

Danny Dunn and the Voice From Space

*Jay Williams and
Raymond Abrashkin*

All characters in this book are entirely fictitious.

The Tenth Danny Dunn Adventures

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Illustrated by Leo Summers

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*This book is for
Benjamin Williams*

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1

Meeting with a Martian

The boy with a mop of hair like a bonfire stood on a ledge of rock, shading his eyes and peering at the scene below. There was nothing especially exciting about it. What most people would have seen was a grove of quite ordinary birches and maples through which wound a little stream talking cheerfully to itself. But what Danny Dunn saw was a stretch of reddish soil on which grew tall rubbery-looking plants that swayed forward as if they were alive, while at their feet ran a hissing black river. And this landscape of another planet was so real for him that he stepped back a pace to avoid the groping branches of the alien trees.

“Ow! Watch it!” yelled the completely human voice of his friend, Joe Pearson. “You stepped right on my foot.”

“I’m sorry,” said Danny, making room for his friend on the ledge. He shook his head with a sigh as the strange landscape vanished from his mind’s eye. “I was just imagining what I’d see if we had landed on Mars.”

“Mmph!” Joe grunted. “Do you see any doctors? I think my toe’s fractured.”

“You’ll live,” Danny replied. “Come on. If we follow the stream we’ll get to that open meadow full of wild

flowers. There are bound to be some butterflies there.”

The boys picked their way down the slope, holding their gauze nets high to avoid tangling them in the underbrush. They were doing a joint project for their science class, but so far an hour’s hunting on this bright Saturday morning had produced only one white cabbage butterfly, the commonest and least attractive butterfly of all.

As they walked beside the water, Joe said, “You’re really figuring on getting to Mars some day, aren’t you?”

“Sure,” said Danny. “Aren’t *you*?”

Joe’s long, mournful face grew even longer and sadder. “What for?” he said. “I want to be a writer when I grow up. There aren’t any readers on Mars. No people, no places, no oxygen in the atmosphere, nothing but a few measly bacteria, and *they* won’t buy books.”

“We don’t *know* there’s no intelligent life there, Joe. We may get some surprises. Anyway, think of the adventure of setting foot on another world.”

“Uh-huh. I’m thinking of it. Launching right off the earth in a little tin case, getting space-sick, and being bombed by meteorites. Then you land a million miles from home and take out a hot dog and discover that you forgot to bring the mustard. Some adventure.”

“It’s a good thing I know you so well,” said Dan, “or I’d think you were afraid.”

“You’d be right,” Joe said. “Joe Pearson, Boy Coward, that’s me.”

Danny laughed. “But it would be a marvelous adventure, no matter what you say. To step out on ground different from anything we can imagine! To see things nobody’s ever seen before. And more than that— maybe to meet people, or living things completely different from people, and try to talk to them, understand them, find out wonderful new things from them. Gosh! I’d give anything for the chance.”

His freckles vanished in a flush of ecstasy at the mere thought.

“Okay,” Joe said. “You’ve talked me into it. Let’s go home and pack.”

“Not yet,” said Danny. “First we’ve got to collect some butterflies. I’ve set my heart on a tiger swallowtail.”

Danny’s interest in space exploration was part of his larger interest in the whole world of science, and that was something he had grown up with. When he was only a baby, his father had died and his mother, to support herself, had taken the post of housekeeper for the famous Professor Euclid Bullfinch, inventor and scientist. The Professor had formed a deep attachment to the boy, and they were like father and son. Professor Bullfinch had taught Danny a great deal, so that he knew a lot more about some aspects of science than did most boys his age.

The stream widened, and the two boys came out into an open field. Among the tall grasses grew purple clumps of ironweed, set off by nodding daisies and the brilliant orange splashes of devil's paintbrush. Danny pointed eagerly. Above the flowers danced several butterflies. Two of them showed the black tiger-markings on huge lemon-yellow wings.

“Oh, boy!” Danny whispered. “One apiece. It's almost too good to be true.”

He shook out his net. He had made both his and Joe's out of coat-hangers, mosquito netting, and long, slender willow rods.

Joe stood the killing bottles on a flat rock. “I'll go around to the left and work down toward them,” he said. “You swing out toward the stream and come in from there. Make believe we're Indians and they're unsuspecting settlers. Ugh?”

“Ugh, ugh!”

But in his own mind, as he began stalking his prey, Dan was far away from the western plains. His blue jeans turned into a silvery plastic space suit, his sneakers became flexible boots, and over his head was a complicated helmet containing oxygen, water, and radiotelephone. He stood on the surface of Mars and before him, above the unearthly, reddish lichens, floated one of the queer winged animals they had sighted from the ship the day before. Was it intelligent? Was it trying to communicate with him by the patterns of its movement? Closer he crept, and closer. Suppose one of

the great fanged beasts they had seen should appear before he could reach the winged creature? He wondered if his space pistol had enough power to stop its charge...

“YOW!”

Something had moved in the grass, something very large—it reared its head up directly in front of him. Even as he yelled, Danny swung the net frantically and brought it down—

—And stood with his mouth open staring in embarrassment and surprise at a man who stared back at him with the butterfly net over his face.

“Hey! What’s going on?” the man said, fumbling with the meshes.

“Gee, I’m sorry. I thought you were a Martian,” Danny blurted.

“What gives?” Joe panted. At Danny’s shout, he had sprung straight up in the air and lost his net. Then he had come running.

“I thought you stepped on a snake,” he said. “Who’s this? What happened?”

The man had finally managed to pull the net off his head. He revealed a pleasantly ugly face: long, bony chin, large, bony nose, snapping brown eyes, and wide mouth made even wider by a boyish grin. He wore a wrinkled old corduroy suit, and his heavy shoes were covered with dust as if he had walked many miles.



He got to his feet, picking up a knapsack as he did so, and held out the net.

“Name’s Badger,” he said. “Hubert Badger. My friends call me Badge.”

Dan took the net and shook hands. “I’m Danny Dunn and this is Joe Pearson.”

“Have you been hiking?” Joe asked. “Have you come far?”

“Depends on what you mean by ‘far.’ Let’s see, yesterday I walked from Hattertown to Barber’s Mill.”

“Whew! That’s nearly twenty miles.” Danny’s voice was full of respect.

“Mm. I left Barber’s Mill about eight this morning. What is it now? Must be about noon.” He glanced at his wrist watch. “Eleven-thirty. I’ve been dozing here for about half an hour so that means I covered ten miles in three hours. Not quite up to my usual pace, but I struck off the main road and took a wagon track in to here. Thought I’d find the stream—it’s marked on my map—and maybe cool my feet.”

“I thought *I* liked hiking,” Danny said, “but you really cover ground.”

“It’s my hobby,” Mr. Badger said seriously. “I enjoy seeing new places, but you can’t see them the way we travel nowadays. We go too fast. Jump in a jet and—zip!—you’ve covered a thousand miles. Get in your car and—whizz!—you’ve done a hundred. But when you walk, you see each house and tree, you’ve got time to study the countryside and to smile at people and maybe say hello.”

He stretched his long arms over his head, the knapsack dangling from two fingers as if it were a

feather.

“Give me a tramp’s life any day,” he said. “Not that I’m against progress. No, speed’s all right when you need it. But we seem to be more interested in getting places than in being in them. Why, I know people who drive their cars just to cross the street.”

“Where are you bound for now?” Joe asked.

“A town called Midston. Should be very close.”

“It is,” said Danny. “Only about a mile away through those trees.”

“Good. I take it you’ve been butterfly hunting. Any luck?”

Danny looked at his friend. “Well—we *almost* had a couple of tiger swallowtails,” he said, ruefully.

Mr. Badger shook his head. “I’m sorry. My fault, I can see. I must have scared you out of a year’s growth, sitting up suddenly like that. But—why on earth did you think I was a Martian? I’ve been told I look like a lot of things, but that’s going a little too far.”

Dan reddened. “Oh, it was just in my imagination,” he replied. “I was sort of pretending that I was on another planet, and thinking about what kind of life I’d see there, and then—well, there you were.”

“I see.” Mr. Badger began struggling into the straps of his knapsack. “Don’t tell me you really think there’s life on another planet somewhere?”

“Of course there is!” Danny cried. “Do you know

anything about astronomy?”

“Uh—astronomy?”

“If you did, you’d know that our solar system is stuck ’way out in an arm of our galaxy, the Milky Way, and there are millions of other suns in that galaxy alone. Some of them—say, maybe, a million—are G-type suns like ours, or have about the same heat and mass. Well, when you start thinking about other galaxies with the same type of stars in them, you get up into the billions. And that means that some of them must have planets circling them on which conditions could be right for life to develop. Why, gosh! when you start thinking about that many stars and planets, and the fact that the laws of physics and chemistry are the same for all of them, common sense tells you that some have *got* to have planets with intelligent life on them.”

Mr. Badger looked down at Danny’s glowing face.

“Hmm. You certainly make out a good case,” he began.

Before he could go on, there was a startling interruption. A voice—clear, sharp, and with a metallic tone—spoke.

“Calling Space Pilot Dunn!” it said. “Do you read me? Over.”

Mr. Badger’s eyes bulged. The voice came from right beside him. But except for himself and the two boys there was not another soul to be seen.



2

The Thermoelement

Mr. Badger had no time to recover. For Danny's response to this ghostly voice was even more surprising.

"Hi, Mom," he said.

Mr. Badger clutched at his brow. "I'm going mad," he said, hoarsely.

Danny grinned at him. At the same time, he hitched forward a small metal case which he wore fastened to his belt, and spoke to it.

"I read you loud and clear," he said. "Over."

"Aha! A radio," said Mr. Badger.

"A walkie-talkie," Joe explained. "Danny built a pair of them. His mother has the other one."

Mrs. Dunn's voice was saying, "Lunch in half an hour, Dan. There'll be hot buttermilk biscuits and chicken gravy."

"Oh, boy!" said Danny.

Mrs. Dunn went right on, as if she were reading her son's mind—and Joe's. "Yes, you may bring Joe home with you. I'll phone Mrs. Pearson. But don't be late. Over."

Mr. Badger looked at Danny with amusement. "Sort

of a hot line direct to the President, eh?” he said.

Danny nodded. “I got a watch for my birthday,” he explained, “but I always forgot to look at it. And finally, Mom got mad and said I’d have to learn to come home in time for lunch or dinner or chores, or there’d be real trouble. So I earned some money by gardening and babysitting, and bought some kits, and made the walkie-talkies.”

“That’s pretty good,” said Mr. Badger. “Better than I could do. Wasn’t it awfully complicated?”

“It was,” Danny admitted. “I’ve got a friend—a girl named Irene Miller who lives next door, and she’s keen on science, too. She helped out. Between us, we figured out how to do it.”

“We’d better get going, Dan,” Joe reminded him.

Mr. Badger held out his hand. “Well, it’s been nice meeting you boys. Maybe we’ll bump into each other again, one of these days. Meantime, I’ll remember what you told me. I can see I ought to give astronomy a whirl.”

The boys collected their equipment and went off.

“He was a nice guy,” Joe said, as they hurried through the woods. “It must be fun to be a tramp and just wander around, seeing the world. Except when there are hot biscuits and chicken gravy for lunch,” he added quickly.

“Yep,” said Danny. “I wonder if we’ll ever see him again. He’s a sort of explorer, in a way. But I wonder

why he bothers to explore around here, where everything is so—well, so usual.”



