Gold Dust and

By Cyril G. Wates

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Star Dust

Illustrated by HYND

HERE is another story about a robbery perpetrated by means of the Fourth Dimension. But this time there are no forceps. Our well-known author can be depended upon to use an entirely new method, ingeniously devised. Only a detective well versed in the subject of the Fourth Dimension could possibly have solved the mystery—yet it all seems very simple after he explains it.

¶ *A hundred massive oak cases were hanging in the air and occupying a space not larger than an orange! It was like looking at them through the wrong end of a telescope.*

WHEN the telephone rang and I found Hilary Corwin waiting to speak to me, I knew at once that something quite out of the ordinary had occurred. His voice, usually firm and slightly emphatic, as of one who is in the habit of imposing his views upon others, now trembled with excitement. His eyes snapped and sparkled and there was a hectic spot of crimson on each high cheekbone.

"Can you come up to the lab immediately, Frank?" he said, after the usual greetings.

"I guess I can, if it's important, Hil," I replied. "I was planning to stay at home and watch the game between the Yanks and the Giants, but that doesn't matter."

"Never mind about the game, Frank. Set your recorder and you can watch it after you get back. I have a most curious problem to solve and I want your help."

"You mean that you want my company," I laughed. "You know darned well that it's little help you ever get from me."

Hilary's eyes wrinkled into a smile and he rubbed the tip of his hawk nose with the forefinger of his right hand; a little habit he had when he was in any way embarrassed.

"You help me more than you realize, Frank," he said, shaking his head. "I can never think to the best advantage without someone with whom to discuss my thoughts, any more than a pen can write without paper. Will you come?"

"Thanks for the compliment?" I exclaimed, laughing again, "but I should like to remind you that a pen will write very well on a block of wood! Yes, surely I'll come. Be there in fifteen minutes."

He hung up the receiver and his face vanished. I picked up my tunic from the chair where I had thrown it and went upstairs to the hangar in the attic, where I keep my little two-seater. After making sure that I had enough Vrilol for the trip, I opened the roof-panels, stepped on the starter and threw the lifting helices into high.

A few seconds later I was at the commuting level and set my course to the east at a comfortable four hundred miles an hour. Corwin's place was about eighty miles from my bachelor diggings, so I could be there well within the time I had stated. I lit a cigarette and turned my thoughts to the probable object of my trip.

Hilary Corwin was somewhat of a mystery. I had

known him for a long time. In fact, I think I may say that I was his only intimate friend, if indeed our relationship could be dignified by the name of intimacy. He seemed to regard me somewhat as Sherlock Holmes regarded the redoubtable Dr. Watson, in the light of a mental punching bag or chopping block.

Not that Corwin was a detective. The fact is that in spite of our long acquaintance and alleged intimacy I had no definite knowledge of what he did for a living. That he made a living, and a very good living, too, was obvious, but although he continually enlisted my help in various enterprises for which he received large fees, it would be impossible to assign his work to any particular profession, because no two of his "jobs," as he called them, bore the slightest resemblance to each other.

As nearly as I can describe it, he had the type of knowledge which begins where that of other men leaves off. It was the breadth and catholicity of his learning which rendered his services so valuable. Had some great engineering contractor encountered a problem which his own experts were unable to solve? Send for Corwin! Was the Attorney General of some European Republic in difficulties over a point of law? Send for M. Hilary Corwin! Did one of the shipping companies want to remodel their aerial transportation lines? By all means send for Dr. Corwin. I have even known the management of a great New York restaurant send for my friend to teach the French chef the correct way to make a savory dish, which was a favorite among Roman epicures in the days of Nero!

There was little doubt, therefore, that whatever problem was occupying Corwin's mind at the present moment, it would be something different from the usual, and, judging from his excitement, something interesting and quite out of the ordinary. My time was my own. I am single by choice and wealthy enough to do what I like. The prospect of sharing in another of Corwin's adventures, even in the humble capacity of mental chopping block, appealed to me strongly.

These thoughts passed through my mind as I sped across the city and into the open country until I dropped on the wide lawn in front of Corwin's house and found myself shaking hands with my friend.

His tall, sinewy figure, piercing black eyes and thin, prominent nose conveyed an impression of vitality and mental alertness, which harmonized with his quick gestures and emphatic speech. He was clad in tunic and breeches of sombre brown, and had evidently been engaged in some scientific work when he heard my plane descending, for he carried an electrical instrument of some kind in his left hand.

"Glad you were able to come, Frank! Have you had lunch? Good. I thought I saw the dishes on the table when I phoned you. Come into the lab and I'll tell you what I'm up against."

He led the way up the sloping gravel path into a large low building which he used for the numerous technical experiments which he was often called upon to perform in the course of his investigations. It was a combination of laboratory, machine shop and observatory.

Astronomy was the hobby in which he found relief from his other occupations. The revolving dome with its telescope, spectroscope, cameras, and other instruments, was small compared with the huge observatories in other places, but was exceptionally complete and perfect in its appointments. He had been able to make some very fine original discoveries, especially in the asteroid belt and in the structure of spiral nebulae, and the name of Hilary Corwin was mentioned respectfully by professional astronomers.

Corwin kicked a chair into place for me and perched himself on a high stool, around the legs of which he twined his own lanky legs.

"This is going to be good!" he chuckled. "One of the most baffling cases I've run across for a long time. You've done me the honor, more than once, to compare me to Sherlock Holmes. Possibly you think that I am a 'Jack of all trades and master of none,' like your detective hero. Well, this time we're going to turn detectives and go on a hunt for desperate criminals."

"I'm a perfect reproduction of Dr. Watson in one respect, Hil," I commented. "I'm a first-class sample of the genus Coward, and have no desire to place my life in jeopardy fighting a gang of thugs!"

Corwin laughed boisterously and, jumping from his stool, began to pace the floor, gesticulating and jerking his head in the manner he always assumed when he was delivering a lecture.

"You've heard about the big shipment of gold the Government is sending to Rhodesia?"

