THE FLYING SHIP.

A Continuation of the Narrative by Jules Verne of the "Journey to the Center of the Earth."

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Professor Hardwigg's reception was in every sense of the word most flattering. Long continued applause only gave way to an enthusiastic individual in a red shirt who proposed "three cheers for the old lava sharp," and when they were given, with a tiger, he drew a revolver from his belt and fired a fusillade through the window. Silence being at last secured, the Professor read his paper. The following are extracts:

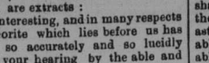
The most interesting, and in many respects unique, meteorite which lies before us has been so fully, so accurately and so lucidly described in your hearing by the able and eloquent Professor Fo Garty, so far as facts warrant positive affirmation, that any attempt to add to that information by one so humble as myself would be an impertinence. ("No, no," from Professor Fo Garty and great applause by the audience.) The duty which has been devolved upon me this evening is to leave the realm of absolute knowledge for that of theory and speculation—speculation certainly warranted by strong probability and supported by what seems to me irrefragible reasonings.

I shall attempt to-night, however feebly—("Hear! hear!" from an old gentleman with a tin ear trumpet)—I shall attempt to night to answer the questions:

1. Does this meteorite bear marks of designs?
2. Whence did it come to us?
3. How came is hither?
4. With what intent did it come?

(The Professor here drank a glass of water amid the wildest applause.)

After giving most accurately, the chemical composition of this heavenly visitant, Professor Fo Garty told us that in plain English it was composed of iron and aluminium. Now mark well that the aluminium is almost chemically pure, and the iron is simply common bars of wrought iron disposed in layers, closely adhering as the result of partial fusion, and that the aluminium has bound the whole together by flowing into the interstices and there hardening. I wish also to direct your attention once more to the form of the meteorite. It is a hemisphere, the flattened surface being more irregular than the rounded portions. It is possible for a meteoric body, by the operation of some unknown natural law which we poor short-sighted creatures are accustomed to call a freak of nature, to assume the form presented by this body. Neither can the presence of either iron or aluminium in a meteoric body surprise us, nor the union of the two. Many remarkable meteors are in existence containing both of those metals. But that now before us is the first in which the aluminium has been found separated from earthy matter or in which the iron has been found to consist of rolled or hammered bars—fibrous in texture and regular in form—in a word, common wrought iron. (Applause.) I assert without fear of successful controversy that the metallic body now before us was fashioned by human agency. (Tremendous applause). I will go still farther and affirm that these bars bear signs intended to convey ideas from one intelligent being to another. On one of the topmost bars are plainly to be seen characters which I have had transferred to canvas by a skillful and conscientious artist, that all in the room may see the wonderful message—for message I cannot doubt it to be—from the dwellers on another planet to those on the earth. (Great sensation, during which a large canvas was raised bearing the following characters:



Here the applause was absolutely terrific and it was some minutes before my uncle was able to proceed with his lecture.) I have little doubt, my friends, he continued, at length, that if the meteor were carefully taken to pieces, other characters would be found; but it has, no doubt wisely, been decided not to break it up at present, and we must content ourselves with endeavoring to understand so much of the message as we are able to see.

Before I proceed to consider that branch of the subject, however, let me lay before you the reasonings which have suggested themselves, and the conclusions I have been able to reach with regard to the origin and intent of this message from another world.

[The Professor here explained very fully the processes of thought, together with the supporting facts, which led him to his conclusions, which were as follows:]

I am, then, irresistibly led to the belief that this is one half of an aggregation of iron bars originally disposed in spherical form; that these bars were inclosed in a case or envelope of aluminium, that they bore characters in tended to convey a message to us; that the sphere so composed was projected by means of some mighty force from its native place, to and this earth; that on reaching the vicinity of the earth, the friction of our atmosphere melted the aluminium envelope and partially se the iron bars; that the globe then split in two, one half being for the present lost. If it has fallen into the neighboring great inland sea, it is to be feared that it will never be recovered.

Our next inquiry is—Whence came this heavenly visitant? When an answer must be wonderful. the least wonderful is naturally that we seek first to give; and if this ball of iron was sent from any extra-mundane sphere is it not most probable that it came from our satellite, the moon? I am confident that it did not. There is little if any reason to doubt the conclusion reluctantly reached by all competent investigators that the moon is not only uninhabited but uninhabitable. The nearest of the planets to our earth are Venus, Mercury and Mars in the order in which I have named them. I do not take the asteroids into consideration, because the reasonings which compel us to think the moon uninhabited, apply with equal cogency to all the smaller interplanetary bodies. The meteor, then, did not come from these. Nor did it come from either Mercury or Venus. A simple fact proves so much. Without cavil, at the time the meteor must have started on its mission, those planets were both in opposition to the earth—that is, the sun was between us and them; not directly, it is true, but so nearly so as to draw into itself any body sent from either of them to us.