Professor Bullfinch’s house was on the outskirts of the town of Midston, not far from the University where he was a member of the department of science. The boys left their nets and bottles on the back porch and went into the kitchen. Mrs. Dunn, looking rosy from the heat of the oven, was setting plates out on the long table. She greeted them with a smile. They went to wash their hands at the sink, and as they were finishing Professor Bullfinch walked into the room.

Euclid Bullfinch was a comfortable, round-faced man, bald and mild-looking, with nothing in his appearance to proclaim the fact that he was an eminent scientist. Behind his glasses, however, his blue eyes sparkled with intelligence and a never-ending, lively curiosity. With his hands stuffed into the pockets of his old tweed jacket, he sniffed the air appreciatively.

“Hello, Dan. Hi, Joe,” he said. “I wonder if this is the way heaven smells? Now, let’s see. A little careful analysis and experimentation should tell me what’s cooking.”

He strolled over to the stove and picked up the lid of a saucepan. “Hah,” he said, dipping a finger into the contents of the pot.” Chicken—?”

“Professor,” cried Mrs. Dunn. “You’re worse than the boys. You can do all your analyzing and experimenting

at the table. Sit down, everyone. Lunch is ready.”

They tucked in joyfully, and for a time there was no sound except the clinking of knives and forks, the gurgle of milk going into glasses, the munching of jaws, and an occasional request, mumbled through a full mouth, for another helping.

At last, the Professor pushed his chair back and began to fill his pipe. “Excellent, my dear Mrs. Dunn,” he said. “But it’s wicked of you to feed me so well. I’m almost too stuffed to get back to the laboratory.”

“What are you working on now, Professor?” Joe asked.

Professor Bullfinch held a match carefully over his pipe and soon his head was wreathed in smoke, so that it looked like a benevolent moon appearing from behind a cloud.

“A most interesting new project,” he said. “Do you know what a thermoelement is?”

“Cousin to a thermos bottle?” Joe ventured.

The Professor chuckled. “Well, in a way. A distant cousin,” he said. “I won’t ask Dan because I gave him my special fifty-cent lecture on the subject a day or so ago. A thermoelement is a curious kind of thing: it’s a machine that pumps heat from one place to another, but it has no moving parts except those which are too small to be seen.

“You know, I’m sure, that the tiny particles which make up matter are constantly moving. This motion is

energy, or heat. When the particles in a bit of matter move rapidly, the stuff is hot. If they move very slowly, it's cold.

“Now suppose you want to cool off a cup of hot coffee. What you might do is transfer some of the energy—the fast motion of the molecules of hot coffee—into something else. So you could put a lump of ice into the cup. The fast-moving coffee molecules bang into the slow-moving ones of the ice and speed them up a bit. The hot particles lose some of their energy and the cold ones gain a little. Some of the heat has been moved over into the ice, and the coffee gets cooler.”

“I see that,” Joe nodded. “I don't know why, but I do understand. So what's a thermo—what you said?”

“Well,” said the Professor, “let's take it step by step. If you wanted to cool a whole lot of coffee, you'd try moving the heat out of it with a machine that would force the action to speed up. You'd have to move the heat to somewhere else—you'd *pump* it from one place to another. Most of our heat-pumps, refrigerators or air conditioners for instance, are big, complicated pieces of machinery. In them, a liquid is moved in pipes around the outside of the box. The liquid is made to boil, so that its molecules move very fast, and the things inside the refrigerator transfer their heat energy over to this liquid. The heat is then carried by the liquid to another place outside the box. So the heat is pumped from the inside to the outside, and the inside gets very cold.

“But there's a simpler way of doing things. We can

make the tiny electrical charges known as electrons in a piece of material do the work of transferring heat energy from one place to another, instead of using the larger molecules in the liquid of a refrigerator. This kind of heat-pump is called a thermoelement.”

“All right, but how does it work?” Joe asked, with interest.

“It’s difficult to explain,” the Professor said. “But it goes something like this. Some metals have more free electrons moving around inside them than others—that is, if you were to compare pieces of metal of the same size. Now, if you bring two pieces of metal together, one with more free electrons and one with less, the electrons tend to seep out of the first piece and into the second. They thus establish a difference in energy at that spot.

“When an electric current is pushed through the two pieces, the electrons have to change their energy. They can only do this by picking up heat or giving it off, depending on which way they’re moving. Are you still with me?”

Joe rubbed his forehead vigorously with both hands. “I guess so,” he said. “Go on.”

“The electrons get this energy by taking it from the bridge, the place where the two materials meet. And since heat is a form of energy, when they take it from that spot—”

“That spot gets cold,” Danny put in. “The heat has to

be moved somewhere else, though, and it's carried by the electrons to the other ends of the materials. So those ends get hotter. Right?"

"Just so," said Professor Bullfinch. "A wonderful little device. Would you like to see one?"

"You bet!" said Joe.

The Professor rose to his feet. Mrs. Dunn said, "Don't forget, you're expecting a phone call from Dr. Grimes in Washington, Euclid."

He nodded. "I won't. I think we have a little time. Come on, boys."

The Professor's private laboratory was a long, one-story extension built onto the back of his house and reached by either a door from the garden or a short corridor from the main hallway. It was full of fascinating equipment and was made even more crowded by two long, stone-topped lab benches. The Professor led the way to one of these. On it, there was a small battery pack hooked up to a switch from which, in turn, two wires ran to two chunks of metal connected by a strip of copper.

"That's all there is to it," the Professor announced. "No moving parts, nothing complicated, nothing up my sleeve. Now watch."

He closed the switch.

"And nothing happens," said Joe.

"Ah, but wait a moment." The Professor picked up a

beaker with a little water in it, and poured a drop or two over the copper strip. The water began to solidify, a fur of white frost appeared, and the copper was soon coated with ice.



“The strip of copper acts as a bridge over which the electrons can make their jump,” explained the Professor.

He reversed the switch. In seconds, the ice had vanished in a curl of steam.

“That little one doesn’t produce much heat or cold,”

he said. "But look over here. This is what I'm working on now."

On the other bench stood a larger and more complicated device, a gray metal box about a foot square with dials and switches on its side. Two long shining rods reached from its front, connected at their tips by a tiny tube of what looked like glass.

"This one is made of some interesting new substances which my old friend Dr. Grimes sent me," said the Professor. "The rods are metals which were actually *grown* in the laboratory, not dug out of the ground. That glassy tube which serves as a bridge is a laboratory crystal. This metal box contains a new kind of battery of my own invention. As you see, I have set up a thermometer at the crystal bridge. I am hoping to produce much higher and lower temperatures once I've perfected this version."

He snapped a switch and turned a knob a little way. "I haven't yet fully charged the battery," he said. "We'll give it a few minutes —"

He was interrupted by Mrs. Dunn, who came in from the hall. "Dr. Grimes is on the phone from Washington," she said.

"I'll be right there," said the Professor. "Dan, keep an eye on that dial. When the needle gets to the middle black line, snap the switch off. Whatever you do, don't let it get into the red section."

He hastened out of the room.

Joe lounged back against one of the lab benches. “You know what this place reminds me of?” he said. “One of those creepy dens magicians had back in the Middle Ages. I was reading a neat book, *The Sword in the Stone*, it’s called, all about Merlyn and a kid named Wart, and you know Merlyn’s magic is something like Professor Bullfinch’s. Making cold and hot appear at the wave of a hand, playing around with invisible demons—these electrons and things—”

Danny scratched the end of his freckled nose. “Uh-huh. I like magic,” he said. “But I also like to know how it works. And why.”

“I’ll never know,” Joe said, cheerfully. “To me, it’ll always be mysterious and beautiful and as clear as mud, whether it’s figuring out how to make an electron play hopscotch or waving my hands and saying, ‘Abracadabra! I command a genie to appear!’”

He broke off, his mouth hanging open. For as he said the words, a tall figure appeared outside the laboratory windows.

“Help!” he gasped. “Here he is! What’d I do? I didn’t mean it!”

Danny stared outside. “Relax, Joe,” he said. “It’s not a genie. It’s—why, it’s Mr. Badger.”

“You’re right,” said Joe. “But what’s he doing here?”

Danny snapped his fingers. “I know. He’s looking for a handout.”

“A handout?”



“Sure. You know how tramps go from house to house looking for a meal in exchange for chopping wood, or something? He’s looking for the back door.”

And indeed, Mr. Badger was staring up at the laboratory as if in puzzlement.

Danny ran to the garden door and threw it open.

“Hi, Mr. Badger!” he called. “You were right—we did meet again.”

“Why, it’s the space-exploring boy,” said Mr. Badger. “Danny Dunn. Do you live here?”

“Yes, I do. Come on in.”

Mr. Badger stepped inside, and looked around in wonderment. “My, my. Quite a place,” he said. “Is this where you do your research?”

“Oh, no. I wish it were. My room’s upstairs. But listen, Mr. Badger, I know why you’re here.”

“You do?”

“Sure. But you needn’t worry about chopping wood, because we only have one fireplace and we don’t build fires in it in June.”

“Oh,” said Mr. Badger. “I see.” He began to look a bit confused. “Or do I?”

“Anyway, my mother’s an awfully kind-hearted woman, and she’d never make anybody work just for a meal,” Danny continued.

“That’s nice,” said Mr. Badger. “Do you feel all right?”

“I feel fine,” said Danny. “Don’t you?”

“Me? I feel—I guess—I don’t know how I feel,” said Mr. Badger.

“I know what it is,” Danny said, sympathetically. “You’ve done all that walking and you’re probably starved and tired. But you come out to the kitchen with me and when I tell Mom that you’re a friend of mine, she’ll stuff you.”

“Now, wait a minute,” said Mr. Badger. “I don’t want to be stuffed. Take it easy, son. Maybe you’d better go lie down for a while.”

“What for? I’m not the one who’s tired,” Danny protested.

Mr. Badger groaned. “Well, *one* of us had better go lie down,” he said.

The door opened, and Professor Bullfinch came in. “Danny did you—?” he was beginning, when he saw Mr. Badger. His eyes opened wide.

“Badge!” he cried.

“Euclid! Thank goodness you’ve come,” said Mr. Badger. “I can’t understand one single word this boy is saying to me and I don’t know whether I’ve lost my mind or he’s lost his.”

Danny glanced from one to the other. “Professor,” he said. “Do you—do you know Mr. Badger?”

“Know him? Why of course I know him. We’re old friends. Let’s see, I haven’t seen you, Badge, since the

Boston convention last year. You gave me a fascinating few days in your observatory then.”

“His observatory?” Danny gulped.

“Certainly. Haven’t you been properly introduced to each other? Badge, these are my friends, Danny Dunn and Joe Pearson. Boys, this is Dr. Hubert Badger, director of the Whipple Observatory in Boston.”

He peered closely at Danny. “What on earth’s the matter, my dear boy?” he said. “You’ve suddenly turned a very peculiar, light green color.”

“He has, hasn’t he?” said Joe, in an interested voice. “I suppose it’s because he gave Dr. Badger his special fifty-cent lecture on astronomy.”

3

Project Gnome

Danny's cheeks flamed. "Why didn't you say anything about it?" he demanded.

Dr. Badger looked sheepish. "You were doing so well I didn't want to stop you," he said. "And I didn't think I'd see you again, you know. You gave me a good lecture, anyway," he added. "Couldn't have done better myself. Nothing to be ashamed of, Danny."

He held out his hand. "Will you excuse me? Let's start over from the beginning, Okay?"

"Okay," Danny grinned, shaking hands vigorously. "It *was* a good lecture. And even though you are an astronomer and maybe you don't agree with me about life on other planets, I meant every word of it."

"But I do agree with you," said Dr. Badger. "You ask Professor Bullfinch. Why, I made pretty much the same speech at the Boston convention. Some of the scientists who were there thought I'd been seeing too many weird movies."