I nodded. Everyone knew of the tremendously rapid strides which the new Central African republic had been making in the last few years as the result of the extensive development of the radium mines there. With almost unlimited credit, the immediate need of the Rhodesian government was coin with which to pay the miners, and the shipment to which Corwin referred was part of a loan which was being made by the United States for that purpose.

"Yesterday, fifty million dollars in gold coin was sent from the Mint to the hangars of the Trans-Atlantic Transportation Company. It was packed in heavy oak chests, padlocked and sealed. The gold was moved in motor lorries, accompanied by armed guards.

"On arrival at the hangars, the chests were transferred to a building especially designed for the storage of valuable shipments and were stacked in the middle of the floor. Four guards were left in charge and the doors were locked from the outside. The special freight plane which was to take the money to Rhodesia was scheduled to leave at eight o'clock this morning.

"The Rhodesian officials who were to accompany the shipment arrived on the scene at seven-thirty and were escorted to the storage building by an under-secretary of the Treasury who had the keys. When they opened the door they found that the gold had disappeared!"

"Disappeared!" I exclaimed. "Do you mean that it had been stolen?"

"Presumably so," answered Corwin, "but that is simply theory, as I have no further information than the bare fact that it had disappeared. Vanished!"

"What other explanation can there be?" I protested.

"That remains to be seen," answered Corwin. "I will admit that I have another theory. As a general rule I object to preconceived ideas, on principle. They generally turn out to be wrong when confronted by cold facts, but in this case the facts seem to be fairly obvious. The gold was there at ten p. m. It wasn't there at eight a. m. The building had not been broken into. The guards were still there. It would seem, therefore, that the burglary theory is untenable, so I have permitted myself to theorize to the extent of doing a little work in the lab this morning."

HE waved his hand to a combination of coils and vacuum tubes which stood on a bench near one of the windows.

How did you hear about this mysterious disappearance?" I asked him.

"The under-secretary of whom I spoke phoned me at about nine o'clock and asked me to come down and look things over. I told him that criminology was one of the few professions of which I claimed no knowledge. He said that there were some features of the case which he thought might interest me, and that the Government would permit me to name my own fee, if I succeeded in restoring the gold and would pay my expenses in any case. So I accepted upon one condition."

"What was that?" I asked.

"That I should be permitted to wait until this afternoon before going down to the hangars and that, in the meantime, nothing was to be disturbed. The secretary—his name is Cogswell—seemed like an intelligent fellow, though rather a wind-bag. He said that he had already done what I suggested, after having sent for food for the guards."

"But why wait until this afternoon?" I demanded. "It seems to me that the sooner you get there the better. You might see clues. Fingerprints or something of that sort."

"I hope to get clues, certainly," snapped Corwin, "but as to seeing them, that is quite another thing. The clues I hope to find will probably be invisible!"

"I fully understand," I smiled, satirically. "You think the gold has been spirited away and you are going to take a supply of ectoplasm to cause it to materialize again!"

"Don't try to be funny, Frank," replied Corwin, calmly. "My theory is simply that the gold has been hidden, either deliberately or accidentally, and I have prepared this apparatus so that I can find it, whether it is in sight or not. Nothing very mysterious about that, is there?"

"No, not at all!" I said, smarting under Corwin's contemptuous remark with reference to my powers of humor. "I have no doubt you will find the fifty million in a crack in the floor. It only weighs about a hundred tons or more! Or possibly it got picked up by the vacuum cleaner!"

"You *are* stimulating to the imagination!" Corwin observed with enthusiasm. "Your comments are so inane that they energize my mental powers by sheer force of contrast! Now, if you have quite finished with the comedy, perhaps you will assist me to pack this stuff into the plane."

In half an hour we arrived at the Trans-Atlantic Hangars where we were met by Cogswell, the Treasury man, and a couple of the Rhodesian officials. Cogswell immediately started to give a long-winded account of the mysterious robbery, as he called it, but Corwin cut him short without ceremony.

"I'll handle this job my own way, if you don't mind, Mr. Cogswell," he snapped. "I take it that the Government is chiefly interested in getting the money back."

"Most certainly we are, Dr. Corwin," exclaimed Cogswell, "and I can assure you——"

"If you can assure me of a clear field for my investigations, I shall be quite satisfied!" interrupted my friend with finality. "Please take us to the storeroom."

The huge hangars, capable of housing a dozen passenger and freight planes, were ranged in a row facing the sea. Behind them in a long, low building with narrow gauge track running beside it, were the main express offices, where goods for shipment to all parts of Europe and Africa were sorted out and distributed to the various hangars.

THE building where the Rhodesian gold had been received stood by itself on the top of a small knoll at some distance from the other buildings. It was of solid stone and the few windows were heavily barred. It had been erected for the safe handling of just such valuable consignments as that for which we were now searching.

Cogswell opened the heavy door and ushered us into the building. As we entered, four men in the bright yellow tunics and breeches of the Treasury Guard rose from the table where they had been enjoying a late lunch, and came forward.

"You will wish to question these men, I presume, Doctor," said Cogswell.

"Possibly," replied Corwin, calmly. "If you will be kind enough to have the two boxes brought from my plane, Mr. Cogswell, I shall not trouble you any further. No doubt you have other business to occupy your time. I will notify you when I have located the gold."

The Secretary looked at Corwin as if he could hardly believe his ears. Evidently he was not accustomed to being dismissed in such a summary manner.

"But, really, Dr. Corwin," he stammered, flushing with anger, "you apparently fail to realize that I am responsible for the safety of this money. It is absolutely necessary that I should be present during your investigations."

"All right, have it your own way," replied Corwin, with undisturbed good humor. "Come along, Frank, we'll be on our way. Sorry to have troubled you about nothing. You'll come back to my place for dinner, I hope."

Cogswell collapsed and retired with as much dignity as he was able to assume. Corwin immediately started to examine the room without paying any further attention to the discomfited official.

The storeroom, which was about thirty feet square, occupied the entire building. There were no partitions and no furniture of any sort except a table and three or four chairs which had been sent in to enable the imprisoned guards to eat their meals in comfort. The floor was an unbroken slab of cement and the walls were uncovered, being simply the inside faces of the stone blocks of which the entire building was constructed. There was no ceiling, the roof being of heavy sheet iron.