Our nearest neighbor external to our orbit is Mars. Spectrum analysis demonstrates that iron enters largely into the composition of that planet, and also that aluminium exists there in considerable quantities. The most careful telescopic examinations show Mars to be fitted for human habitation, while it is doubtful in the extreme if either Jupiter or Saturn is so. Of the remote members of our system we know nothing. I conclude, then, that if the iron letter, one half of which lies before us, was projected from another planet, that planet, with scarce a shadow of a doubt, was Mars. (Great and long continued applause.)

Remember, my friends, that we are dealing with probabilities only. But, at the same time, it is but fair to say that those probabilities are so congruous with each other, so fortified by facts, and so consonant with reason and undoubted scientific results, as to amount to almost a demonstration.

It would but be wasting your time and trifling with your intelligence to speculate at length as to the motive which prompted the sending of such a missile from one planet to another.

The objection may here be raised, and is not without cogency, that the people of another shere could have little hope, even in the event of their message reaching the earth, that its character could be read and their meaning understood. The Egyptian hieroglyphics puzzled the world for centuries, and it was only by a happy guess and the discovery of the trilingual inscription on the Rosetta Stone that it was at length discovered. Assyrian and Babylonian inscriptions have been read with less fortuitous assistance; but even he recognate dialects were known. But the Central American stone carvings and the Etrurian inscriptions are absolutely undecipherable. How, then, could we be expected to read a message, when not the slightest clue exists to the sounds intended to be conveyed by the characters or the meanings attached to the sounds if they were known? But there are some sounds of universal significance. A single upright stroke is the universal symbol of unity of man, and of self. The circle represents the sun, the human eye, vision. The triangle conveys the idea of a trinity in unity everywhere associated with the idea of Deity—in the Indian Trimurti, as in the Christian trinity—the idea of the Creator, the Preserver, the Destroyer. A waved line has always been used to indicate water, or the sea. A crescent can possibly mean nothing but a moon. And the branched or leafed twig of a tree can be understood only to represent the fruits of the ground. Now, all these signs we have on this bar of iron. (Tremendous applause, during which the vice president, wearing the red shirt, fired another volley from his revolver through the window.) Other characters were undoubtedly engraved on the other bars which are visible; but, alas, they have been quite obliterated. But the message which we can see, and which, if I am not self deceived, we can read (great applause) is, if we leave all questions of divine revelation unconsidered, the most important and interesting ever looked upon by man. (The Professor then went into a long, learned and able dissection of each character of the inscription. It is not necessary to reproduce this part of his lecture. It is sufficient to say here that by the crescent he understood our earth to be meant. As Venus appears crescent-shaped to us, so the earth when nearest appears crescent-shaped to the people of Mars. Amid the most solemn silence the Professor concluded by saying: It is with confidence little short of certainty, then, that I affirm so much of this message as we are yet able to see to mean this: "In the name of the One, the Trinity in Unity. We, the dwellers by the mighty waters, on the round world to the dwellers on the crescent-shaped world. We subsist upon the fruits of the earth." [Long continued and enthusiastic applause.] How much more we may be able to decipher—how much more we may be able to understand when it shall be deemed wise to dismember this iron epistle, it is not the part of wisdom to anticipate. For the present let us rest content in the belief that we can at least read the invocation and the address of the first message ever received upon this earth from any created beings dwelling beyond its confines.

As Professor Hardwigg resumed his seat the audience rose en masse and thunders of applause deafened us all. A fusillade of pistol shots was scarce heard through the din, though every pane of glass in the church was broken. Several motions to pass a vote of thanks were entirely inaudible, and at last the red shirted man and about a dozen others lifted my uncle upon their shoulders and bore him in triumph from the building. My worthy relative appeared to feel some apprehensions for his personal safety; but I knew enough of the kind-hearted but enthusiastic creatures who had him in their hands, to know that he was quite safe, And, indeed, I was entirely powerless to aid him, had he been in the most deadly peril.

As the crowd receded from the platform I was at last able to approach the glass case and inspect this wonderful meteor. Conceive my astonishment when I beheld the iron bars which had so mysteriously disappeared from my crucible in the back yard of my uncle's residence in Hamburg!

CHAPTER III.—The Disappearance of the Meteor.

The discovery was so truly astounding that for a while I was speechless. Hastily quitting the church, I sought the shore of Lake Michigan, where the gentle murmur of the waves upon the sandy beach would, I hoped, soothe me into some connected train of thought. My first concern, let me confess it, was for the Professor. He had come four thousand miles to inspect a meteor. He had established and elucidated a theory in connection with that meteor—had even read and interpreted a message as one from the inhabitants of another world His speech was already in type. In the morning it would appear in a thousand journals in Europe and America. And now by a single word, I was about to demolish his theory, turn his message into ridicule, shiver his interpretation to atoms, blast his reputation as a scientific man and make my noble, generous, loving uncle an object of ridicule and contiumely to the whole world

No. Perish the thought, I would seal my lips and never divulge the secret. Mine at least sho uld never be the hand to wound the generous heart in which I had found refuge.