"But what brings you here, Badge?" the Professor asked.

"Why, I wanted to see you, of course. And you know how I like to walk—I drove down to a little place called Hattertown and hiked from there. I met the boys this

morning. Or no, I guess it would be more correct to say they caught me.”

“Caught you?”

“In a butterfly net. Only way to bag an astronomer. They told me how to get to Midston. I walked down and had some lunch, strolled around, and then cut across the fields from the University to your back door. And that reminds me,” he added, wrinkling his brow. “What on earth was all that stuff about chopping wood, Danny?”

“I thought you were a tramp looking for a handout,” Danny mumbled.

“Aha! Light dawns. I see. Well, you’re not far wrong. I am looking for a kind of handout from you, Euclid.”

“A dime for a cup of coffee?” The Professor’s eyes twinkled. “I’ll do better than that. You’ll stay to dinner, I hope, and for a few days with me as well.”

“Thanks. I’m not sure how long I can manage, but I’d like to stay for a short while anyway. I’ve got a lot to talk about with you. I want your help for Project Gnome.”

“I see. So you’re going on with it?”

“It depends. The whole thing rests on Sir Edward Pomfret, now.”

“What’s Project Gnome?” asked Danny. “Something to do with Nome, Alaska?”

“Or is it goblins?” Joe said.

“Neither, I’m afraid,” replied Dr. Badger. “Project Gnome is a dream I’ve had for many years. I want to listen for a message from another planet.”

“Who’s sending it?” said Joe.

“Maybe nobody,” Dr. Badger said gravely.

“Well, where will it come from?”

“I don’t know that either.”

Joe sighed. “I know I’m only a kid,” he said, sadly, “but I don’t think it’s right for an astronomer to make fun of me. Listening for a message nobody’s sending from a place that maybe doesn’t exist? If I gave that as an excuse for not paying attention in my science class, I’d be expelled from school.”

“I’m sorry, Joe,” Dr. Badger laughed. “I wasn’t making fun of you. But scientists are rather odd people. They’re always dealing with stuff you can’t touch or see, but can only guess at. Much of atomic theory depends on the existence of electrons, and those are things we can’t see—in fact, they may not even be *things* at all.”

“How do you plan to do your listening?” Danny said. “And when? And why do you call it Project Gnome? And—?”

“Whoa! One thing at a time,” said Dr. Badger.

All this time, he had been wearing his knapsack. Now, he slipped it off his shoulders and propped it against the wall. He flexed his arms and grunted with

relief.

“That’s better,” he said. “Let’s see. Where shall I begin?”

“Try the beginning,” suggested the Professor. “Project Ozma.”

“Right. Well, in 1960, a group of astronomers led by Dr. Frank Drake put into operation a program they had been preparing for a long time. This was to listen for radio signals which might be coming from other planets. They called it Project Ozma—you remember, Ozma was the ruler of Oz, a far-off, magical country.”

“And I fear a number of our colleagues thought the project was just as imaginary as Oz,” snorted the Professor.

Dr. Badger nodded. “Drake and the others based their plan on the theory that there were millions of other stars of about the same mass and heat as our sun. You know the sequence of star-types, no doubt—”

“Oh, Be A Fine Girl, Kiss Me,” said Danny.

Joe looked shocked. “Hey!” he said. “That’s not a nice thing to say.”

The two scientists chortled.

“It’s a thing most young astronomers start out by saying,” said Dr. Badger. “It’s a good way to remember the types of stars. We classify stars from the hottest, type O, through B, A, F, G, K, and M—the last are the coolest. Our own sun is a G-type star. Studying stars in

the G and K classes, astronomers felt sure there must be many of them which have planets rotating around them, although the stars are too far away for us to spot these planets.

“Now, if there are so many millions of possible planets, our feeling is that it’s very, very possible that life must have evolved on some of them. And perhaps such life has reached a state of technological development as high as—or maybe higher than—our own. If that were so, then perhaps some of those civilizations might be as curious about life on other planets as we are. And if so, they might be as interested in contacting that life as we are.”

“Why not just launch space ships and come here?” Joe said.

“Maybe they have,” said Dr. Badger. “But it’s cheaper and easier and quicker to send a telegram from here to London than to go there by airplane or boat, isn’t it? The same is true when you’re talking about planets. The fastest messenger is light. Nothing can go any faster. Radio waves are practically the same thing as light. Therefore, the quickest means of getting across the enormous distance between planets in different solar systems is a message, by light or radio.

“Drake and his associates at last were able to use the big radio telescope at Green Bank, West Virginia. But of course, they couldn’t use it all the time—there were lots of other projects and other astronomers waiting, and the cost of using the telescope was very high. So

they fitted their project in among others, and listened over a period of three months for a total of about a hundred and fifteen hours.”

He stopped. The boys looked at him expectantly.

Then Joe said, “Somebody answered, and it was the wrong number.”

“Joe, you’re irrepensible,” said Professor Bullfinch.

“I hope that means I’m talented,” said Joe.

“In a way,” Dr. Badger said. “Well, no message came. But that didn’t mean there was none. Maybe they had picked the wrong wavelength to listen on, or they needed better equipment, or they just needed lots more time—there could have been many reasons. And now I want to run a similar project.”

“Project Gnome?” said Danny.

“Exactly. If you’ve read your Oz books, and I hope you have, you’ll remember that the wicked Gnome King had a servant with very sensitive ears: a gnome called the Long-Eared Hearer. That’s my project. Drake and Struve concentrated on the stars Tau Ceti and Epsilon Eridani. I want to scan a variety of targets. And I want to persuade Sir Edward Pomfret to let me use his giant radio telescope in England—it’s the largest in the world. I want to listen for two solid weeks, night and day, a total of 336 hours.”

“Oh, boy!” shouted Danny. “And you want Professor Bullfinch to go along, is that it? Can I go too?”

“Hold on,” Dr. Badger said. “You’re jumping the gun. Everything depends on Sir Edward, and he’s a very difficult man to persuade. As you know, Euclid, he feels that the whole idea of radio messages from space is so unlikely that it’s useless to try listening. He’s always said he’s got too many other serious uses for the Grendel telescope to warrant using it for this sort of experiment.”

Professor Bullfinch looked as gloomy as a man with a round, naturally jolly face could manage. “I do know. He can be very stubborn, too. What do you want me to do, Badge?”

“Why, I learned just recently that you and Sir Edward are old friends. I had hoped you’d be able to help me make him listen to reason.”

“Hmm. It’s true we’ve known each other for a long time. I did some work at Cambridge long ago, when he was there.”

“There you are! And I’ve been told he has a lot of respect for you.”

“Maybe he has. I have a lot of respect for him, too. But you see, we had a rather serious disagreement a few years ago—”

“About what?”

Professor Bullfinch dropped his eyes. “Well,” he said, reluctantly, “we were talking about sports, and the conversation got around to baseball, and he said it was just a game for children that they played with a little

stick and a rubber ball in England, a game called rounders. And I—er—well, I got angry, and said that it couldn't possibly be as dull and boring as the English game of cricket. Oh, dear me, I'm afraid it was silly of us both, but in the end he stormed out of the room and we haven't spoken since."

"I didn't know you were that keen on baseball," said Dr. Badger.

"Neither did I," Professor Bullfinch replied. "He spoke so arrogantly that he put my back up."

"But surely this is important enough to make you forget that old quarrel," said Dr. Badger.

Joe cleared his throat. "Excuse me," he said.

"Just a minute, Joe," said Dr. Badger. He clapped his hands together. "We've got to make him see reason, Euclid! This project could be one of the most wonderful things that ever happened. If we could make contact with another species—"

"Listen, Professor," Joe said.

"Wait a second, Joe," said the Professor. "That's a big 'if,' Badge. You know yourself that it might produce nothing at all."

"But it's worth a try," Dr. Badger answered. "The odds may be against it, but we've got to give it a chance."

Professor Bullfinch nodded vigorously. "Of course. We'll talk about it again. I want you to meet a colleague

of mine, Alvin Miller, an astronomer here at Midston.”

He turned to Joe. “What was it you wanted to say?”

“Oh, nothing much,” said Joe, “except that that machine of yours is making a very threatening kind of noise, and if it’s going to explode I’d like to go home.”

They all whirled around in horror. They had forgotten the Professor’s new thermoelement. The square gray box was fizzing in an ominous way, and the needle on the dial the Professor had told Danny to watch stood deep in the red warning section.

Danny, with a yelp, dove for the box.

“Turn it off!” sputtered the Professor.

Danny’s hand was outstretched. But in his wild haste, he stumbled. He grabbed blindly for the table-top. His fingers slammed down across the wrong switch.

“Look!” cried Dr. Badger.

At the ends of the two slender rods which stuck out of the side of the box, a startling object appeared. It looked like a mass of mushy snow. Twists of steam went up from it, and it grew larger as they looked at it. Then there was a loud *crack!*, as if a tree had been split open.

A long tongue of flame shot across the room, and smoke poured from the gray box.



4

Dr. Badger Finds an Answer

The Professor, who could move swiftly enough when he had to, ran to snatch up a fire extinguisher that was hanging on one wall. He leveled it at the box, and white foam poured out and smothered the fire. The strange white mass had vanished as suddenly as it had appeared. The room was full of the chokey smell of burned rubber and metal.

Danny, wiping away the foam which had splashed him, staggered away from the bench.

“Oh, golly!” he panted. “I’m—sorry—Professor. We were all so busy talking—and I slipped—”

“It’s all right, my boy,” said Professor Bullfinch. “Thank goodness we’re none of us hurt. It was as much my fault as yours. I was about to remind you about the charger myself, when I first came in, and seeing Dr. Badger drove everything out of *my* head.”

Joe had dived under the other lab bench. He now emerged, brushing cobwebs from his hair. “Is it over?” he said. “It’s not going to do it again, is it?”

The Professor was examining the wreck of his machine.

“No, Joe,” he said, “it’s not going to do anything at all, any more. I’ll have to rebuild it. Look at this, all of

you. The metal has melted like taffy.”

The front of the box had split open, and the steel had run down in lumps like the wax of a candle, mixed with a mass of wire and fused parts from the inside.

“That took some heat,” Dr. Badger commented.

Danny had been inspecting the tips of the long rods, at the other end. “The thermometer is shattered,” he said.

“I’m not surprised,” said the Professor. “That thermometer was made to show a temperature of a hundred degrees below zero, and I suspect we got something a lot colder than that.”

Dr. Badger raised his eyebrows. “That big blob of snow—?”

“Was frozen air, I think,” said the Professor, solemnly. “If so, you can imagine how much heat was transferred back into that battery box!”

Dr. Badger clapped his hand to his head.

“Don’t move!” he said. “Don’t say anything.”

The others stood as still as if they had, indeed, turned to ice, staring at him.

“I’ve got it!” he went on, in a low, tense voice. “By George, this may be the very thing I’ve been looking for—the answer to my problem.”

Professor Bullfinch was the first to break the silence.

“I must be very slow today,” he said, “but I really don’t see how this accident can have anything to do

with Project Gnome. Unless, maybe, you plan to freeze Sir Edward Pomfret solid and then use his telescope while he's trying to thaw out."

Dr. Badger thrust his hands deep into his pockets and began striding up and down. He stopped abruptly, and wheeled to face the Professor.

"Do you think you could do that again?" he demanded.

"Do what? I haven't done anything yet," said the Professor, in surprise.

"Build another of those gadgets and reproduce that same effect?"

"Oh, no!" wailed Joe. "Wasn't once enough?"