In short, there was no place in which one could have concealed a single five dollar gold piece, to say nothing of ten millions of them, besides a hundred heavy oak chests.

Having in mind the methods of Sherlock Holmes and other great detectives in the world of fiction, I looked for my friend to produce a magnifying glass and begin a long hunt for fingerprints, footmarks and other clues, but I was doomed to disappointment. After a very casual inspection of the room, he turned to the four guards.

"I presume that you are in command," he said briskly, addressing one of the four, whose yellow tunic was bordered with blue.

"Yes, sir," answered the sergeant, saluting.

"In that event," said Corwin, seating himself in one of the chairs, "will you kindly state briefly the circumstances surrounding the disappearance of the gold?

Please omit nothing of importance but endeavor to refrain from the unnecessary loquacity which seems to be characteristic of the Treasury officials."

"I will try to do so, sir," answered the sergeant, stiffly, though his eyes twinkled at Corwin's analysis of their superior, and the glee of the other three was obvious.

"We accompanied the shipment from the Mint last night, sir," the guard went on, "arriving here at half past six. After the cases had been counted by Mr. Cogswell and myself, I signed a receipt for them and he left, locking the door on the outside.

"Our orders were not to let the cases out of our sight, although it's hard to see how anything could happen to them in here. However, I decided to take no chances and ordered Blake here to sit on one of the chests. The other two watched the windows and I spent most of the night walking round and round the room.

"Just before daybreak——"

"Time!" snapped Corwin.

"Beg pardon, sir!" said the sergeant, "4:45 a. m. as near as I can tell."

"Go on," ordered Corwin, "and please try to be accurate."

"Well, sir, at about 4:45 a. m. one of the men who was watching the windows called me over to see a funny light in the sky. It was a narrow band, almost like a searchlight, only it didn't spread at all. It was bluish in color and passed directly overhead, running east and west."

"In which direction did it seem to originate?" queried Corwin, leaning forward. I was wondering what possible bearing a light in the sky could have on the stolen gold, but my friend seemed to be intensely interested.

"I can't say, sir," replied the sergeant. "You see, it didn't move or flicker at all but just got brighter and brighter until we could hardly bear to look at it. Blake heard our remarks and came over to see what we were looking at. Just as he got to the window, the light went out and at the same instant there was a most tremendous crash, followed by a rumble."

"A crash!" Corwin exclaimed. "What sort of crash, and where?"

"Right here in the room, sir," replied the sergeant. "It sounded like a lot of heavy boxes rolling down a flight of stairs. The sound got fainter and fainter and then died away altogether. At the first bang we all turned around and saw—well, sir, I don't know as I can explain properly what we saw."

"Do your best, but make it short," said Corwin, encouragingly.

"Well, sir, don't blame me if it sounds crazy, but we saw the cases, only we couldn't see them. They were tumbling all over each other, but they were standing perfectly still. They looked misty, kind of, and for a moment I could see the gold inside quite distinctly. And next thing we knew, they weren't there at all. That's everything, sir."

I WATCHED Corwin during this amazing farrago, expecting every moment that he would cut the sergeant short. Even a child could see that the whole story was a tissue of lies, very unskilfully designed to conceal the real facts. No doubt existed in my mind that the four guards were in collusion with the actual thieves. A duplicate key, a gang of men to carry the chests to a plane, hidden at a distance—why the whole plot was obvious!

But to my surprise, Corwin seemed to be paying the closest attention to the sergeant's wild story, and several times he nodded his head as though in approval, especially at the mention of the beam of light in the sky and at the impossible account of the disappearance of the gold.

"Thank you, Sergeant," he said, when the other had ceased speaking. "Your conciseness and accuracy are most refreshing. Now, Frank, please give me a hand with the apparatus."

The various appliances which Corwin had brought from his laboratory included four large coils of wire, fastened together in pairs, each pair being provided with terminals or binding posts. There was also a pair of receivers of the radio type, an amplifier and the necessary high and low tension batteries for its operation.

Corwin set up the amplifier and connected one of the pairs of coils to it. The other pair were attached to a handle about eight feet long and were also connected to the amplifier by means of a long, flexible cable.

When the connections were complete, Corwin put on the head receiver and began to adjust the rheostats of the amplifier. A puzzled expression passed over his features and he rubbed his finger up and down his long nose thoughtfully. Presently his face cleared and he nodded vigorously.

"Take those exploring coils, Frank," he ordered, pointing to the pair which were provided with a handle. "I want you to carry them backwards and forwards across the room, holding them close to the floor. Cover the whole area in regular bands."

I FOLLOWED his instructions without protest, although I was completely at a loss to understand what he was attempting to do. Corwin made no comment as I carried the coils backwards and forwards until I reached the centre of the floor.

"Ah! Stop there!" he cried, excitedly. "A little to the left. No, not quite so far. Now, just a little this way. There, stop there. Leave the coils lying and come here."

When I donned the receivers, my ears were assailed by a high pitched singing. When Corwin picked up the exploring coils as he called them, and moved them in various directions, I noticed that the sound grew fainter, being loudest at a point near the centre of the room and about three feet above the floor.

"Beg, pardon, sir," remarked the sergeant, who had been watching Corwin's antics with great interest, "that's where the boxes were piled."

"So I judged," replied Corwin, shortly. "They are still here. You were quite correct when you said that they did not appear to move."

"Still here?" questioned the sergeant, gaping.

"Yes, right here in the middle of the room and also a million miles or more away, maybe," answered Corwin calmly, as he turned to dismantle his apparatus.

Familiar with his methods, I knew Corwin too well to bother him with questions. He would explain when he was ready to explain; not a moment before. Although I had gathered nothing from our visit to the store-room save the mere skeleton of a theory, Corwin, I knew, had done much more. The satisfaction on his gaunt face betrayed the fact that he regarded the "job" as practically finished.

"We are going for a little walk," he remarked to the sergeant. "My friend and I have never seen the hangars

and the opportunity is too good to miss. Kindly have these boxes put in my plane. By the way, sergeant, I regret that it will be necessary for you and your men to remain here until this evening to guard the gold. You must not forget that it is still there in the middle of the room, even though you can't see it! Come along, Frank."