But, then, the discovery would surely be made sooner or later. Some keen eyed practical man would assuredly discover the truth before a great while. When the bars should be separated their real origin must be apparent. Would it not be better to open the Professor's eyes now, that he might at least take no further step in error? Yes, that would be best. His wisdom, no doubt, would find a way out of the false position he had got into. I made up my mind to tell him that very night.

Then the question arose, How could I make my explanation? The fact seemed more wonderful than the theory it destroyed. Reference to dates showed that the meteor fell at Evanston on the very night of its disappearance from Hamburg.

At all events, the revelation must be made. The hour was late when I reached the hotel. A noisy crowd was drinking, singing, shouting, arguing, gesticulating and fighting in the bar room; and from snatches of conversation heard as I passed through, I learned that after the crowd had carried my uncle to the hotel on their shoulders, a band had serenaded him, and that he had made a speech from the balcony of the hotel.

On entering the parlor we occupied in common, I found the Professor reclining upon a sofa very much fatigued, but in a very happy frame of mind.

And must mine, I said, be the impious hand to inflict pain upon this great and loving soul?

Yes! The tender hearted surgeon may pity the sufferings of his patient; but he does not abandon the operation for all that.

"You are late, my boy," said my uncle, as I entered.

"Yes, truly, Herr Professor," I replied. "The day has been one of anxiety and excitement, and I have walked on the shore to calm my feelings."

"Learn," said the Professor, "to be calm at all times. The philosopher allows nothing whatever to disturb his tranquility. The tempest may rage, the thunder may crash, the firm foundations of the everlasting hills may be shaken, but the truly philosophic soul preserves its equilibrium, and smiles serene amid the convulsions of nature.

"With regard to this so-called meteor—this iron epistle from the planet Mars—"

"It never came from Mars," I said hastily but firmly.

A portentous gravity suddenly fell upon the Professor. His countenance assumed a severe aspect, and he stepped toward me as he asked:

"You heard my address?"

"Every word of it."

"And you still think me mistaken—that there are facts which I have overlooked and considerations that have escaped me?"

"I do."

"You cannot think the meteor came from our moon?"

"No."

"Nor from Mercury or Venus?"

"No."

"Scarcely from one of the asteroids."

"Nor from one of the asteroids."

"It, then, it came from none of these, nor from the planet Mars, pray whence did it come?"

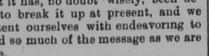
"From England!"

"From England?"

"From England!"

As one turned to stone by some damned Circean incantation, my uncle stood motionless, his left foot advanced, his right hand raised, his eyes staring and stony, his neither jaw dropped, his mouth opened in the act to speak, but the words frozen to silence upon his lips.

Before he could recover himself I went on: "See, here is a lithographic copy of the inscription as it is—faithful, I have no doubt. With this pencil I restore the letters as they were before the fire distorted and partly obliterated them, and now they appear thus:



LOW MOOR.

For a full minute my uncle glanced at the inscription in silence, and then his indignation blazed out.

"Disgraceful wretch!" he cried. "Viper whom I have warmed in my bosom! Base underminer of honest men's reputations! Get you gone! Depart! Unnatural perjured villain! I disown you! I cast you off! I reprobate you! Get you gone! Never look upon my face again!"

With a bound he dashed from the room and slammed the door behind him with a crash. For some time I stood petrified; then I followed and tried to open the door of my uncle's bedroom, but it was locked.

I threw myself upon the sofa, and am not ashamed to say I wept. Bitter, angry, rebellious, sad, sorrowful and repentant tears flowed from my eyes. As I lay there a low cry came from another room, and I remembered that there were other claims upon me than those of Professor Hardwigg. I entered my wife's room and learned that the noise had wakened Gretchen and the baby; that the latter with feeble little cries was seeking nourishment, and that Gretchen was lulling it to rest by softly singing the tender little song she had sung while making the mysterious garments at home in Hamburg.

"It is well," I soliloquized, "that nature's rills flow not all from one fountain. My uncle has cast me off; then will I devote my life to my wife and child. The means upon which I depended for support have been taken from me; the more need to labor for their support, and to find relief in honest toil from the grief of banishment from my home and the face of my second father. And here is a heavenly visitant more wonderful than yonder heavenly visitant more wonderful than yonder heavenly visitant more wonderful than yonder mass as lump of iron, even had it come from some exterior world. To the study of him will I turn, and rather seek to engrave inscriptions upon his tender mind than to read riddles witch betray and solve problems which contain nothing but vanity and vexation of spirit."

Here the tyrannical nurse took me by the shoulders and put me out of the room.

I retired to my couch but not to sleep. After tossing restlessly to and fro for several hours, dawn appeared, and I rose to walk again on the shore of the lake. Gretchen and the baby both slumbered, lulled by the melodious rumblings which at regular intervals rolled sonorously from the nurse's capacious nose.

On the street I encountered a newsboy and bought a paper containing a full report of the last night's meeting. I was sick of the whole business, but I glanced through it. At the bottom was the following:

"Postscript.—At an early hour this morning Professor von Hardwigg took the night train for the west. It is thought that he is gone to Arizona to examine a mysterious meteor which has recently fallen there, and which it is hoped may prove to be the remaining half of the one now in our midst."