"Sh!" Danny said, throwing his arm around his friend's neck. "He doesn't mean right this minute."

Professor Bullfinch looked thoughtful. "I'd have to experiment," he answered. "I'm not sure just what happened—something to do with a transformation in the fuel cells of my battery and an excessive charge through the new metals and crystal of the thermoelement. I might be able to. Why?"

"You know what the main problem has been in listening for signals from outer space, don't you?" said Dr. Badger.

"Amplifier noise," the Professor said. "Is that what you mean? Oho! I see."

"I don't," Danny put in, boldly. Professor Bullfinch

had always encouraged him to ask questions when he didn't understand something and had always tried his best to give the boy a complete answer.

Now he turned to Dan and said, "You know what happens when you turn up the volume on a radio? The sound of the broadcast gets louder but so does the crackling and humming of the amplifier itself. That's even more true when you're trying to listen for a signal from a distant star. The amplifier itself makes more noise than the signal coming across millions of miles of space.

"The very best amplifier ever developed—one which makes no noise at all—is a device called a maser. However, in order to operate, the maser has to be chilled to minus 450 degrees Fahrenheit, a temperature very close to absolute zero. This has been done so far with tanks of liquid helium, but it's an expensive process and involves a lot of apparatus.

"What Badge is getting at is that we might be able to use this new thermoelement instead."

"Exactly," said Dr. Badger. "Professor Bullfinch thinks the air itself froze around the ends of the thermoelement. Air turns into a liquid at a temperature of minus 318 degrees Fahrenheit, at normal atmospheric pressure. But what we saw was a kind of solid mass, remember? Thus we had a temperature lower than that. I strongly suspect that the thermoelement will produce temperatures low enough to keep a maser happy. If that's the case, this little

gadget—the battery case and its rods and crystal—would replace all the complex machinery we now need.”

“I understand.” Danny nodded. “You think that if you give one to Sir Edward what’s-his-name, in England, he’ll let you use his radio telescope for your project, in exchange.”

“Precisely. There isn’t an astronomer in the world who wouldn’t welcome one of these things, especially in observatories where they haven’t yet installed masers because of the cost.”

“Yes, I think you’re right,” Professor Bullfinch said enthusiastically. “Look here, Badge, I’ll phone Dr. Grimes at once. He’s the man to advise us about the best way to proceed. He’s a real organizer, and he’ll be able to get the American Science Foundation behind us. Come along. I want to introduce you to Mrs. Dunn and explain that you’ll be staying for a while. You certainly can’t leave now, not until we get this thing settled. And we’ll have to get in touch with Pomfret.”

He grabbed Dr. Badger by the arm and hustled him toward the door.

“I’ll clean up the lab, Professor,” Danny called after him. “And I’ll bring Dr. Badger’s knapsack in, in a few minutes.”

He got a couple of old rags from one of the cupboards, and thrust one into Joe’s unwilling hand.

“Uh—I think I hear my mother calling me,” Joe said.

“Come on, start mopping up this dried foamite,” Danny grinned. “I want to talk to you.”

“What about?”

“Our trip this summer.”

“Oh. Oh, sure,” said Joe. Then he stopped work and goggled at his friend. “What trip?”

“Well, look. Suppose they get this Zero-maker working the way they want it. And suppose Sir Edward Pomfret agrees to let them use his telescope for Project Gnome. Professor Bullfinch will certainly go to England with Dr. Badger, and maybe Irene’s father will go, too—the Professor said he wanted to introduce them to each other.”

“What’s that got to do with us?”

“Week after next we have final exams. After that, vacation starts. What are you planning to do this summer?”

“Hack around. Go swimming, and fishing, and play some baseball, and write some poems. With you, I guess. No?”

“No,” said Danny firmly. “Don’t you want to be in England when they try for a message from another planet?”

“I might have known it,” Joe said, gloomily. “You’ll get mixed up with some Martians and there’ll be trouble.”

“No trouble at all. All we have to do is start working

on our parents. Going to England would be an important part of our education, wouldn't it?"

"Hmm. Well, I have always wanted to see where Shakespeare came from," Joe admitted.

"Okay. We'll have to talk to Irene and make some plans. I don't know about anybody else," Danny said, setting his jaw stubbornly, "but if Professor Bullfinch is going abroad, he's not going without me!"

5

Joe the Persuader

The next couple of weeks were crammed with work for grownups and children alike. Professor Bullfinch plunged into experiments with his thermoelement, which by now he had taken to calling by Danny's name, the Zero-maker. Dr. Badger, after a few days' stay, went back to Boston and soon the air was thick with telephone calls and telegrams between Washington, Midston, Boston, and England.

As for Danny and his friends, they had more than enough to do getting ready for their exams, and could barely find time to think of anything else. But in the end, the last examination question had been answered and the last groans groaned, the final marks had been handed out and the final day had been greeted by the national freedom anthem of schoolchildren:

No more pencils, no more books,

No more teachers' dirty looks.

That very evening, there was a buffet dinner in Professor Bullfinch's house. Irene and her parents were there, as well as the Pearson family, Dr. Badger, and Dr. Grimes. The last was an old friend of the Professor's, and was director of the American Science Foundation. Partly—at least from the point of view of the children

—the dinner was in honor of the end of school. But actually, it was in celebration of Dr. Badger’s great news.

“It’s definite, then?” Professor Bullfinch said, balancing a plate of cold turkey on his knee, while he tried to butter a roll.

Dr. Badger, his mouth full, nodded. Then he swallowed convulsively, and said, “I had the letter yesterday. I brought it along to show you.”



He put his plate on the floor, and fished an envelope out of his inner pocket. From it, he took a letter which he unfolded and read aloud:

“I was very pleased to hear of the final results of the tests of Professor Bullfinch’s cryostat. I was especially gratified to know that the first model will, through his generosity, be given to us for installation at Grendel Observatory. I have made all arrangements for you to commence Project Gnome on the 27th July, and the radio telescope will be reserved for your continuous use (barring any emergency requirements) for two weeks from that date. With cordial best wishes, I am,

Yours,
Pomfret.”

“Splendid!” said the Professor.

Dr. Miller, a rather untidy man with a worried, absent-minded look, said, “It certainly sounds as if you’d sold Sir Edward the idea. Wonderful! And you’ll have two solid weeks to listen for signals.”

“Two solid weeks of nonsense,” growled Dr. Grimes, who was tall and skinny. Much frowning had left deep furrows on either side of his mouth. “Life on other planets, indeed!”

“Now, Grimes, don’t be contrary,” said Professor Bullfinch heartily. “We wouldn’t have this chance if it hadn’t been for your help. You furnished me with the materials for the Zero-maker in the first place.”

“That’s something else again,” said Dr. Grimes. “The cryostat has many practical uses, and the Foundation was delighted to see it developed. But I fear you won’t be any more successful in getting a message from some bug-eyed monster on another planet than Drake was with Project Ozma.”

“I don’t believe they will be bug-eyed monsters,” Dr. Badger said. “If there is advanced life on another planet, in conditions much like ours, it’s not impossible that those beings should look a great deal like us. And Drake really didn’t have a chance to do a thorough job, you know. It was a little like standing on the tip of Mount Everest and yelling at the top of your voice in the hope that somebody in New York City would hear you. I am planning to cover a whole series of star-targets. I may not be successful, either. But it won’t mean we’re wrong.”

“I can see that,” said Joe’s father. Mr. Pearson, a businessman who held an engineering degree, was deeply interested in science. “You mean that there are so many possibilities that even if you cover a hundred of them, there’ll be thousands left.”

“Millions,” corrected Dr. Badger.

“Is it worth trying, then? The odds are so great—”

“Of course it’s worth trying,” Professor Bullfinch said stoutly. “We’d never learn much if we didn’t try tackling the impossible.”

Dr. Grimes snorted. “Wild dreams, Bullfinch. I don’t

believe you'll get anything but static. However, I have something to tell you."

He put his plate aside, and cleared his throat impressively. "Perhaps the rest of you don't know it, but Professor Bullfinch has turned over the patent rights for the thermoelement to the American Science Foundation so that any money which comes in may be used for research. We have decided, therefore, to pay all the expenses of Project Gnome."

While the grownups were exclaiming with pleasure over this announcement, Danny, Joe, and Irene, at the other end of the room, put their heads together.

"What do you think?" Danny whispered. "Shall we try them now?"

Irene's dark eyes flashed. "Let me start," she said. "And then we'll leave it to Joe. You and I know more about science, Dan, but he's a better talker than we'll ever be."

Joe tried hard not to look flattered.

Mrs. Miller, a plump, lively woman, was saying, "I think the whole thing sounds terribly thrilling."

Irene, with an innocent air, said, "Daddy, are you going along with them to England?"

"Well, my dear, I—" Dr. Miller began.

"Of course he is," Dr. Badger put in. "Your father's one of our leading astronomers, Irene. When I first met him, I invited him to take part in the project."

“You’re very kind,” said Dr. Miller.

“It’s too bad Mother can’t have a trip abroad, too,” Irene said, as if to herself.

“It’s too bad we can’t *all* have a trip abroad,” said Joe, loudly and suddenly.

He stood up in the center of the room.



“I’ve been thinking about things, you know,” he said, “and it seems to me that travel is the one thing that is left out of education for kids.

“For instance, we’re supposed to study languages, like French, but what’s the fun if we don’t have a chance to go abroad and speak those languages? And we study current events, the United Nations, and all, but we don’t go to strange countries and meet foreign people.

“And, gosh!” he went on, “what about social studies and geography—what’s the good of them unless you can visit other places and see the geography and study the social—er—societies?”

“And then all those classics we read in school. Wouldn’t it be better if we could see the country they came from? I mean, like England, for instance—the land of Dickens and H. G. Wells, and that rotten book *Silas Marner*—and that good book *The Hobbit*—and—so on.

“England!” he exclaimed, waving his arms. “Sure! What about history? The land of the Pilgrim Fathers. And knights, and Henry VIII and his wives, and no taxation without representation.

“See what I mean?” he shouted, his hair falling into his eyes and his face getting redder and redder. “If we went to England it would be just like going to school. Even more so. It would be like having classes all summer. You want us to become educated, don’t you? And what about seeing the land of Shakespeare? You

remember what Shakespeare said about England? ‘This earth of majesty, this seat of Mars; This other Eden, demi-Paradise... This precious stone set in the silver sea...’ Uh—uh—

“I thank you,” he concluded, wiping his forehead.

His mother, who had been staring open-mouthed at him, ran forward.

“My baby!” she shrieked. “What’s wrong? Why are you babbling like that?”

“I’m all right, Ma,” Joe protested.

“I’m sure he is, Mrs. Pearson,” said Professor Bullfinch. “And I think we got the message.”

“I don’t understand. What message?” Mrs. Pearson said.

“A message from a planet with three curious young beings living on it, I think,” laughed Mrs. Dunn.

Danny reddened. “Well, there’s nothing wrong with our wanting to see another country, is there?” he said.

“For my part,” said Dr. Badger, “I thought Joe made out a very good case. Unfortunately, I don’t think our budget will pay for three junior observers.”

“I, for one, was very impressed by Joe’s arguments,” Professor Bullfinch said, thoughtfully. “I think travel to a foreign land would be an excellent way of making some of Danny’s school work more understandable. What do you say, Mrs. Dunn?”

“I was just thinking how nice it would be not to do

any housework for a month or so,” Mrs. Dunn replied.

“Oh, Mom! Do you mean it?” Danny said.

Mrs. Miller looked at her husband. “I don’t see why Irene and I should be left at home all summer, while you enjoy yourself abroad,” she said.