And he walked out, leaving the guards open-mouthed.

When we were out of ear-shot, I could contain myself no longer.

"Your acting was admirable, Hil," I burst out. "What a splendid detective you would have made! You deceived those guards completely. Why, when you were pretending to go through some mysterious rigmarole with the amplifier, you even deceived me for a moment."

Corwin stared at me as though I had taken leave of my senses.

"Acting! Deceiving! Rigmarole!" he exclaimed. "I am afraid I don't quite get you."

"You certainly gave the sergeant a Roland for his Oliver," I went on, laughing, "with your jargon about the gold being right there and a million miles away. And then, to make them stay to stand guard over nothing! What a joke!"

"Oh! I see what you mean," replied Corwin, his face clearing. "Yes, very clever of me, wasn't it? Ha-ha! By the way, you don't happen to own any stock in the Vrilol company, do you? That might make a difference."

Now it was my turn to stare. As it happened, I did not own any stock in the great corporation which had the monopoly of Vrilol, the universal fuel for airplane engines, and I had often regretted the fact, but what bearing this had upon the Rhodesian gold, I failed to see.

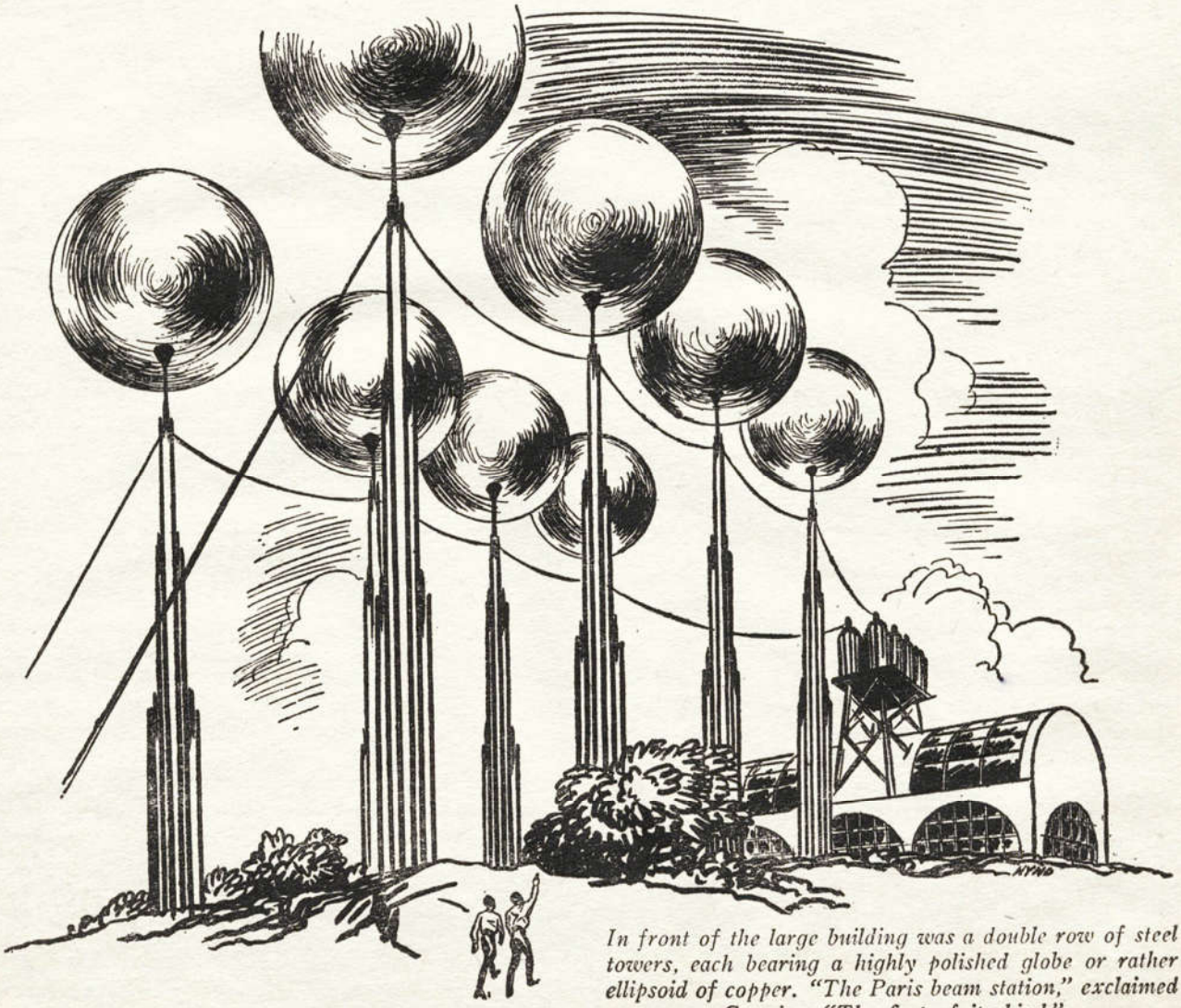
"Because, if you do, I should advise you to sell," Corwin went on, without waiting for an answer. "Vrilol will soon be as obsolete as gasoline."

"How so?" I asked. "Some new discovery of yours going to replace it?"

"It is quite evident that you do not keep abreast of the times, my dear Frank. Surely you have heard that the Marconi interests have at last perfected Beam Power Transmission. In three months' time passenger planes will draw their power from the ether. In fact the first Beam plane will cross the Atlantic from here to-morrow."

As we were talking, we approached a large building at some distance from the hangars and about four hundred yards west of the stone store-room. In front of this building was a double row of steel towers, each bearing a highly polished globe or rather ellipsoid of copper.

"The Paris beam station," exclaimed Corwin. "The



In front of the large building was a double row of steel towers, each bearing a highly polished globe or rather ellipsoid of copper. "The Paris beam station," exclaimed Corwin. "The first of its kind."

first of its kind. Want to go up and have a look? I happen to know the engineer in charge."