After that I could learn nothing of his movements. The papers had no accounts of him and no message from him ever reached us.

Gretchen's health of course detained us at Evanston. I was in a most wretched frame of mind, and my only solace was to hold the small edition of myself, as I was at times permitted to do, and watch the curves and angles of his features when he began to cry. At other times I would wander upon the lake shore and often at night I was attracted by some overmastering impulse to the building in which that infernal meteor lay.

"I wish to God!" I cried angrily, "it was safe at the bottom of youder lake."

The petulant thought suggested the act. Why not throw it there? If it were lost to sight, no discovery of its real character could ever be made, and my uncle's name would at least never become a target for the jeers of the ignorant or the poisoned shafts of the malicious. The night was dark. Boats in plenty lay in a little creek not far from the spot. I would steal the meteor, row with it out to deep water and leave it at the bottom of Lake Michigan. Like a guilty wretch I stole around the building to a rear window, where, putting my hand through a broken pane, I loosed the fastening, and without further trouble gained access.

I do not envy the burglar his sensations. I was reasonably secure from detection, a d, if my act was illegal my motive was good. Yet I felt horribly frightened. A mouse which scampered across the floor made my heart near me chilled my blood with fear. Rallying my courage with an effort, I made a dash at the platform, removed the glass case, seized the meteor and leaped with it into the open air. It was heavy and tasked my strength to carry it, but I ran all the way to the creek I have mentioned, found a boat containing oars, and in a few moments was out upon the bosom of the lake. The night was dark as Erebus, and a gentle rain was falling. I could not see the gunwale of the boat, but I managed to guide myself by steering directly away from the lights of town. At a distance I estimated to be two miles I ceased rowing, picked up the lump of iron, bestowed a hearty curse upon it, and dropped it into the water. A little splash and a gurgle marked the plunge, and a great sigh of relief escaped me as I knew that now the evidence of my uncle's error had forever disappeared. Quickly I rowed back and sought my hotel, where, for the first time since the night of the lecture I slept soundly.

A meeting had been called for the following evening, at which several other learned gentlemen were to give their views of the meteor. At an early hour the house was crowded; and soon afterward, the officials and savans marched upon the platform, when lo! the meteor was gone. Instantly a hubbub arose. Shrieks and shouts were heard. Cries of foul play were audible in every direction. The whole audience rose to its feet. The vice-president in the red shirt assailed the honorable Buggins and blacked both his respectable eyes, when a policeman hauled the red shirted man to jail. The scientific men struck out by the back way. The audience put out the lights, tore up the seats, almost demolished the church and then went home. Next day the savans quietly packed their clothes and stole off, each his several way, and to this day the world has no knowledge of what became of the mysterious meteor.

Chapter IV.—The Reconciliation.

In another week the physician considered it safe for Gretchen to travel; and, as I had no love for Evanston, and no wish to remain there, we instantly took train for New York.

I had formed no plans for the future. It would be necessary for us to go to Hamburg first of all to arrange some business matters. And I had resolved to seek a final interview with my uncle, if, indeed, he had returned home. If he remained obdurate, it would then be time to consider what next to do. The day succeeding our arrival was that fixed for the sailing of the steamer Hohenzollern and on her we took passage.

As Gretchen was much fatigued, she at once sought her state room when we went on board, and I went into the after cabin to look after some baggage. As I stood near a state room door it was suddenly opened from within, and at the opening appeared—pale, thin, haggard, the very ghost of a face—the countenance of Professor von Hardwigg. He at once closed the door before I could address him. He refused to open it when I knocked and implored him to let me enter, and when I tried to open it I found it locked.

I sent repeated messages by the steward; but he informed me that the Herr Professor would see nobody; and next day I was told that he was very ill indeed. He suffered grievously with the mal de mer, and, having already been weak when he went on board, the ship's doctor considered his patient in a state which at least warranted grave apprehensions.

Fortunately, the sea, though not smooth, was not boisterous; but as we neared the English channel the breeze freshened to a gale, and the gale to a storm. The sea was rough in the extreme; and, to add to our troubles, we were enveloped in fog, which made navigation more hazardous than ever. The engines were reduced to half speed; additional watches were put on duty, and the hoarse fog horn was sounded at frequent intervals. This state of things lasted a whole day, and in the forenoon of the second day, worn out with watching and anxiety, I lay down to sleep.

Suddenly I was awakened by a loud noise and cries of distress; and, running upon deck, I learned that the ship had gone ashore on the English coast. The main features of our situation were, first, that great waves were beating down upon the vessel with tremendous violence, threatening to dash it in pieces every minute; and, second, that we were close in shore, that the landing was good, and that if the vessel held together there would be no serious difficulty in getting the passengers safely to land.