Irene threw herself into her mother’s arms.

Joe scratched his head. “That’s great,” he grumbled. “I make the big speech, and I’m the only one who doesn’t get to go.”

But his mother hugged him and said indignantly, “Nonsense! I may have been slow to understand, but if the others are going, so are we. I’m sure your father will agree. Won’t you, William?”

Mr. Pearson, all this time, had been quietly cleaning his plate, for in his love of good food he resembled his son. He now dabbed his lips with his napkin, and said placidly, “I had made up my mind to it as soon as Dr. Badger read that letter. Not that Joe wasn’t persuasive—I was very proud of the speech he made. But as it happens, I think I can fit in a business trip to England very nicely. And if they’re going to listen for a message from outer space, I want to be somewhere near at hand.”

“Then it’s all settled,” Professor Bullfinch said, with satisfaction.

He raised his coffee cup.

“To Project Gnome,” he said, “and to our expedition.

Two great adventures—across the ocean, and across space!”

6

The Ocean Voyage

The immense ocean liner towered over her berth on the Hudson River, her red and black smoke stacks rising high above the city's traffic. Tiny figures filed slowly up the steep gangplanks like ants swarming into their nest in a tree trunk. One of the ants—a red-headed one—paused and glanced behind him.

“Gosh, we're a regular parade,” he exclaimed.

Behind Danny, the others stretched in a long line. Irene and Joe were at his heels carrying their overnight bags, then came Mrs. Dunn holding her new hat on with one hand and clutching a parcel in the other, then Mr. and Mrs. Pearson struggling with suitcases, then

Dr. Miller helping Mrs. Miller, who was so laden that she could barely see where to put her feet, then Professor Bullfinch clasping the Zero-maker, and finally Dr. Badger, swinging his briefcase and whistling cheerfully as he brought up the rear.

“If we're a parade, Dr. Badger's the band,” giggled Irene.

They found their way to their cabins, and while the grownups began unpacking and stowing away luggage, the three children ran off to explore the ship. It was like some fantastic city of the future, with its long corridors

stretching like gleaming underground streets, its shops, its great public dining halls and lounges. It had its own libraries, its own movie theaters, gymnasiums and swimming pools, its own electricity, water supply, and hospitals. And deep inside were huge steel chambers, smelling of warm oil and filled with the shining machinery which kept everything going.

When they got back to their cabins, they found things more or less in order, although Mrs. Pearson was still anxiously counting suitcases. In the cabin which Professor Bullfinch shared with Dr. Badger, there were half a dozen newspapermen with their notebooks open, interviewing the two scientists.

“Are these your assistants, Professor?” one of the reporters said, jokingly, as the young people came in.

“They are friends of mine,” said the Professor, introducing the three. “And actually, Danny is at least partly responsible for the cryostat—or as we all call it, the Zero-maker. A cryostat is a machine that makes very low temperatures, but I prefer Danny’s word.”

“I really didn’t have much to do with the discovery,” Danny protested. “It was an accident.”

“Some of the most successful discoveries have been the results of accident,” Professor Bullfinch said.

“You’re pretty young to be a scientist, Sonny,” grinned a reporter. “Would you try explaining for my readers all about $E=mc^2$?”



Danny's red hair bristled at the man's tone. "Sure," he replied. "It's a formula developed by Professor Einstein to express the fact that matter can be converted into energy according to a simple rate of exchange where energy equals mass times the square of the speed of light. This idea led to the mass-energy conversion in nuclear reactions. But maybe you'd like me to put it into simpler language for you?"

"Danny!" warned the Professor. "Please remember your manners."

The reporter was mopping his forehead, as the other newspapermen laughed. “It’s okay, Professor,” he said, “I asked for that. I guess I was the one who was rude. Are all these kids scientists?”

“We’re not scientists yet,” Irene said. “We just hope to be.”

“Danny and Irene are interested in physics,” Joe put in, “but I’m only scientific about diet and nutrition and stuff like that.”

“Really?” said the reporter. “You mean, biology—physiology?”

“Uh-uh,” Joe said simply. “I just like to eat.”

From the corridor came the sound of a gong, and a voice calling, “All visitors ashore!”

The reporters closed their notebooks. “Well, I certainly wish you gentlemen luck,” said one of them. “We’ll be waiting for the results of your project.”

“But you don’t really believe anything will come of it, do you?” smiled Dr. Badger.

The newspaperman hesitated. “I’m just a reporter,” he replied. “Whatever happens, I’ll write about it. But to tell you the truth—” He shrugged. “No, sir, I don’t think you’ll get any message from any way-out monsters.”

The ship’s deep-voiced whistle sounded. The children rushed to the upper deck, to be joined soon after by the grownups. Slowly, the great liner drew away from the

dock. Down the river she glided, past Liberty with her proud torch, beneath the vast spider web of the Verrazano Bridge, and so, at last, out into the open ocean.

“Now I feel it’s really started,” Irene said.



At sea, the days passed magically. It was like being in space, as Danny said, for every morning the same wide, empty water surrounded them. Sometimes it was smooth and sunny, sometimes slate-colored and dashed with whitecaps, but always their ship was alone.

“It’s funny,” Joe said, “that ships should be crossing the Atlantic all the time, but we never see any of them.”

“It’s an awfully big ocean,” said Irene.

There were plenty of games—Ping-Pong, deck tennis, shuffleboard, treasure hunts, and contests for the making of funny hats. There were movies and, every evening, music and dancing. To Joe’s delight, their dining room was like that of a wonderful restaurant, but there were no prices on the menu and he could choose every course of a ten-course meal, if he wanted to. “I just wish I had more room inside,” he would groan, sadly. There were lots of other young people, too, and some of them had heard of Professor Bullfinch’s work and talked to the three friends with envy and admiration.

One day, Danny and Irene were in the Professor’s stateroom watching him check over the Zero-maker. Dr.

Badger was going through some papers with his briefcase open beside him.

“Look at this, you two,” he said. “This should interest you.”

He handed them a large picture cut from a newspaper.

“That’s the first photo relayed back from our latest Mars probe,” he explained. “It was to appear the day we left New York, and the *Times* correspondent was kind enough to give it to me.”



“It doesn’t look like much of anything,” Danny said. “Just gray blobs and dark smears.”

“It is rather confusing,” said Dr. Badger. “It takes a good deal of experience and study to recognize what you’re seeing. But that’s the landscape of Mars, sent from a distance of about fifty miles above the surface of

the planet.”

Danny and Irene bent over the photographs. Danny began fumbling through his pockets and produced a small magnifying glass.

“Maybe we can see if there are any signs of life,” he said.

He squinted at the picture and shook his head. “You see even less under the magnifier,” he sighed. “It’s nothing but dots.”

“Dots?” Irene repeated.

“Look for yourself. Millions of dots. Some are very small, some are larger—they’re all different sizes.”

“Certainly,” the Professor put in. “That’s how the picture is sent to us over the 35 million miles of space.”

“By dots?” Danny looked puzzled. “How can dots send a picture?”

“Using a simple code,” said the Professor. “Look here. Suppose you’re a hundred miles away from me, and I want to send you a picture. Well, before we start, I arrange with you to have a piece of paper with nine squares on it. Radio would be the fastest way for me to send my message. So we decide that if I send you a short *peep* that will mean to leave a square empty, and if I send a long *poop* that will mean put an ‘X’ in a square. Got a pencil? All right, draw the square and get ready. Now, starting from the top and going from left to right, I send you a message that says: poop, poop, poop, peep, poop, peep, peep, poop, peep. Got it?”

“Yes.”

“What’s the picture?”



Danny looked at what he had drawn. “Looks like the letter T.”

“That’s just what it is. Now, let’s carry that a lot further. Imagine a paper with thousands of squares. In each one I can not only put a dot but can make it larger or smaller—that is, there will be more black dot or white space in each square—according to the strength of my signal. That way, it’s possible for me to send more complicated messages which will turn into a very detailed picture.”

Danny gave a low whistle. “Neat!”

“It’s something like the way television works, isn’t it?” asked Irene.

“Mm, yes. The same general idea,” said Professor Bullfinch.

Danny stared at the photograph with his chin propped on his hands, his elbows on the table.

“And down there, among all those little dots there might be houses of some kind—people—Martians!” he

mused. “Maybe Project Gnome will get a message from Mars, instead of from some distant planet.”

“I don’t think so, Dan,” Dr. Badger said. “We know a lot about Mars now—that it has almost no water and very little oxygen. There may be life of some kind, but I doubt it would be the kind that can send messages. More likely, it’s simple plants, or maybe animals, but I don’t think there are any human types there.”

“Human types?” Danny straightened. “Why do they have to be human? Maybe they could be crystals, or—or gas—or something we can’t even imagine. Gosh, if you do get a message from creatures somewhere else in the universe you don’t think they’re going to be like us, do you?”

“Why not?” said Dr. Badger.

“Well, because—why, just because—I don’t know why not,” Danny finished lamely.

Dr. Badger laughed. “I know. Because it would be more fun if they were completely different. Right? I don’t say they have to be *exactly* like us, Dan. After all, there’s endless variety in the forms of life on our own planet. But the best chance for life to develop in the first place seems to be on a planet something like ours, with an oxygen-hydrogen-carbon cycle, going around a G-type sun something like our own. All right, if that’s the case, there’s no reason to suppose life wouldn’t evolve pretty much the way it did on earth. So intelligent beings would probably have brains, and eyes of some sort, and legs, and arms with hands, or ways of grasping

things—”

He broke off. The door of the stateroom was flung open. Joe came charging in.

“Guess what?” he panted. “The earth isn’t square after all! It’s round.”

“Huh?” Danny gasped.

“That’s right,” said Joe. “We just sighted land.”

They hurried after him up the stairs to the open deck. The sea glittered under the afternoon sun, and off in the distance, on the horizon, lay a darker, more solid mass.

“That’s England,” Joe said, as proudly as if he had discovered it himself.

Irene stood on tiptoe. The wind whipped her hair about her face. She shaded her eyes with one hand.

“A whole ’nother country,” she said, softly. “How funny!”

“What’s so comical about it?” asked Joe.

“Oh, don’t be silly. You know what I mean. After traveling all those thousands of miles, to come at last to a different place where everything’s different from at home—”

Danny nodded agreement. “I know. Makes you understand how explorers must feel.”

Joe whipped out his notebook and wrote busily for a few minutes. Then he cleared his throat importantly and read:

*Poem, on the Occasion of Sighting Land
after Five Days*

My heart is jumping like a kitten;

There's Britain!

A new, surprising-, unexpected-, anything-land:

England!

And now I have to step ashore and flee

The sea.

*And the thing I will miss most is not gulls or water
or deck games, or ships, or steering wheels*

But free meals.

“How does he do it?” Danny marveled.

Irene looked up at Professor Bullfinch, who stood beside her at the rail. “When will we land?” she said. “Should we go and start packing?”

“We’ve got plenty of time,” said the Professor. “Enjoy the ship while you can. This part of the adventure doesn’t end until early tomorrow morning.”

7

“That Thing Is Dangerous!”

Both Dr. Badger and Mr. Pearson had arranged to rent automobiles, and when they had gone through the various details of landing they found the cars waiting for them at the dock. Most of their luggage was shipped ahead, and with no more than their overnight bags they piled in, the three children with Dr. Badger and Professor Bullfinch, and the Millers and Mrs. Dunn with the Pearsons.

“Wait a sec,” Joe said, with a puzzled frown, as he squeezed into his place. “The steering wheel of this car is on the wrong side.”