My friend was greeted with the utmost cordiality by the engineer who was superintending the final adjustments of the great plant. He escorted us around the building, explaining everything with a flood of technicalities, which left me gasping for breath, but which my friend seemed to understand perfectly.

"This is the Generator Room," he explained. "Eight Sawchuk Alternators direct driven by Ralston High Pressure Vrilol Turbines. Those are the Oscillators, the Modulators and the Mixers"—he pointed to a bank of huge vacuum tubes, similar to the tubes in our television amplifiers, but fully twenty feet in height.

"You see, Frank," remarked Corwin, "the Power Beam is only about ten feet wide where it leaves the station and not over fifty feet wide at Paris. It is possible to confine the waves to a narrow path by utilizing the principle of interference or heterodyning, as it is called. Have you given the plant a try-out?" he asked, turning to the engineer.

"We turned on the power for a few minutes this morning and ran a thousand horse motor in Paris successfully, but the main circuit breaker blew out after about three minutes. We've been readjusting it today."

"At what time did the breaker go out?" asked Corwin.

"It would be about a quarter before five, I guess. It was a pretty sight while the test lasted. The ionization of the air particles in the path of the beam lights up the country for a mile or more on each side. The pilots won't have any trouble in keeping their course at night, even without the automatic controls for which we have you to thank, Doctor!"

My growing feeling that Corwin had not suggested visiting the new Beam Station simply to satisfy my curiosity, became a certainty with the Engineer's description of the morning test. This, then, was the strange light which the Treasury guards had seen and which I had put down as a deliberate invention designed to conceal their complicity in the crime.

Corwin, with his scientific knowledge and sense of logic, had instantly jumped at the correct explanation, but why he should have wasted time in checking the accuracy of his theory was quite beyond me. The appearance of the beam of light was an unfortunate accident which served to distract the attention of the guards just at the moment when the robbery took place; nothing more. Surely Corwin did not suppose that the disappearance of the gold at the exact moment when the beam was shut off, was anything but a coincidence. It would almost appear so, yet the idea was so unreasonable, that I could not bring myself to entertain it.

During the short walk to the hangars and the flight back to his house, Corwin did not speak and I refrained from intruding upon the mine of thought in which he buried himself and from which, by past experience, I believed that he would emerge with what he sought.

WHEN we entered the laboratory, Corwin aroused himself from his brown study and clapped me on the back.

"Well, Frank," he cried cheerfully, "another little job finished. What did you think of it?"

"Think of it!" I repeated. "What can I think except that you have failed?"

"Ah! You think so?" he smiled, and walking across to the telephone, dialed a number.

"Mr. Cogswell? Yes, this is Corwin speaking. Will you kindly be at the store-room at ten o'clock to receive the Rhodesian Gold? What's that? No, no. I haven't got it back, because it's still there. Oh! Yes. You might bring four more guards. It will hardly do to ask the same men to take duty for another night."

As he hung the receiver on the hook I could hear Cogswell's voice, shrill with excitement, pouring forth a stream of unanswered questions.

"Now then, Frank," said Corwin, perching himself on his favorite stool, "I take it from your remark about failure that you are not quite clear on some points. Forgive my seeming discourtesy, but you know I never like to talk until I have finished with a job. Now I'm ready to answer any questions you care to ask."

"Well, in the first place, what was the contraption with the amplifier and the coils?" I queried.

"Nothing very mysterious about that, Frank," he replied. "It was simply a Kelvin Balance. One of the tubes in the amplifier is arranged to deliver an oscillating current at audio frequency; that was the shrill whistle you heard. The four coils are inductances connected in such a way that under normal conditions they are balanced with respect to the receivers, in which case no sound can be heard. When the two coils on the handle are brought in proximity with any considerable mass of metal, the balance is disturbed and current flows in the receivers, producing an audible sound which becomes louder as the coils approach the metal.

"I will admit that when we went to the hangars I entertained the idea that the gold had been concealed somewhere in the vicinity; buried under the floor, perhaps. A casual inspection put that theory out of court. Nevertheless, I determined to try the Balance and was somewhat surprised to find that the loud whistle indicated that the gold was still in the centre of the room. Since it was apparent to neither sight nor touch, it was obvious that in some way it had become both invisible and intangible, or, to put it more accurately, that the gold was both there and not there. Perhaps I shall make myself clearer by saying that it was there electrically, but not there to the human senses.

"The sergeant's story confirmed my suspicions. Note that at the instant of the disappearance, the guards received the impression that the oak cases were transparent. They seemed to move and yet seemed to be stationary. Possibly, to you, that sounded like nonsense. To me it was an exact description of what took place. The beam of light across the sky which I recognized immediately as the effect of the new Beam Station furnished the only missing link in the chain of logic."

"But I still don't understand, Hil," I protested, utterly mystified. "You say the gold is still there. If so, why can't we see and feel it."

"Simply because it has fallen through what is vulgarly known as the Fourth Dimension," stated Corwin, calmly.

"Oh, come, Hil!" I cried, laughing. "That's going a bit too far! The Fourth Dimension is all very well as a subject for imaginative fiction, but you can hardly expect to convince me or anyone else that such a thing really exists."

"I was never more serious in my life, Frank," said Corwin.

"But how can you prove the existence of a Fourth Dimension?" I objected.

"The shoe is on the other foot, Frank. How can you

prove that there is no Fourth Dimension, or Fifth or Sixth or Twelfth Dimension for that matter?"

For a moment I was nonplussed and before I could think of a logical answer, Corwin went on.

"Let me ask you a few questions, Frank. How do you know that there are more than two dimensions?"

"Why, by seeing them, of course," I answered. "Take that box over there for example. You can see that it has length, breadth and height. But you can't see that it has—whatever you call distance—in the Fourth Dimension."

"THAT'S where you make a very common mistake, Frank," said Corwin. "I mean in supposing that you can see in three dimensions. If you think for a moment you will realize that you can see in only two dimensions; in the flat, as it were. It is true that for very near objects we have a sense of solidity due to the fact that we have two eyes, which gives us the stereoscopic parallax as I may call it, but everything beyond a certain distance, say a hundred feet, we see practically in the flat and we owe our knowledge of the third dimension, not to the sense of sight, but to another of the senses."