After a single moment of confusion and dismay our gallant captain had restored discipline and everybody was working to save human life. Some sailors leaped into the angry sea with a rope, and, after a terrible struggle with the waves, succeeded in making it fast to a rock. Upon this a large basket was run, and already the order was given to bring the women and children, and that no man whatever was to be sent ashore till all the weaker ones were safe.

In this hour of peril my darling Gretchen proved herself a heroine. No cry of fear escaped her, and as I put her into the basket, with the little one close clasped in her arms, she smiled as she gave me a hurried kiss. Then there was a wild dash through the tossing spray, and in another moment she was driven to the place of safety, where strong hands helped her to the friendly land and led her away to a place of shelter.

I felt little anxiety for myself, though the vessel was trembling from stem to stern at every blow of the mighty waves. Soon the word was given for the male passengers. I was burning with impatience to see how Gretchen and the child fared, but was magnanimous enough to allow most of the passengers to precede me especially those who were old or feeble. At length I reached the land, and was overjoyed to find my dear ones quite safe and comfortable. The hospitable people had opened their doors to all the unfortunates, and all that zeal and kindness could do was attempted to make the disaster as light as possible.

By this time night had come. I went down to the beach to see how matters fared there. To my great relief, all the passengers had been got ashore, and the crew was now coming off. It was time, for the vessel was beginning to break up.

And then, for the first time, the thought of my uncle came into my mind. Had he been saved? I enquired of many, but none could tell me. At this moment last of all the captain came ashore. Eagerly I asked him. Alas! He feared it was too true that the Herr Professor had been forgotten, and that as the ship was fast going to pieces, he must perish.

"No, no!" I cried. "I will save him."

"Impossible!" said the captain. "It is true the rope yet remains connected with the vessel, but there is nobody on board to haul you across the boiling waves."

"And yet I will go!" I cried.

Without a moment's hesitation, I seized the rope and began, hand over hand, to climb to the ship In the middle the rope sank almost to the water, and there I had a struggle. The fierce waves dashed me about and sought to wrench the rope from my grasp, but I held on, and when almost overdone, I got clear of their grasp and soon reached the deck. The after part of the ship and much of the port side had been beaten in or carried away by the angry billows, but my uncle's stateroom was still left. With a bound I threw myself upon his door, and burst it open. The sight that met my eyes I shall never forget. Pale as a corpse, worn to a skeleton by sickness and pain, the grand old man retained his composure at what he felt must be the very last moment of death. He had lit his lamp and sitting up in his berth, he was reading aloud a volume of Plato. As I stood in the doorway he read:

"If the whole path of heaven, and at the same time the progressive movement of all it contains, possess a nature similar to the motion and circulation and reasonings of the mind, and proceed in a manner allied to them, it is evident that the Most Excellent Soul takes care of the whole world, and leads it along a path of that very kind."

Here a loud crash announced that another portion of the ship had been wrenched away, and, recalled me to my duty. I seized my uncle in my arms—(oh! how light and frail he was!) and bore him to the side of the deck where the rope was fastened. I soon hauled up the basket and into it we both got, and were pulled toward the shore. Before we fairly reached it, I felt the basket fall to the water; but a hundred hands grasped at us and pulled us from the very jaws of a roaring billow. As we passed just beyond its reach I turned toward the ocean, but the great ship was gone, submerged beneath the angry waters or idly floating in scattered fragments upon their surface, the sport of every surging billow that leaped in now impotent anger upon the shore.

When I reached the house in which we had found refuge, I was told that the Professor wanted to see me. I hastened to his room. The dear old man held out his arms to me, and in a moment I felt that we were reunited. I soon learned that after leaving Evanston, overcome with mortification and shame at his impending humiliation in the eyes of the world, which he considered inevitable, he had wandered he scarce knew whither; had seen no papers, and had no knowledge of events at Evanston after his departure. As briefly as possible I told him what had occurred, when he brightened up amazingly. "And after I had so unjustly cast you off, you could still think of my reputation?" he asked.

"Uncle," I cried, "if you should kill me I would still love you."

"Leave me," he said. "I may sleep now."

And indeed he afterward told me that from the hour of my revelation till the night after the shipwreck no real, refreshing sleep had visited his eyes.

We rested for a week or two in London with warm hearted English friends, when, my uncle being now almost recovered, we returned to our dear old home in the Kœigistrasse, at Hamburg.

CHAPTER V.—The Building of the Air-Ship.

Life settled down once more into its accustomed channels. The study of science went on unimpeded, even though a kiss from Gretchen sometimes broke a scientific name into a compound word, and notwithstanding that the Kleine Professor, as we called little Harry, sometimes came to grief by bumping his head against the unstratified rocks of the Azoic Age.

My good uncle was pleased to think that I rendered him valuable assistance in his scientific labors. And certainly if I failed to do so it was not through any want of good will.

But there was one subject which would intrude itself upon my thoughts, but concerning which my lips were closed—the meteor. I certainly saw it ascend through the roof of the building in the back yard. And there was no reasonable doubt that in about ten or twelve hours of actual time, it fell to the ground at Evanston, four thousand miles away. By what agency was it carried thither? At length my *triste* manner could no longer escape the notice of my uncle, and he questioned me as to its cause. Briefly I told him all. He appeared deeply interested and questioned me closely concerning details. At last he said quietly, "The matter is very simple."