“No, Joe,” the Professor replied. “It’s on the right side.”

“I can see that. But the right side of the car is the wrong side.”

Dr. Badger said patiently, “In England, Joe, they drive on the left side of the road. So the steering wheel belongs on the right hand side of the car.”

“Two,” murmured Irene, who was keeping count of all the differences. She had already noted the strange helmets and uniforms of the policemen on the pier.

“That’s why I’m letting Badge drive,” said the Professor. “He’s considerably more experienced with a

car than I am.”

Dr. Badger called over to Mr. Pearson, “All set?”

“Okay.” Mr. Pearson was at the wheel of the other car. “Let’s just take it easy until we get through the city of Southampton.”

They drove out of the dock gates, past a large park, and into High Street, as the main street of Southampton was called.



“Why, it all looks very modern,” Irene said with disappointment. “It’s like an American city, only the buildings aren’t so tall.”

The Professor nodded, turning around in the front seat so he could speak to them more easily. “Southampton was badly bombed during the Second World War,” he explained. “They had to do a tremendous amount of rebuilding. Just wait. You’ll see plenty of the old England before very long.”

The Professor was right. Within the next hour, as they drove steadily northwestward, Irene dropped her

counting game, for there was simply too much to look at that was new. There were thatched cottages, houses whose black beams made patterns in white plaster fronts, villages with narrow streets in which ancient buildings crowded together. There were no billboards along the roads. Now and then they would pass tall gateposts with iron gates through which they could glimpse fine mansions among the trees, and once they saw the crumbling walls of a castle, which set Joe to quoting long sections of Edward Eager's *Knight's Castle*. There were strange words, too: the gas stations advertised *petrol* instead of gasoline, a road sign warned against *bends* instead of curves, the drug stores were called *chemists*, and shops labeled *Family Butchers* made Irene squeal, "Murderers!" Once, when they saw a notice saying LOOSE CHIPPINGS they thought they were coming to a village with an odd name, but it turned out to mean only that the road was being repaired and had gravel on it.

By late afternoon, they were all feeling exhausted. They had driven for nearly four hours, and the landscape had changed from flat meadows to rolling hills and then to even steeper hills which dropped away to rich fields again. "I always thought England was a tiny country!" Danny remarked. But at last, they went through a small village, and at its far edge stopped in front of a rambling stone building with a picture of a golden bell hung above its door.

"Everybody out," said Dr. Badger. "This is where

we're staying."

The other car drove up and Mr. Pearson leaned out of the window. "Is this it?" he said. "It looks great, doesn't it?"

"It's very picturesque," said Mrs. Miller. "And look, we're right on the banks of a river."

"That's the Severn," Dr. Badger said. "Come on, let's get the luggage inside."

The Bell Inn in Grendel was one of the oldest in England. It had been built in 1370, and its three-foot-thick walls and heavy, dark beams seemed to have been there forever. The bedrooms were small, and furnished with such huge beds and chairs that there wasn't much space left for people.

"It's queer to think," said Danny, bouncing on the bed in the room he shared with Joe, "that we're here, in a place that was built six hundred years ago. It's creepy! I'll bet it's full of ghosts."

"Don't say such things," said Joe. "I've got too much imagination. I'll be lying here tonight, in this giant bed, thinking about ghosts, and suddenly the door will creak slowly open and—"

He broke off. For the door was, indeed, slowly creaking open.

There was a pause, during which both boys stood petrified. Then, something small and dark darted into the room and vanished under the bed.



Joe let out a piercing yell and tried to get as far from the bed as he could. Danny moved at the same time, and they collided and fell into one of the enormous overstuffed chairs.

“Let me up!” yelled Joe. “Did you see that thing? It was a dwarf, or a goblin, or a hobbit, or something.”

“Wait a minute,” said Danny, trying to untangle himself. “Shut up, will you? It was a—a cat—or something.”

“With arms and legs? You saw it. And those eyes! It was a something all right, and I don’t want to know what.”

“I beg your pardon,” said a strange voice.

The boys stopped struggling. A sturdy girl with short blond hair was standing in the doorway.

“Did Mr. Parsley come in here?” she asked.

“Mr.—Mr. Parsley?” stammered Danny.

“My monkey.” She made a cheeping noise, and after a bit a whiskered face appeared from beneath the bed.

“I’m afraid he startled you,” the girl smiled.

“Afraid? He? Startled? Us? Don’t be silly,” said Joe, pulling himself free and getting to his feet. “We were—um—just looking for a comfortable chair to scream in—I mean, sit in.”

The monkey emerged and jumped up to the girl’s shoulder. He curled his tail around her neck and looked at the boys with bright, interested eyes.

Irene came in at that moment. “What was all that racket?” she was beginning, and then she cried, “Oh, what a darling monkey! Whose is it? Can I pet it?”

“Oh, yes. He won’t hurt you,” said the other girl.

Irene gently touched the coarse, cinnamon-colored fur. The monkey put out one of his hands, with its tiny fingernails like a baby's, and touched Irene's dark hair. Both girls laughed.

"What's his name?" Irene asked.

"Mr. Parsley. I call him that because he looks so much like the greengrocer in the village."

"I didn't know there were any monkeys in England," said Joe.

"There aren't. Only visitors like Mr. Parsley," the girl said. "He was sent to me from Barbados by my Uncle John, because I'm so interested in animals. Poor poppet, he had to spend six months in quarantine. We've only just got him out, and he's beginning to feel he's alive again after sitting in a cage all that time."

Irene introduced herself and the boys.

"I'm Meg Lucas," the blond girl said. "My father owns the inn. I'm going to be a zoo-keeper when I grow up. I want to have my own zoo, some day, like Mr. Durrell."

"What fun!" said Irene.

"Would you like to see my animals?" Meg said.

She led them along the corridor, down a narrow back stair and out into a garden thick with roses and lupines. A rickety shed stood in a corner, and Meg pulled the door open. A rank, sharp, interesting smell hit them. Inside there were home-made wire cages along a shelf,

and Meg proudly pointed out a hedgehog—a bristly little beast with an appealing, piglike face—some field mice, two turtles, a bat, and a pair of grass snakes.

“I haven’t many now,” she explained. “I’ve had a fox cub, only I gave him to the Bristol Zoo, and a young badger, but I let him go, and a weasel, but he escaped. I didn’t really mind—he had a rotten temper.”

Mr. Parsley, who had been sitting quietly on her shoulder, began jumping up and down impatiently, chattering at the other animals.

“All right, love,” said Meg. “I know. It’s four o’clock and you want your tea.”

“Tea? Do you give him tea?” asked Danny.

“Not really. I give him a biscuit and a lump of sugar, just to keep him happy while I have my own tea.”

“Are you going to have it now?” Joe asked.

“Yes. Come along and join me.”

“It seems like days since we ate lunch,” Joe remarked, as they followed Meg back into the house. “I’m kind of homesick.”

“Homesick?”

“For that ship’s dining room.”

In the long, stone-floored kitchen, Mrs. Lucas, a gray-haired woman with a round, rosy face, had already set out on the table bread and butter, chocolate cookies (which Meg called “biscuits”) and floury biscuits (which she called “scones”), jam, and half a lemon

frosted cake.

“Sit you down, my dears,” she called. “I saw you in the garden, and something told me Meg would bring you in for tea. Your parents are having theirs in the dining room.”

Meg chained Mr. Parsley to a wooden perch and gave him a cookie to nibble on. Then she joined the others at the table.

“Do you do this every day?” Danny said, heaping raspberry jam on a scone.

“We generally have a little something at about this hour,” said Mrs. Lucas, pouring milk into their cups, and following it with strong, black tea. “When school begins, Meg will have her tea at about six, and then it’ll be a proper meal.”

Joe sipped at his cup and made a face. “I don’t mean to be rude or anything,” he said, “but I don’t suppose you have any nice cold soda pop, do you? I’m thirsty, but this tea sort of squinches up my mouth.”

“We have some ginger beer,” Meg replied. “It’s fizzy stuff, awfully good.”

She ran to the pantry and brought out three bottles. Danny picked one up to look at it.

“It’s warm,” he said.

“Yes, I’m afraid we don’t drink icy things as you do,” said Meg. “We could put it in the fridge, but it would take quite a while to chill.”

“I’ll fix that.” Danny jumped to his feet. “Just give me a minute.”

“Where is he off to?” Mrs. Lucas said, as he tore out of the kitchen.

“I know. He’s gone to get the Zero-maker,” said Irene. “I just wonder whether he’ll think to stop and ask the Professor’s permission.”

Joe propped his chin on his hands, and sighed. “My friend Danny,” he said, “generally jumps into things first and asks how deep they are afterward. I have that funny, sinking feeling that spells trouble.”

“What on earth is a Zero-maker?” said Mrs. Lucas.

Irene tried to explain. While Mrs. Lucas and Meg were still puzzling over the problems of heat and energy, Danny returned carrying the cryostat. The new and improved model was even smaller and lighter than the original had been. Danny put it on the table and lined up the three bottles of ginger beer so that they were almost touching the crystal at the ends of the two rods.

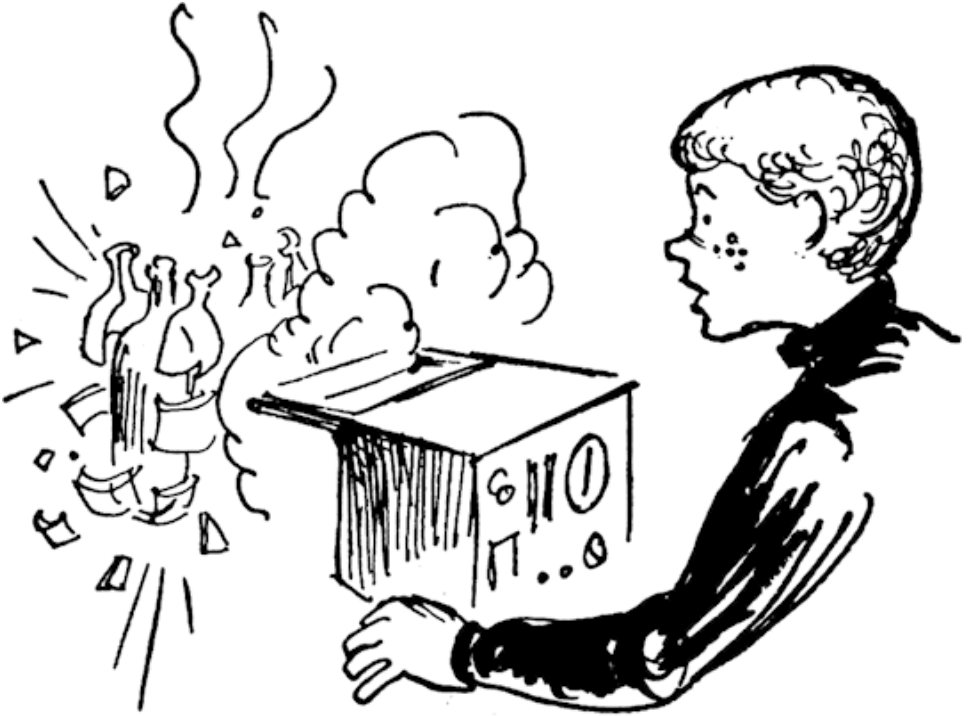
“Dan,” Irene said, “before you begin, can I ask you something? Did Professor Bullfinch say you could use the Zero-maker?”

Danny blushed. “Well—they were all in the dining room, eating, and I didn’t like to bother them. And anyway, it’ll only take a second.”