"Do you mean the sense of touch?" I asked, doubtfully, after a moment's thought.

"Certainly!" said Corwin. "Suppose you pick up a cube—a child's building block, for example—in such a manner that your thumb and fingers touch three adjacent sides simultaneously, you are conscious through your sense of touch of three dimensions. Our impression that we *see* in three dimensions is purely an illusion. The sight has to be educated by touch before we can learn to judge distances."

I sat silently, turning over Corwin's arguments in my mind. Seeing that I was not quite satisfied, he picked up a book from the table with an impatient gesture.

"Have you read this?" he asked abruptly.

"What is it?" I returned.

"Can't you read?" he demanded.

"Of course I can, but you're holding the wrong face of the book towards me." I said.

"What difference does that make?" he asked, with a quizzical twinkle in his eyes. "If you can see in three dimensions, as you contend, you should be able to see all sides of the book at once."

"I give in!" I exclaimed, laughing. "But I don't quite understand what you are driving at."

"Simply this, Frank," he said. "That you must not expect to be conscious of the Fourth Dimension through the sense of sight, since you cannot see even in three dimensions. If we ever come to know anything about the Fourth Dimension at all, it will be through the sense of touch."

"But we can't feel in four dimensions, can we?" I demanded.

"No, you are right," replied Corwin. "We cannot feel in four dimensions for the simple reason that there is *nothing to feel*. As far as we know, solid objects have no extension in the Fourth Dimension. Imagine a man who had spent all his life on a flat desert, extending in all directions to the horizon. Never having had any training in more than two dimensions, it is conceivable that if he were suddenly brought face to face with a mountain, he would not know what he was looking at. It would be meaningless to him. He could not *grasp* it any more than we can grasp the possibility of a four dimensional object."

"But you say that there is nothing in the Fourth Dimension," I said. "How can you know that?"

"By a simple analogy," Corwin answered. "Take the case of our imaginary desert dweller. If a mountain were suddenly dumped down in the middle of his desert, he could not *see* it, because he would not have the necessary training to see in three dimensions, but he would certainly be *aware* of it, because he would find an impassable barrier blocking his way to an area, which he was formerly able to reach without difficulty. Similarly, if four-dimensional objects existed in our part of space, we should constantly find ourselves confronted by invisible and yet impassable barriers."

"YOUR arguments are difficult to contradict," I admitted, "but all this is theory and I cannot see what practical application the theories have to the present case."

"Look here!" explained Corwin, jumping up and running over to a blackboard, where he made a rapid sketch.

Fig. 1.

"These are supposed to be four bars," he explained, pivoted at the ends and having the centres joined by rubber bands. The thick lines are the bars and the thin lines represent the rubber bands. You must try to imagine that the bars have no thickness and that the bands simply represent forces which are tending to pull the centres of the bars towards one another. In other words, the whole thing has one dimension only—length. The bars would remain in the position shown, because the pull of the bands is lengthways, in which direction the bars are rigid.

"Now suppose that we tilt one of the bars ever so slightly out of line with the others, what will happen?"

"The bars will be drawn into a square by the rubber bands," I replied.

"Exactly! Like this," and he made a drawing.

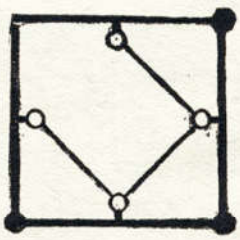


Fig. 2.

"You see," he went on, "we have taken *four* one-dimensional objects—lines—applied a tractive force, given them a slight tilt in the Second Dimension and produced a *two*-dimensional outline—a square.

"Now take a step further. Here are six squares, their centres joined by rubber bands as before—

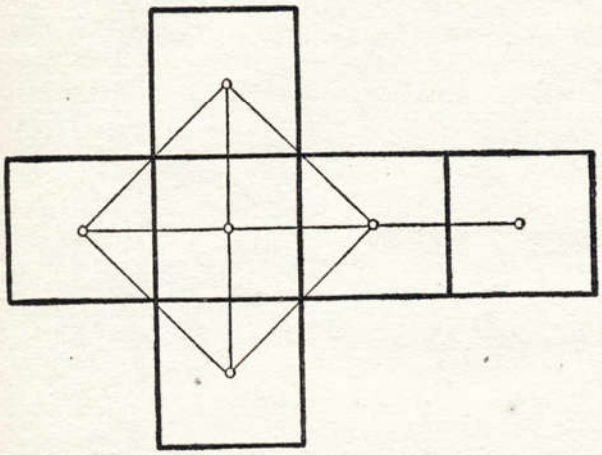


Fig. 3.

"They are in a state of equilibrium until you tilt one of them ever so little out of the plane of the others. What will happen?"

"They will form a cube!" I answered.

"Precisely!" assented Corwin, "and it will look like this," and he drew another outline.

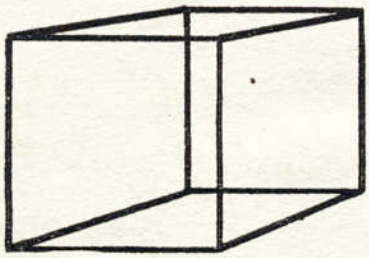


Fig. 4.

"We have taken *six* two-dimensional objects—squares—applied a tractive force as before, given them a slight tilt in the Third Dimension and presto! We have a *three*-dimensional outline—a cube.

"Note, Frank, that *objects* in each dimension form the *boundaries* of objects in the next higher dimension. Thus we can make a little table like this:" and he wrote on the board:

Two Points (no dimension) bound a Line (one dimension)

Four Lines (one dimension) bound a Square (two dimensions)

Six Squares (two dimensions) bound a Cube (three dimensions)

Eight Cubes (three dimensions) bound a Tesseract (four dimensions)

"Here are the eight cubes."