"Simple!" I exclaimed, incredulous.

"Very."

"Have the goodness to explain."

"What is it," the Professor continued "which draws bodies to the earth?"

"The attraction of gravitation. Since the days of Newton it needs no philosopher to tell us that."

"What is the attraction of gravitation?"

"In truth I can not answer, except by simply varying the form of words. It is a principle possessed by all bodies in common by which they naturally attract each other."

Without answering in words my uncle held the negative pole of a magnet toward a ball of pith, suspended near him, when, of course, the pith was repelled.

I understood the argument, and replied, "The interference of electricity may suspend the action of the natural law, but does not change it."

Still making no direct answer, the Professor took from a shelf a copy of the twenty eighth edition of his great work on the falling to our earth of the interplanetary bodies, turned over the leaves till he reached paragraph 47 in section 108, on page 1326, where he read as follows:

"The meteors which fall to the earth are not those alone which exist within our orbit; but many which lie beyond it are gradually gravitating toward us, attracted by the stronger electrical affinity which exists between them and the earth. The superior planets exercise little influence upon them and possibly repel them, as a magnet repels bodies when both are positively or both negatively charged. Indeed, I have strong reason to believe that bodies not intrequently fly from the surfaces of other worlds, to seek a lodgment on ours, and I am fully convinced that it is quite possible for us to excite electrical conditions in bodies, which will cause them to fly from our world into space."

"At the very moment I was writing those words," said the Professor, "you were demonstrating their truth."

It is impossible for me to describe the state of excitement into which I was thrown by my conversations with my uncle. He, on the contrary, was as calm as when discussing the simplest philosophical experiment. First he directed me to preface a list of all the materials I had employed in my experiment, stating the exact quantities used, and to detail with the most careful minuteness the methods I had followed and the order in which my operations were carried on. When these statements were finished my uncle studied them with great care, added notes which his own knowledge enabled him to contribute to my ascertained facts, and made some experiments which seemed necessary to establish new points which the different phenomena now newly brought to his notice seemed to require.

He then caused a small wooden building to be erected in the back yard on the site of that which had been burned when my experiment came to so abrupt an end; and here he constructed apparatus of the most powerful description for producing electricity of the various kinds popularly known as galvanic, magnetic, etc. Batteries of various kinds were constructed, and metals in great profusion were provided, as well as glass and other non conducting substances for insulators.

"The theory of the great American, Benjamin Franklin," said my uncle, "was that the atoms of all matter repel each other with a force varying inversely to the square of their distances. But, all matter being charged with electricity a tendency of its particles to approach each other in order to restore electrical equilibrium overcomes the natural repulsion of the atoms of matter and establishes what we call the attraction of gravitation. When, however, two bodies become sur charged with electricity in an equal degree the necessity to approach each other is removed, and they repel each other with a force inversely as the square of the distance.

"Du Fay, on the other hand, teaches us that there are two electric fluids which, when present in equal quantities, neutralize each other, and leave the particles of gross matter at liberty to obey the Newtonian law of gravitation, which he believes to be independent of electricity. Each of these fluids repels its own kind and attracts its opposite, ever seeking to preserve harmony and electric equilibrium by an intermingling of the fluids.

"The theory of Du Fay has found more favor among Germans than that of Franklin, but not, I think, with good reason. A great many electrical phenomena seem to me quite inexplicable by Du Fay's theory, but fully in accordance with that of Franklin; and, in the experiments we are about to conduct, I shall, until I find cause to change my mind, assume that the reasonings and deductions of the American philosopher, statesman and printer are correct."

Our experiments were conducted slowly, systematically, perseveringly. Many times when we seemed to be at the very threshold of success, we encountered only failure and disappointment; and at other times valuable discoveries were made when we least expected them. Three times our operations were stopped and our plans disarranged by the burning of our workshop; but, as this was a light wooden structure, and was completely isolated from other buildings, the principal loss was to our machinery and apparatus. Delays, too, were caused by the necessity felt by my uncle to fulfill lecturing and other engagements.

Too much time would be required to tell of our labors, our failures, and our triumphs. It is sufficient to say that after two years of incessant application we were able at will to cause a mass of metal to fly off into space.

"At last," said I, "we have triumphed."

"At length," said my uncle, "we have begun to triumph."

"But we have succeeded!" I retorted hotly.

Professor Hardwigg was as impassive as a statue when he responded, "We have made a single step toward success."

"What, then, do you hope to achieve?" I inquired.

"Let us go to dinner," was my uncle's reply.

I knew it was useless to press my question. If my uncle was not ready to answer he would not answer; when he was ready he would tell me everything he considered it proper for me to know.