Irene began to say something, but Danny had already flipped the switch. At once, the gob of frozen air grew

around the crystal, like a ball of soft, foggy glass.

With three simultaneous sharp snaps, the bottles shattered, cracked by the cold. But the ginger beer inside them stood among the splinters, frozen solid in the shape of the bottles.



“Shut it off!” Irene cried.

Danny was staring, open-mouthed. Before he could move, a wasp which had been buzzing around the jam flew up and came within an inch or two of the Zero-maker’s tip. It dropped straight to the table top. In the silence, the tiny *clink* with which it hit was plainly heard.

Danny came to with a start, and his hand darted out to the switch. The lump of frozen air disappeared in

curls of steam.

Joe bent forward to stare at the dead wasp.

“It’s turned to ice,” he said, in a hushed voice. “You know what? That thing is *dangerous!*”

In a very subdued way, without a word Danny picked up the Zero-maker and carried it out of the room. They could hear him in the hall, calling,

“Professor Bullfinch, can I talk to you for a minute?”

8

A Lunch Basket Is Opened—

At breakfast, next morning, a small bombshell was exploded by the three ladies of the party.

“We are leaving you,” Mrs. Dunn said firmly.

“But why?” said Professor Bullfinch. “My dear Mrs. Dunn, I don’t understand. This afternoon we’re all supposed to visit the Grendel Observatory—”

“That’s exactly why,” Mrs. Dunn answered. “We know that you men will be quite happy puttering about the observatory. And we feel reasonably sure the children will want to do the same, at least part of the time.”

“You bet!” said Danny. “That’s what we came here for.”

“It’s not what *we* came here for,” his mother smiled. “Mrs. Pearson, Mrs. Miller, and I want to see all the sights of London, and look at the shops—”

“And try on hats,” said Mrs. Miller.

“And look at Buckingham Palace and the Bloody Tower,” added Mrs. Pearson.

“We’ve found out that there’s a train we can catch at eleven this morning,” Mrs. Dunn went on. “And Mrs. Lucas has given us the name of a very nice hotel, not at

all expensive, and I've already phoned them and made our reservations. So we're leaving you to your fate. Mr. and Mrs. Lucas will look after you, and you have two automobiles so you can do a little sight-seeing along with your star-gazing, and there's all this lovely countryside for you to explore, and—well—that's all."

Mr. Pearson shook his head. "I don't know about you fellows," he said, "but I think this is desertion."

"You're right, Alvin," said Dr. Miller. "But I don't see what we can do about it except bear it gracefully and drive them to the station."

At eleven o'clock, therefore, the ladies climbed aboard the little train. Its coaches were much smaller than those of American trains, and were divided into compartments which seated six or eight people.

After many embraces and much waving and cries of, "Remember to wear your rubbers!" "Take care of yourselves!" "Drink plenty of milk!" the doors were slammed shut by the guard, the engine gave a shrill *peep!* like that of a toy, and away they went.

The others got back into the cars, rather solemnly.

"Gee, everything suddenly feels sort of—well—empty," Danny observed.

"I know what you mean," Irene said. "We're three thousand miles from home, and suddenly our mothers are all somewhere else."

Lunch helped them over their feeling of strangeness, and after lunch it was time to go to the observatory.

Irene, who had been whispering with Meg, asked Professor Bullfinch whether they could take the other girl with them.

“I don’t see why not,” said the Professor. “I’m sure she’ll enjoy seeing the place and I don’t believe Sir Edward will object.”

The observatory was about a mile from the village of Grendel. They drove along a narrow lane with high hedges cutting off the view on either side and emerged at last on an open plain. Far away across the flat land, they could see three spiderwebby triangles sticking up near a low, brick building. On their tops were round objects that looked like shallow dishes.

“Is that the observatory?” asked Danny.

“That’s it,” said Dr. Badger.

“I thought there’d be a high building of some kind, with a round top—you know,” Joe said. “Where’s the telescope?”

“Those are the telescopes,” Dr. Badger answered.

As they drove on along the road, the three webby things grew larger and larger until they towered far above the cars. They were made of a lattice-work of steel beams, and on each was set a saucer of metal sheets. Each one rested on wheels as tall as a man, which ran on railroad tracks so that the radio-telescopes could be moved to different positions on the plain.

The cars were parked in front of the brick building and everyone got out. Meg was carrying a large lunch

basket.

“You weren’t taking any chances on finding tea out here, were you?” joked Dr. Badger. “Why not leave it in the car?”

Meg smiled quietly. “No, I don’t mind carrying it,” she said, exchanging a rather odd look with Irene.

A man came out to greet them. He had very pink cheeks, a mane of white hair, and a short white beard so that there was something Santa Claus-like about him, but his tone was as commanding as that of an army officer.

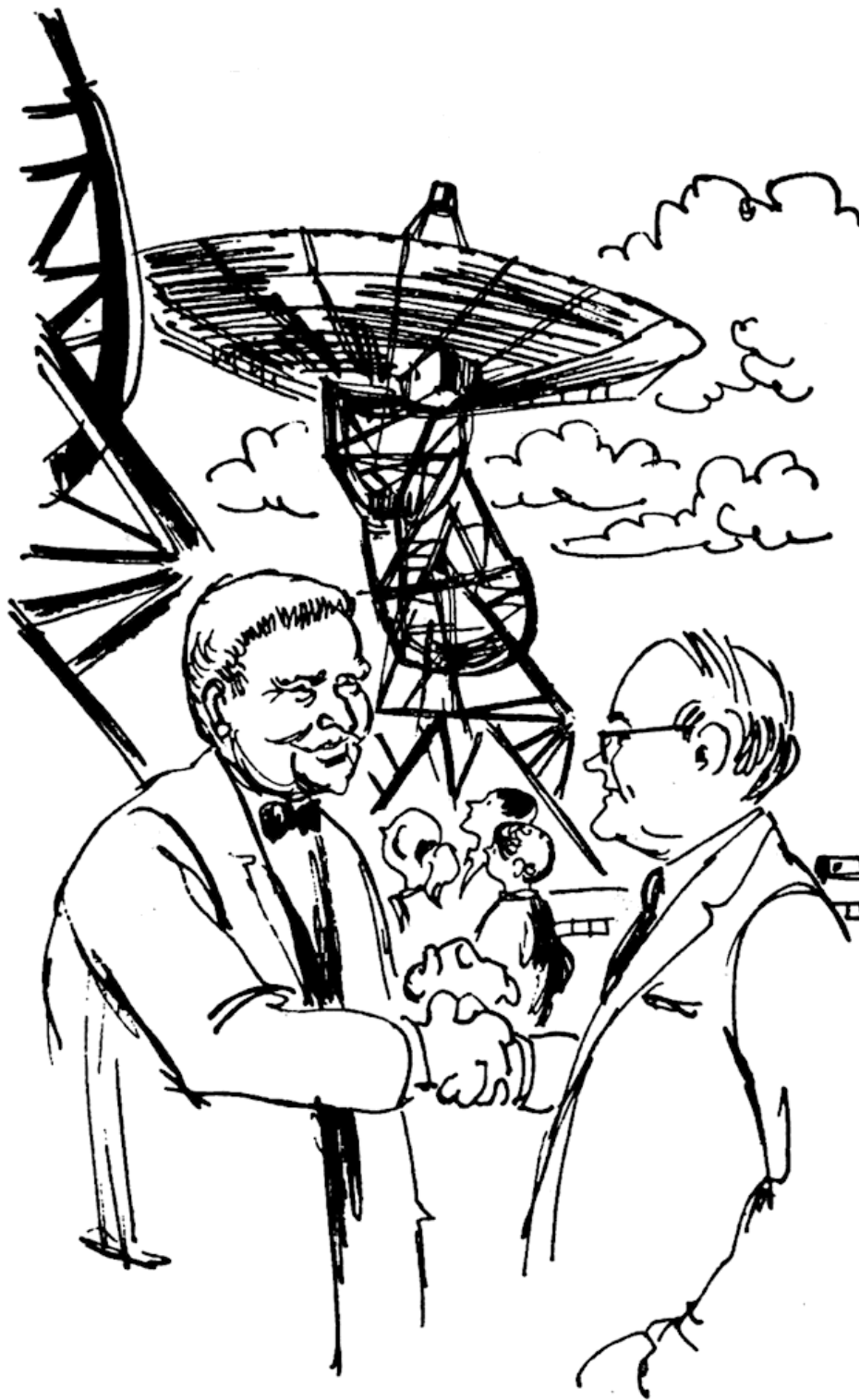
“Gentlemen!” he barked. “Delighted to see you. Brought along all your brood, I see. Very good. Nothing like starting them off young.”

He turned to the Professor. “My dear Bullfinch. It’s been a long time.”

“Three years,” said the Professor, shaking hands. “I’m sorry for our disagreement, Pomfret. I’m willing to concede that cricket is a fine game.”

“Nonsense, my dear chap,” answered Sir Edward. “When I read your paper on high magnetic field superconductors, I decided that baseball must be a jolly good sport, after all.”

The Professor introduced the others. After welcoming them, Sir Edward said, “I know you’d like to look round. Before I show you the place, I must say I’m very pleased that you are letting us have the first model of your cryostat. I suppose it will be arriving soon?”



“It’s already arrived,” said the Professor. He held up the case.

Sir Edward’s eyes popped. “That?” he exclaimed. Hastily, he pulled a pair of glasses out of his pocket and clapped them on, to stare more closely. “That little box? I thought it was a portable radio. You’re not joking, are you? Will that tiny thing really do the same job as our liquid helium tanks?”

“I think you’ll find it’s perfectly satisfactory,” said Professor Bullfinch.

“At the moment, I find it hard to believe,” Sir Edward said. “Well, come along, all of you. I’ll show you the station, first.”

Inside, the building looked even less like an observatory. There was a kitchen—“for a bit of hot soup now and then, and of course tea,” said Sir Edward—an office with blackboards and a long table, a small reference library, and finally the control room itself, full of machinery. Thick cables ran about the floor. Grey steel cases clicked and hummed. A long desk fronted a wall of glass, which looked out toward the field and the three huge saucers of steel.

A man in shirtsleeves was sitting at the desk. As they came in, he was saying into a radiotelephone, “Yes, Jodrell, I am receiving you loud and clear. I am about to set the aerial on the source. It’s 342.4—right? Over and out.”

He got up and glanced at the dials in a console. Then

he twisted a control knob.

“Look out there,” said Sir Edward. “You can see the dish move.”

They looked through the big window. The furthest of the telescopes was slowly turning in response to the turning knob.

“We move them from here,” Sir Edward said. “Quite a job. More than a thousand tons, that one weighs. We’ll go out and look at it more closely, shall we? Better put these on. It’s a regulation.”

He handed each of them a plastic helmet and led the way out to the field.

They walked to the base of one of the telescopes and climbed a steel stairway to a level about halfway up, where a steel-walled room was built into the framework. In this room was housed the machinery which moved the telescope when the remote control was operated from the station. Standing on the platform outside the room, they looked out at the back of the gigantic circle of metal balanced on its beams and stretching high above and below them.

“This particular one is the largest in the world,” Sir Edward said, proudly. “You could play a game of football in it and still have room left over for a lot of watchers.”

“You just don’t think of this kind of thing as a *telescope*,” Danny said.

Sir Edward stroked his beard thoughtfully. “I know

what you mean,” he said. “But look here. An optical telescope collects the light radiating from a star. This telescope collects the radio waves radiating from a star. They’re the same as light—the wavelength is different, that’s all. We get essentially the same information about a star from both types of wave—speed, temperature, size, and so on. Do you see that metal drum, or box, bolted to the end of those long girders and sticking out in front of the dish? That’s the feed. The radio waves come down from the star we’re watching, bounce against the plates of the saucer, and are focused in the feed. They are then amplified and recorded so that we can study them.”