With surprising facility, he produced the following drawing on the board:

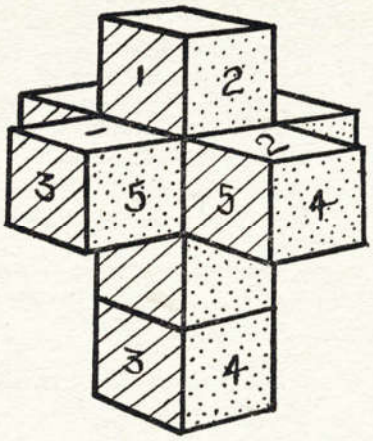


Fig. 5.

"The centres of the cubes are supposed to be attracted by forces," Corwin explained. "We cannot use rubber bands as before, because the cubes are solid, therefore we must imagine some force like magnetic attraction. The cubes will remain immovable, that is to say in stable equilibrium, unless we give one of them a slight tilt out of line with the others *in the Fourth Dimension*. Then they will be drawn into the form of a Tesseract, as a four-dimensional object is called. The faces which bear similar figures will come into contact; number 1 with number 1, and so on."

"But what would it *look* like?" I asked, somewhat staggered by Corwin's unanswerable demonstration.

"If we could see it at all," he replied, "it would look something like this:" and he produced another sketch.

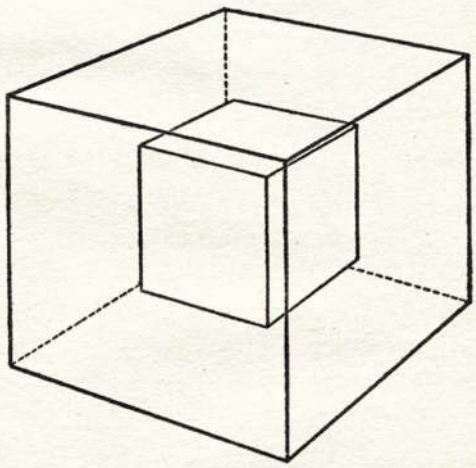


Fig. 6.

"Well, but that simply represents a small cube inside a large one. The original cubes were all the same size."

"That is an illusion of perspective," Corwin explained. "The cube appears smaller because it is further away from you in the Fourth Dimension, just exactly as the square which forms the distant side of a cube appears smaller than the square which forms the nearer side. Measure the front and back faces of the cube in Figure 4 and you will see what I mean."

I looked at Corwin's last drawing thoughtfully, tilting my head first one way and then the other.

"I'm sorry, Hilary," I said at length. "I have heard your explanations. I'll even go so far as to say that I understand them. But, somehow, I can't seem to grasp that Tesseract of yours. Whatever way I look, it's just a little cube inside a big cube."

"Of course you can't grasp it!" replied Corwin, smiling. "Neither can an Australian Bushman 'grasp' a photograph. It's a matter of visual education."

I TURNED away from the tantalizing sketch with a sigh of resignation. The longer I looked at it the more I felt that I was just on the point of seeing something, only to have it snatched away.

"All right, Hil, I'll take your word for it," I said. Now tell me how all this applies to the gold."

"I have explained the Fourth Dimension at some length, Frank, to show you that there is nothing so very mysterious about it. Picture those oak cases of gold coins piled one on top of another. Enormously heavy. Acted upon by we can't say what forces, gravitational or electrical *in the Fourth Dimension.* All they needed was that tiny *tilt* out of line to cause them to fall a short distance in that Fourth Dimension. The distance they fell would not need to be very great for the chests and their contents to pass entirely beyond our ken."

"You speak of a slight tilt in the Fourth Dimension, Hil," I commented, "but what could possibly give the cases of gold any such tilt?"

"Pooh! Where's your imagination, man?" cried Corwin. "What else could it be but the new Power Beam or rather the shutting off of the Power Beam when the circuit breaker blew. I have ascertained that the plane of the beam exactly intersects the centre of the store-room. I have long held the theory that magnetic lines of force are actually the result of a strain in the ether acting in the Fourth Dimension. Some day I intend to publish an article on the subject."

"I can understand that the Power Beam must produce a tremendous strain in the ether," I said, but why did not the gold fall into the Fourth Dimension when the Beam was first turned on?"

"Here, let me illustrate!" exclaimed Corwin, snatching up a rubber band from his desk. "Catch hold of one end of this band, which represents the ether. You understand that they start the Power Beam gradually by means of rheostats. I will represent the condition of the ether by stretching the rubber band slowly. Now I hold it fully stretched. This is the condition with the Beam working at full strength."

Suddenly he released his end of the band, which recoiled violently, cutting me sharply across the knuckles.

"Ouch!" I cried, withdrawing my hand with an involuntary jerk.

"Precisely! Ouch!" mimicked my friend. "That represents the sudden shutting off of the Beam. Is the demonstration clear?"

I agreed that it was and, the lecture being complete, we adjoined to Corwin's house for dinner.

AT a quarter to ten that night, Hilary Corwin and I alighted once more at the flying fields where we found Cogswell, the Treasury Official, awaiting us. It was apparent immediately that Cogswell was in a very bad temper, but a glance from Corwin was sufficient to remind him that he was likely to get the worst of a verbal encounter with the scientist.

We walked up to the store-room which was dimly lit by means of two hand-lanterns, the electric lights having gone out of commission at the same time that the gold disappeared.

"Now, Mr. Cogswell," said Corwin, "I promised to notify you when I had found the gold. This I have done and at ten o'clock precisely, I hope to demonstrate the correctness of my theory."

"Is it permissible for a mere Government official to ask what that theory is?" queried Cogswell, satirically.

"Certainly it is permissible," replied Corwin, blandly, "but no answer will be vouchsafed! I should like to point out that your duties are restricted to receiving the gold from me. My duty is to find the gold and return it to you. I suggest that we shall do well to abstain from interfering with each other in the performance of our respective duties."

For a few seconds I thought that poor Cogswell would burst a blood vessel, but Corwin completely ignored the furious official and continued in a quiet voice:

"It is two minutes to ten, gentlemen. Please take your places along the north and south walls of the room. I would not be responsible for the safety of any person in the centre of the room at ten o'clock. As my friend here has reminded me, the Rhodesian gold weighs very many tons! Forty seconds more. At ten o'clock, Frank, the Power Beam will be turned on full strength. The sudden strain on the ether thus produced will, I hope, reverse the action of the previous strain and, presto—Ah! Here comes the gold, Mr. Cogswell."