When dinner was over we sat before the fire in the library. The Kleine Professor, who had been busy all day endeavoring to determine the geographical formation of a brickbat, had gone to sleep in his crib with Professor Hardwigg's spectacles on his nose, and Gretchen was again at work on some small linen articles, when my uncle, after a long silence, began to speak:

I may here remark upon a habit almost peculiar to Professor Hardwigg that he spoke, only when he had something to say. Other men are moved to speak, when they get an appreciative audience, or when they are asked to speak, or when a cup of strong tea or an extra glass of wine excites their mental activity. When my uncle had any thing to say he made time, found an audience, and always had sufficient animal force at command to enable him to say it properly. He would deliver a lecture to Gretchen on the meaning of the word *barzel* as used in the Hebrew Scriptures or of *sideros* as used by Homer, and would demonstrate that excellent steel was used two thousand years before our era; and when Gretchen, who understood not a word of the matter, would reply, "Yes, my father, it is very true," he would turn again to his studies, most happy in being able to render these matters plain even to one who had no scientific knowledge. His discourses were usually excited by his thoughts rather than by any recent conversation; and so when he began to speak on the present occasion, I had not the faintest conception of the subject he had in his mind.

"Science," he began, "science properly so called, has for its object the good of mankind. Mere abstract speculation—that which can never pass from the domain of theory into that of physics—is beneath the notice of the truly philosophical mind. Men have wasted years of patient labor in endeavors to square the circle. They are not philosophers; they are simple triflers with time. The man who undertakes to count the grains of sand on the seashore is as much a philosopher as these men. Were both to succeed their success would be of equal value.

"But one should inquire well what the object had in view really is before condemning an apparent visionary. Plato could never hope ethat his Republic as he described it would be realized among men; but he taught valuable lessons nevertheless, which have had great results in making the world better and wiser, and which humanity will not willingly let die.

"I have not labored for the past two years merely to prove that a mass of metal may be made to fly from the surface of the earth into space. I had demonstrated the fact before I began the experiments, and the scientist does not need physical tests to demonstrate the correctness of his reasonings. That is, very seldom," he added; and a troubled look passed over his gentle face for a moment, as the recollection of a certain meteorite flitted through his mind. "When I began my experiments in this direction I had a clearly outlined purpose in my mind, which, I hoped, would develop into a machine calculated very greatly to benefit mankind. I can not say that my success has been so marked or so rapid as I had hoped; but it is certain that I have, with your valuable aid, made substantial progress toward success. We have ascertained what are the best materials for our purposes, the alloys which may be most advantageously employed, and the proper construction of our batteries. We have also discovered that chemicals not hitherto used may with great advantage replace those now employed. I regard these as the greatest of the labors necessary to the final result. The rest is mere matter of detail.

"You asked me to day what I hoped to achieve. I answer in a word it is to construct a vessel to navigate the air. This is a well worn experiment. It has been tried with varying success, but with no valuable results, from the days of Montgalfier to ours. The reason is plain: the immense size absolutely required for a balloon causes it to be carried about at the pleasure of every breath of wind that chances to blow, and no machinery that it is possible to carry can be made of sufficient power to propel it against even a very moderate breeze.

"The discovery upon which you so fortunately stumbled opens up a new field of investigation. We have discovered that a certain alloy may, by a certain application of electricity, be made to fly from the surface of the earth and mount into the air. The falling of your mass at Evanston demonstrates that so soon as the metal loses its peculiar electric property the law of gravitation asserts itself and the body falls to the ground.

"It needs now only to bring this power under control—to subject it to management that we may apply or remove it at will. We will then make a vessel of our alloy of such size as we may find most suitable, provide it with powerful electric apparatus, insulated in a glass case, but connected with the metal shell by wires, so arranged that the electric current may be turned on or shut off at pleasure."

"I understand how you may rise and descend at pleasure," I said, "but how do you propose to move the machine backward or forward. A steam engine would be very bulky and would necessitate an immense size for your vessel; and human strength would be of little more avail for locomotion than it is at present with the balloon. True, an electric engine might be used, but it would be so expensive that I doubt whether your air-ship would compete successfully in a commercial point of view with railroads and steamships."

"Suppose I am able to propel my vessel without any motive power whatever?"

"That," I replied, "is impossible."

"Yes, strictly speaking, that is impossible. But I have already described the only motive power I intend to use."

"You must pardon me for saying that I have not heard you describe it."

"That is because you do not hear all that is said. You hear the words, but do not comprehend their full import. The vessel I propose to construct will be shaped like a fish. It will be forty feet long, six feet high, and four feet wide. At the end will be a rudder similar to that of a boat and worked in a similar manner. Projecting horizontally from each side will be a row of flat boards or fins, which when laid straight will appear like a level walk half way up the side of the fish or vessel. Each of these fins (if you will let me call them so) will be perhaps five or six feet in width, and the series will reach nearly from end to end of the fish. But they will be broken up into sections, and each section will be so made as to turn on a pivot.

"Now, when the fish rises it is evident that the air pressing upon these fins will force it forward. When we attain a sufficient elevation, we will cut off our electric current; the fish will begin to fall; we will reverse the position of the fins, making the forward part of each point downward, when the pressure the air will of course again drive the fish onward. It will be guided in its course by the rudder. It may be found advisable to have the rudder at the top rather than at the end; but that is a question of detail which can be settled when the time comes.

