sky was absolutely cloudless. It was a perfect day. Then about ten minutes after we had left Palmita, (when we were about half way) we noticed a great black cloud towards Tenonia which we mistook for a thunder cloud. Then an astonishing thing happened. A hole avalanche of automobiles, headed for Palmita, passed us with a great roar that would make ten thousand cannons sound like a door slam, at the rate of about three hundred miles per hour. Thousands of them.

"The volcano!" shouted Lama, (the Astronomer). "The volcano has awakened!"

Had the Astronomer lost his head? He was driving like mad towards the thing that was causing millions to flee in terror.

"Stop!" shouted the Doctor. "Stop for your life! If those cars should jump the lane, we should all be instantly killed."

But Lama only urged the car to greater speeds.

"If we should stop now," cried Lama, "you would be forever isolated from your home."

We realized the truth with sinking heart, but could we let this man sacrifice his own life just for us? Neither the Doctor nor I dared speak for the other, and it all happened so quickly that we hardly knew what to do. We both looked despairingly at each other, and our hands met understandingly, as I detected his faint but determined nod. Simultaneously we grabbed his shoulder begging him to forget us, and protect himself, but with hair flying in the breeze and teeth set, he did not answer; he merely continued at the terrific rate of three hundred miles per hour; and this was the man who had so recently dreaded the thought of leaving this world.

The very thing the Professor dreaded, happened. An automobile in the opposite alley suddenly skidded and turned over, and nearly thirty automobiles close behind it piled up on top of it, all going nearly three hundred miles per hour, with a roar that numbed the senses. More fortunate cars were crowded into our side of the road and nearly forced us into the cement wall. Skilfully we jumped the sidewalk, and missing the wall by hardly two inches, we continued upon the walk for over a mile, which fortunately at that time was otherwise not in use.

SIX minutes after we discovered the smoke we were at the outskirts of Tenonia. Here we found thousands of bewildered pedestrians crowding the streets and making them impassable, for there was already an inch of ashes upon the streets. The dust was terrible, and we soon found that not only dust was falling but red-hot ashes and cinders, some an inch in diameter.

Unable to proceed farther in this direction, we entered a ramp and mounted to one of the circular boulevards. Here we found it much easier to progress with the hope in mind that we should eventually find a less crowded main street. We proceeded slowly this way for over a mile, ever towards the flying platform and the fury of the volcano, and then we suddenly came upon a new difficulty. As we were crossing above one of the main streets, a giant boulder suddenly plunged out of the sky and fell right through the bridge, so close to us that we were forced off the bridge and into the crowded street below, and the egg became a real omelet of twisted steel. No one knows how we crawled out of that wreck alive, and the truth of it is, we all escaped with only a few scratches and bruises.

Ten blocks more through a whirlpool of red-hot cinders before we ever could be called safe; ten blocks of burning hands, face and eyes, and blistered feet. The sun was now blotted out by that great black cloud that seemed to mean destruction to all, and which issued from the fiery mouth of an enraged volcano, dimly visible through the shower of fire and ashes. It seemed to be vomiting all Hades down upon the beings of a peaceful city. How those red-hot, sharp-edged cinders cut and burned our bruises! The air was heavy with dust that made us gasp for breath, while our eyes burned until they were almost swollen shut. Nor were these tortures our only difficulty. We, out of the millions, were the only beings who were inbound, and so we had to fight a mob of pushing, shoving, panic-stricken people, blinded into insanity and intent only on saving themselves from what they supposed was the end of the world. Feet seemed miles, and minutes seemed hours; and thus urged on by the will to succeed, fearful lest we should fail after all Lama had risked, we finally covered the first dreadful block, and reached the protection of the first culvert. Here we found many who had come so far to die. We only dared hesitate for a second with so much before us. As I could only just see Lama ahead, I was about to suggest that we hold on to each other, but with sudden fear and apprehension, I discovered that the Professor was not with us.

"Doctor Longhorn!" I shouted. My words came hot and distorted. Then Lama sensing that something was wrong, assisted in the useless shouting. I shuddered to think of the Doctor out there in that hell alone. Another boulder, such as only the worst of volcanic eruptions could produce, crashed not thirty feet ahead of us crushing all around beneath it, causing the earth to tremble for acres around. I marveled at the physical disturbances that could produce such violence.