The room was lit by a glare of bluish white light, so intense that involuntarily I clapped my hand over my eyes. Then I heard a faint rumbling sound, seeming to come from an immense distance.

I withdrew my hand and looked towards the centre of the floor. There, hovering in the air, was a tiny opaque spot which rapidly grew larger. In a few seconds it was as large as an orange.

"Holy Moses! It's the gold!" shouted the Sergeant.

There it was, a hundred massive oak cases hanging in the air and occupying a space not larger than an orange! It was like looking at them through the wrong end of a telescope. Suddenly it flashed across me that the cases looked small because we were viewing them from a great distance; a distance measured in the Fourth Dimension.

Larger and larger grew the cases, louder and louder became the rumbling sound. Then there was a last tremendous bump, a dense cloud of choking dust filled the room and—silence.

"The Rhodesian Gold, Mr. Cogswell," said Corwin, calmly.

It would be hopeless for me to attempt to describe the excitement of the four guards, the Secretary and myself over this dramatic culmination. The great oak chests were there, piled in the centre of the floor as neatly as they had been twenty-four hours sooner. Only one thing was changed. The outside of the cases was thickly coated with a fine, crystalline dust, a dust which gleamed and scintillated with every color of the spectrum, as though it were crushed opals.

At the sight of this strange dust, Corwin displayed his first sign of interest. He had whipped out a pocket magnifying glass and was examining the surface of the chests, when Cogswell interrupted him.

"My dear Dr. Corwin!" he began pompously, expanding his chest like a pouter pigeon. "I wish to con-

vey to you the hearty thanks of the Government for the remarkably efficient way in which you have conducted this investigation. You will not find the Government lacking in appreciation—.

This was as far as Corwin allowed him to get in his speech.

"All right, all right, Mr. Cogswell!" he exclaimed with an impatient gesture. "I can dispense with the rhetoric. The Government may show its appreciation by sending me a cheque for fifty thousand dollars tomorrow."

"F-f-fifty thousand!" stammered Cogswell, "Well, really, Dr. Corwin—"

"Oh! Of course, if you don't think one tenth of one per cent is a large enough commission, by all means make it more! Frank, would you kindly get me one of those instrument cases out of the plane. I wish to take this dust to the laboratory for analysis."

THIS is really the end of the story, which Hilary Corwin has permitted me to make public, but there was a sequel which, if possible, was more amazing than anything else connected with this strange case.

When we returned to Corwin's house, he hurried me into the laboratory to help him with an investigation of the glittering powder.

"We'll try the spectroscope first, Frank?" he said. "As you probably know, that is an instrument for analyzing light. I shall heat a sample of the powder to incandescence and allow the light from the vapor to pass through this prism. Each substance emits its own characteristic light. Very often the spectroscope is the quickest and most accurate means of determining the composition of an unknown substance."

While he talked he prepared and focused the instrument, arranged a spirit lamp in front of the slit and put a minute portion of the dust on a platinum wire. This he inserted in the colorless flame, which immediately flared into brilliant purple.

Corwin applied his eye to the eye-piece. Next moment he was dancing round the room like a madman.

"The double in Andromeda!" he shouted. "More than forty thousand light-years! The double in Andromeda! Look for yourself!" and he seized my arm and dragged me to the instrument."

I looked into the eye-piece and saw five vertical lines of light, spaced at irregular intervals against a wall of darkness. Two of the lines were deep blue, one emerald green and two were crimson.

"But what is it? What does it mean?" I asked wonderingly.

By this time Corwin had calmed down to some extent.

"It means, Frank, that I have discovered the only missing element," he said. "This box of dust is the only known sample on earth and it will probably remain the only known sample. It shall be called Corwinium. I knew that this substance existed, but I little thought that I should ever isolate it."

"But if you have never seen it before, how did you know that it existed?" I asked, almost as excited as he had been.

"You know the history of Helium—but come, I will show you!" and he led the way to his observatory.

At the pressure of a button, a slit in the dome swung open and the dome revolved until the telescope pointed to the western sky. Corwin spent some moments adjusting the great tube and then motioned for me to take his place at the eye-piece.

In a velvet sky, spangled with points of light, I saw two stars, very close together and purple in hue.

"That is the famous double star in Andromeda," Corwin explained. "It is situated at a distance of forty thousand light-years from the earth, or about two hundred and thirty-five thousand million million miles. You know that astronomers use the "Light-Year" as a unit of distance, that being the distance light travels in a year. Now we will try the spectroscope."

Rapidly he attached an elaborate instrument to the eye-piece of the telescope.

"By means of the spectroscope, we are enabled to analyse the composition of the stars, precisely as we can analyse substances in the laboratory. Now look!"

Again I peered into the glass; but this time, instead of the twin stars I saw ten vertical lines of light. Four were deep blue, two emerald green and four were crimson. They were identical in color and spacing with those produced by the crystalline powder, save that each line was double.

As I looked up at Corwin, my face must have been a study in bewilderment.

"Don't you see what that means, Frank?" he said. "Our new element, Corwinium, has never been discovered on earth. Its spectrum has never been seen, save in the light of that double star in Andromeda. So far as we know, Corwinium does not exist anywhere in the universe, save in those twin stars. That dust on the gold chests is star dust; dust from countless billions of miles away."

By this time I was ready to believe anything Hilary Corwin told me. Besides, in this case, the evidence for his otherwise incredible statement was before my eyes. It did not admit of contradiction.

"But, Hil," I said, a little breathlessly, "how could dust come from a star all that distance away?"

"In the first place, Frank," he said "that dust did not come from the twin stars themselves. They are suns like our own and inconceivably hot. It came from one of the planets revolving around the double star. That planet may be, in fact is, forty thousand light-years away in *three dimensions*. But due to the curvature of space, it is touching our own earth *in the Fourth Dimension*.

"When the Power Beam was turned on this evening, the chests of gold came back. They came back across the cosmic universe, bringing with them the dust of infinite space—the star dust of the double star in Andromeda!"

THE END