"What rate of speed do you expect to attain?" I enquired.

"We do not know yet with what velocity we will be able to rise from the earth," said my uncle, "but, judging by the rise of the masses with which we have experimented, it will be very great. The velocity in falling will be in proportion to the distance through which we fall. If we calculate two hundred feet each second as the average speed with which we will rise or fall, our forward progress will be about six times that velocity or twelve hundred feet in each second. Making due allowance for the resistance of the air, a speed of six hundred miles an hour is not an unreasonable expectation, and I do not despair of attaining a rate of a thousand miles an hour."

CHAPTER VI.—The Sailing of the Air Ship.

We returned to our labors with renewed zeal. At the end of another year we were so far able to control the electric current as applied to the metal that we could cause a mass to rise or fall at pleasure, or even to float in the air.

The construction of the fish was now begun. The greater quantity of metal was put as the top in order that the vessel might always remain upright. When falling a slight current might be turned into this mass so that it would be lighter than the bottom. Thus we would escape the danger of being turned upside down. The whole fish was forty feet in length. A space of ten feet at each end was partitioned off for battery rooms, and completely insulated by glass. The connecting wires were entirely under our control. A middle chamber was left, twenty feet long, six feet high, and four feet wide.

The fins, instead of working on a pivot at the center of each side, as at first designed, were hinged on at their forward extremities to stout booms projecting horizontally from the side of the fish. As it would generally be necessary to rise perpendicularly from the ground, to avoid coming in contact with houses or trees, the fins were fastened at their hinder extremities also by pins. These pins being withdrawn, the fins would fall at the ends to a certain distance limited by a cord, presenting an oblique angle to the air, which would thus drive us forward; when the vessel was falling the fins would be driven upward by the air, and thus the pressure still drive us forward. This modification of our original plan, caused the fins to work automatically, and saved us the labor of reversing them at every change in our upward or downward movement. It was necessary only to draw the pins so soon as we were high enough above obstructions to enable us to move forward; and to replace them when we desired to drop vertically to the ground.

A year was consumed in building this vessel, but during that year we did not cease our experiments, and some changes were made in our battery rooms during the progress of our work. At last the fish was complete. The interior was very simply furnished. There were a couple of lounges for repose; a table which might be let down like a leaf; an electric lamp for light; windows at the sides, of thick glass; openings for ventilation; and a cupboard in which was a supply of provisions sufficient for several days. In the battery rooms were chemicals sufficient for several days consumption.

Our first experiments with the machine itself were with a view to determine our complete control over the electric current, and consequently over the ascensional power of the ship. These experiments were very satisfactory. We were able by a very gradual application of the current to raise the fish at a rate not exceeding a foot in a minute, to hold it stationary in mid-air, a pause it to descend so gently that no sound was heard when it touched the floor.

On the last day of April, 1869, we finally decided that nothing further remained to be done, and that we might so soon as we pleased, start on our first great voyage through the air.

"We will lose no time," said my uncle: "we will start to-morrow."

"It will be May-day," I replied. "Auspicious omen! As the first day of the month of flowers comes to bless the earth, to deck her bosom with beauty and to give promise of coming fruitfulness, we will start on a voyage which gives promise of great good to mankind."

"In science," said the Professor, "there are no omens: there are reasonings and facts—that is all. We have demonstrated the facts; neither omen nor prophecy is required to read the future of the airship. Experiment is needed to regulate it, and to decide upon the best form and the most convenient size; but omens are absolute follies."

As we did not wish to attract observation at our first ascent, we determined to start at three o'clock in the morning, while the night would yet be dark, and when few persons would be awake. Before retiring I told Gretchen that I intended going on a short scientific excursion with the Professor, and would be gone perhaps for two or three days.

At two o'clock in the morning we rose and dressed ourselves. I kissed Gretchen, and the Kleine Professor, who were both slumbering quietly, and then we stepped down to the back yard, where our ship lay.

The roof had been removed from the workshop, and nothing remained to do, but to get in and start. Shall I confess that I was not altogether without apprehension? It was probably the chill air which made my teeth chatter and caused me to shiver as though I had an ague, but it was quite likely that a sense of the great risk I was taking added to the uncomfortable feeling which came over me. The Professor, however, was as little perturbed as ever. In a few moments we had entered the ship, closed the door and lighted the electric lamp. The screws regulating the electric current were ranged along the ends of the central apartment which I shall call the cabin. The Professor turned one of these a little, then he walked to the other end and slowly turned the other. At this moment I heard a rustling noise, and, looking through the window, saw the branches of the large linden tree which grew behind the house sinking down beneath us.

The Professor then gave the screw another twist.

I looked out again, and saw the long rows of street lamps, sinking fast and fading away in long indistinct lines of light. Far away in the eastern sky a rosy rim of light told that the day was breaking.

"Turn the fins," said the