Frantically we retraced our steps in search of the Doctor, but without success, calling as we went with half choked lungs. In that almost inky blackness pierced only by the penetrating red light of the red-hot cinders, nothing was visible beyond a yard. The roar of the distant volcano and the rain of ashes drowned out what little sound we were able to produce. I could neither hear nor see Lama, but as I felt his friendly hand in mine, I gripped it like a vice, for he was the only friend left to me. I felt him tow me gently on again towards the penetrator and safety, and through the fire I read his mind messages as if nothing was between us.

"We must go on," he said, "It is our only chance. If the Doctor is able, he will do the same."

Those words, "If the Doctor is able," bit into me. It

never occurred to me at the time that even if we did reach the penetrator, all was lost without the Doctor, for he had the keys, and I did not know how to control the machine.

"Oh for light and water," I thought.

As if in answer, a bolt of lightning cut the dust-filled atmosphere quite close to us; and with it came a clap of thunder. Though loud, it was hardly audible above the din and roar of its superior disturbance. Such a storm without lightning was physically impossible. There was no water, with it, though even if there had been, it would have boiled before it hit the ground.

When that disappeared, we were conscious of the presence of a new light. A building was on fire about two blocks ahead. A great cinder struck me in the back and knocked me down. From then on consciousness became a serious effort. Time seemed to pass more slowly, for we were just now passing under the second culvert, overcrowded with people from one end to the other of its hundred foot depth. More thunder and lightning, more lighted buildings, more shrieks and cries; yes and more ashes, tons upon tons of it; and we had eight more blocks to go.

If anyone could wish for water more than those who lived in that evil hour, that person is dead beyond assistance. Through those streaks of fiery cinders, which scratched as well as burned, which penetrated the lungs and singed the hair; through the driest of heat and the coarsest of dust; all these and many other tortures were endured even to death by the inhabitants of that great electronic city. Here and there, we stumbled across abandoned automobiles, at the place where they had been stalled by the depth of the cinders, and whose occupants had taken to flight on foot, much as we had done.

Back in '79 A. D. a milder volcanic eruption buried Pompeii, which is skilfully described by Bulwer-Lytton, in his novel "The Last Days of Pompeii." If Bulwer-Lytton's description was accurate, I, as I sit here, have actually lived under a disturbance which was without the least exaggeration three times as violent, incapable as I am of describing it. Yet how incidental this all was in the time revelation of our great Universe. That which seemed as endless hours and which were endless hours, were after all only fractions of a split second. While we were thus enduring such indescribable hardships, our friends at home, if they were reading their newspaper, had not even enough time to read a syllable. If he had been writing, his pen would not even seemed to have moved, while we were exposed to the wrath of the great volcano. Live through that trillionth of a second we must, though it take hours.

I SHALL never forget the faithfulness of Lama, the electronic Astronomer. This man when he could easily and justly have saved himself, sacrificed his life on his own world so that we might live on ours. Into the furnace he plunged; that furnace that he knew was hell-fire itself; enduring almost impossible tortures at the risk of his life, and all for what end?

Hope turned to despair as we continued without a trace of the Professor. Vainly we searched, but even if there were no fire and brimstone, there would still be the mobs, and hope of finding him would be rare. What chance had we, then, as things actually existed?

Half consciously we reached the protection of the third culvert, where we found hundreds who had given up all

hope and had collected here to die, shouting piteously in their delirium for water.

"Musa! Musa!" (Water! Water!).

We must not hesitate. A second might mean death. The light from the burning city now made it much easier to see, but we were in constant fear of being crushed beneath its crumbling walls as greater haste was impossible. Earth tremors increased the danger, coming frequently and violently. There were at least nine inches of ashes to resist our efforts and walking became almost impossible.

More hours seemed to pass, and then the fourth culvert, with still six to go and the city buried in ten inches of ashes already. This culvert was at the intersection of two of the main streets and was incidentally equipped with a — was it a fountain? We rushed madly towards it, dipping our entire heads blindly into it, over eager for its cool and refreshing contents. For a brief second I felt its icy coldness against my cheek. It hurt! It was burning! What I at first had supposed was the coolness of the water, was only a red-hot coal against my face. The disappointment was almost unbearable. It was the fiery burn of molten ash, which had quickly dried out the fountain. Behind us, an old man cackled with laughter, hysterically.

"Gisa baspeno warna parsi de consta parchi," he mocked us in his native tongue. The poor fellow had undoubtedly become insane.

The block, which lay before us, was directly below the burning mass of Tenonia's highest building, a great thousand-foot skyscraper, the heat of which was unbearable. It was only the will of success before starting that carried us safely past it, walking, as it were, in a stupor of blindness. I cannot describe anything which occurred in that block.

The fifth culvert was not unlike the others, crowded with lifeless forms. The ash was now a foot deep and seemingly as hot as melted lead to our unprotected feet, the shoes of which had long since been robbed of their soles.

We had nearly completed the struggle with time down the next block when the greatest earthquake arrived. We were all thrown flat on our faces as a great yawning chasm opened up before us, not a yard away, which swallowed up a truck-load of people who were struggling down the avenue. Then with a second crash the jaws of the earth closed over them, as if nothing had happened. We turned our faces away from that dreadful sight as we arose to our feet in time to witness a catastrophe a thousand times worse. A thousand burning feet of fire, swayed, toppled and fell, with a roar that knocked us senseless with inconceivable force. Fortunately, by the guiding hand of Him who creates, it fell diagonally away from us, but the shock which followed must surely have been felt in Palmita. It left a burning mountain of molten rock and twisted steel, an impassable barrier to all those who were so unfortunate as to be on this side of it. Or was it by the hand of the devil that so many were trapped who otherwise would have been instantly and mercifully killed? This great tragedy killed all our hopes of ever seeing the Professor again.

Blindly we tripped over the dying fatalists of the sixth culvert. At the opposite edge I tripped over a form which sent me sprawling headlong out into the ashes. I turned to see who the other unfortunate victim had been, and retraced my steps until I stood directly above him. A

flash of lightning came to my assistance lighting up his unconscious but smiling face. Through mingled joy and despair I realized that it was the Professor. I clutched at Lama's sleeve. Without another word, we seized him between us, and shielding his face from the fires, we plunged on, calling his name joyfully. Had he been conscious, he would have told us to leave him behind and save ourselves, but for this reason I am thankful that he was not, for he shall always know that we did what we did because we wanted to do it.

Although Lama is to this day unwilling to admit it, I frankly believe that there were times in that next three blocks in which he must have dragged both me and the Doctor with him, for there were many moments of which I have no recollection, even though there were many others which I shall never forget, even in my happiest hour. They shall haunt me through life as they haunted me then.

I know not how we finally arrived alive at the half-buried flying field, which had every good reason to be deserted. How we welcomed its friendly protection, its unlimited water supply (though it seemed about to boil) and its other comfortable resources. Our baby Brontosaurus was nearly half dead with fright, as might naturally be supposed, but he was soon quieted when we entered. What a relief it was to step out of that bed of hot ashes nearly knee deep into a dust-proof protector!

Many precious and anxious moments rolled by before we actually brought the Doctor back to consciousness, nor was he slow to react. A half a minute after his recovery we were off into space. Five miles miles further we found the ashes as thick as ever, and we were fifteen miles high before we could actually look down upon it

all. Here we found the sun again, a great fiery ball in a myriad of tiny stars. Curiously we looked down upon the great city of confusion. Lama was weeping silently. Thirty miles from Palmita marked the dividing line between light and darkness.

There remained then, nothing to do but set in order those things which the earthquake had so rudely misplaced. It was then that we made a remarkable discovery. The moving picture camera had so fallen, that the button which started the automatic mechanism had been released and a whole roll of film had run through undeterred, and as the lens was on the outside of the ball, a pictorial record of the whole eruption must have been taken.

That very night on which we started our remarkable adventure, we again saw the laboratory clock. It read, I am positive, no later than (8.26:30) P. M. or a half minute after we started.

* * * *

When finally our picture was thrown upon a screen back in the laboratory, we saw the catastrophe again reproduced as it had happened. We saw the giant skyscraper topple and fall; we saw a thousand titanic burning torches blurred by the great rain of ashes. It was then that we realized what we had gone through that night, in that trillionth of a second, when our minds were numbed by reality.

As a conclusion I might add that Lama is happy, faithfully watching our red sunsets every evening, and studying our stars and green vegetation in concealed wonderment. However, there are sad moments when he remembers that his people all perished countless millions of years ago.

THE END

Calories in the Boarding House

Air: The Minstrel Boy to the War Has Gone.

The boarding house star to his dinner has gone.

In the dining room you'll find him.
His napkin white he has girded on
And the waiter stands behind him.

"Waiter, this soup is made of hay—
And you're very shy on chicken!"
Says the waiter, "This is calorie day,
So please refrain from picking.

"There's a thousand calories on your plate
Enough for half a day,
You're getting very peculiar of late—
Get busy, for I can't stay."

The boarder fell for the calorie talk
And his dinner he managed to swallow.
But he might as well have been eating chalk,
And the calories left him hollow.

Lonecoast