“The radio telescope has a lot of advantages over the optical telescope,” said Dr. Badger. “For instance, you can use it during the day as well as at night. And clouds, atmosphere, and weather have no effect on it.”

“True,” said Sir Edward. “Oh, once in a while we get a high wind that makes the dish sway a bit too much for accuracy, and then we shut down.”

He waved at the machine room. “Would you like to step inside?”

The four young people decided to stay out on the platform.

Professor Bullfinch put the Zero-maker down, saying, “Danny, keep an eye on this, will you? My arm’s getting tired.”

Joe leaned on the railing, looking down through the

steel grid of the platform to the ground below. "It's like being in something a kid built with an erector set," he said. "Say, Meg, how about getting out some of that food you brought along? The fresh air up here is giving me an appetite."

"Food?" Meg giggled. She put her basket down and opened the lid. Like a jack-in-the-box, up popped Mr. Parsley. He shot his lips out in an O, and then grinned at them in a friendly way.

"I thought it wouldn't do any harm to bring him along, so I suggested it to Meg," Irene said. "He spent six months cooped up, and an outing like this is just what he needs."

Danny scratched his head. "Sometimes I don't understand girls," he complained. "He's been caged up, he needs an outing, so you bring him along shut up in a basket and keep him in it all this time. How come?"

"Because he's so cute!" Irene answered. "And he's looking out of the basket now, isn't he? Anybody can understand that."

She and Meg bent over Mr. Parsley and began petting him.

Danny and Joe watched. And suddenly Joe said, "I feel very peculiar."

He turned away to lean on the railing again. "Look!" he cried. "Everything's moving!"

"Not everything," said Danny. "Just us." Slowly and noiselessly, the whole telescope was swinging around.

“They must be changing the adjustment of it,” said Irene.

All four stared in wonder, clinging to the rail. The monkey was forgotten. They only remembered him when the motion stopped, and Meg, glancing at her basket, said, “Where’s Mr. Parsley?”

And at the same moment, Danny said, “Never mind that. What’s happened to the Zero-maker?”

Joe gave a groan. “I hate to say this,” he replied, “but they’re both hanging over your head.”

9

—And Out Comes Trouble

Danny gazed upward. Mr. Parsley clung to one of the girders with feet and tail, peering down at him with wicked eyes. In his long-fingered hands he held the Zero-maker.

“Hey!” Danny yelled. “Come down here!”

That was a mistake. With a startled squeak, the monkey scampered still higher. He came to rest on a steel beam just over the machine room.

Dr. Badger, drawn by Danny’s outcry, came to the door. “What’s going on?” he asked.

Danny was already halfway up the open stair that led to the top of the structure. Meg and Irene clattered up after him.

Joe cried, “It’s Mr. Parsley! He’s got the Zero-maker.”

“Mr. Parsley? Who’s Mr. Parsley?” said Dr. Badger. He strode out on the landing to see what was happening.

Unfortunately, since he was looking up instead of paying attention to where he was going, he put his foot into Meg’s basket. There was a crunch. With a shout of alarm, Dr. Badger staggered backward, shaking his foot to get the basket off.

He bumped into Professor Bullfinch, who was just emerging from the machine room. Together they toppled backward. Mr. Pearson, Dr. Miller, and Sir Edward tried to stop them, but in the close quarters of the machine room they only succeeded in getting in each other's way. For a long moment, the human knot swayed backward and forward. Then the basket on Dr. Badger's foot caught in a trailing cable. Down they all went, arms and legs flailing. There was a snap and a tinkle as someone's heel hit a glass dial. A sharp crack announced the breaking of a small chair.

Above, the children heard the noise. But they were too busy trying to surround Mr. Parsley to pay much attention.

The framework was easy enough to climb on for an active boy or girl. Unfortunately, it was easier for an active monkey, even one hampered by a metal box. And when Danny got up as far as the roof of the machine room and stood on a beam, it was a long, long way down when he glanced between his feet. He shuddered. Then he began moving toward Mr. Parsley, making friendly noises as he did so. Irene, meanwhile, had gone up the stair to get above the monkey, while Meg, crawling out on another beam, began edging toward the opposite side.

Mr. Parsley looked from one to the other.

"Come on, darling," Meg called. "Come to Meggie."

"He feels trapped," Irene said, nervously. "I know he does."

Danny was within a few feet of the monkey. He reached out.

“If I can just get the Zero-maker,” he whispered through gritted teeth.

But Mr. Parsley had no intention of giving it up. With a flirt of his tail, he was off again. Up, up, he went, until he was sitting on one of the girders that supported the great saucer itself.

Meg and Danny, holding their breath, worked their way back to the stair. They ran up to join Irene, who was already at the top, where there was a wide platform. Here, a gigantic spindle jutted out: the axis on which the saucer turned.

A cradle of beams surrounded it. Mr. Parsley had settled himself comfortably near the saucer and was examining the Zero-maker with interest.

“Oh, me!” Danny gasped. “If he accidentally turns it on—!”

“What would happen?” panted Meg.

“You remember what happened in your kitchen? First, frozen air would start forming. Then, if the thing touched the steel beam he’s sitting on—well, steel is a good conductor of cold. Air would start freezing on the beam. A thick layer of it would be so heavy that it would make the whole thing sag. The cold might warp the steel so that the telescope would be twisted out of shape. Frozen air would drip down and burn anything it touched. As for Mr. Parsley—”

He shivered. "I don't want to think about it. We've got to grab him, somehow. But if we startle him, he might drop the Zero-maker and it would be ruined. Or it might turn on when it fell—"

"I know," said Irene. "The fire department! Maybe if they put up a long ladder—?"

Joe was pounding up the stair, below them. Irene shouted to him, "Tell Sir Edward to call the firemen!"

"Fire? Where is it? What fire?" said Dr. Miller.

Dr. Badger rushed back into the machine room and snatched up a fire extinguisher.

"No—not fire—firemen," said Joe.

Sir Edward understood and made for the telephone. The observatory had its own fire squad, and in moments their truck was racing out on the field.

On the topmost level, Danny, Irene, and Meg were yearningly watching Mr. Parsley. He had rested the Zero-maker on the girder and was picking at the back of it as if he wanted to take it apart.

Joe stopped, gulped air, turned around and ran down the stair again, mumbling, "Up, down, up, down."

The men had sorted themselves out and picked themselves up. Dr. Badger freed himself from the basket. Sir Edward looked at the smashed dial and the broken chair, and swore. They all ran out on the platform, just in time to receive Joe, who landed among them like a well hurled baseball.

“Firemen!” he cried.

Mr. Pearson staggered back from the railing, where his son’s arrival had flung him. “Stand still, can’t you?” he snapped.

“I’ve got to make him stop fiddling with it,” Danny said.

The girder on which the monkey sat was no more than a foot wide. It served as one of the braces between two much thicker, curved arms which supported the saucer. A series of handholds ran up one of these arms so that workmen could get to the saucer to make any necessary repairs on it, or to reach the feed. Dan began to climb them.

“What are you going to do?” Irene called. “Oh, Danny, be careful!”

Danny paused. “I just want to attract his attention,” he said, over his shoulder, “and keep him from turning on the Zero-maker.”

At that moment, the fire truck came to a halt below the telescope. Sir Edward had hurried down to meet them, and quickly explained what was going on.

“There’s no chance of our getting to the creature with a ladder,” said one of the firemen. “We haven’t one long enough. I think we’d better try climbing up to get him.”

Danny had waited, when the firemen arrived, to see what they would do. When he saw them start up the stair, he shouted, “Don’t come up.”

“Why not?” asked the chief of the squad.

“You’ll just scare the monkey, and he’ll go higher.”

“Now, my lad, you come down and leave this to us,” said the chief.

“Professor!” Danny cried. “Make them stop. If they frighten the monkey and he turns the Zero-maker on, or drops it—”

“Danny’s right,” said the Professor. “The cryostat can be very dangerous, indeed. It’s even possible it could wreck the telescope.”

“I’ve got an idea, Professor,” Danny continued. “I’m going to try it. Have the firemen got a net?”

“Yes,” replied the chief, “we’ve got one. Don’t tell me you’re planning to jump with the beast?”

Danny looked down through the cage of steel beams to the hard ground, several hundred feet below.

“I hope not,” he said, through clenched teeth. “But if you can get your net under Mr. Parsley, you may be able to catch the Zero-maker if it falls.”

He set himself to climb once more. The firemen pulled out their net and ascended to a spot below Mr. Parsley where they could stretch it out. The other men went up the stairs to join Meg and Irene at the top, where they could watch Danny.

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went up the stairs to join Meg and Irene at the top, where they could watch Danny.



Mr. Parsley, chattering his teeth, watched him too. Danny got to the point where the crossbeam joined the

curved arm, and cautiously inched himself up on to the end of the beam. He sat there to catch his breath. Without moving his head, he looked sidelong at Mr. Parsley.

The monkey patted the Zero-maker. It slid a little way along the beam.

Biting his lips, Danny carefully reached into his pocket and got out his magnifying glass. Bending over it, he began spinning it between his fingers, letting the light reflect from it. He didn't know much about monkeys, but he knew that like most animals they were very curious.

Mr. Parsley was no exception. For a long moment, he watched the boy with the queer, shining thing in his hand. The glass twinkled as it caught the sunlight. Mr. Parsley forgot about the interesting box he had carried away. He jumped carelessly over it. It teetered on the very edge of the beam. From the watchers, a gasp of horror went up. But it did not fall.

Danny felt Mr. Parsley's warm furry body beside him. One paw reached out for the magnifying glass. Danny let him take it, wondering whether to grab the monkey or not, and if he did, how he was ever going to climb down again using only one hand.

He needn't have worried. Mr. Parsley had had enough mischief for one day. This lovely, glinting, glass thing was much more fascinating than the box had been. He leaped to Danny's shoulder, curled his tail around the boy's neck, and made himself comfortable. Danny

swung himself over to the handholds and began to descend.

When he got to the platform, Meg took Mr. Parsley. She had borrowed Mr. Pearson's handkerchief, which was a large one, and she looped it through the monkey's collar and held it like a leash. One of the firemen began the climb back to the beam where the Zero-maker still balanced.

For a moment, no one said anything. Then Dr. Badger, mopping his face, said, "Whew! Thank goodness that's over."

"Thank goodness indeed," said Sir Edward, tugging angrily at his beard. "The radio-telescope was nearly destroyed."

"Well, fortunately, there's no harm done," Professor Bullfinch said.

"No harm? A voltage dial broken, a chair smashed, the whole place disrupted, your cryostat all but ruined and lost—and you yourself have a black eye."

"I have?" Professor Bullfinch touched his eye and winced. "Dear me, so I have."

"Who was responsible for this?" Sir Edward went on.

"I'm afraid it's my monkey, sir," Meg said, in a very small voice.

"It was my fault, though," Irene said. "I told her to bring him along."

"But I was to blame for him running off," said

Danny. “If I hadn’t frightened him by yelling at him—”

“That’s enough!” barked Sir Edward. “You were all involved. I see that you are irresponsible, heedless, and thoughtless. I should have known better than to allow you near the telescope. If we are to work seriously on this project, I forbid you to come within a mile of the observatory. As for that creature—”

He pointed a finger at Mr. Parsley, wagging it an inch from the monkey’s nose. Mr. Parsley promptly bit him.

Sir Edward gave a roar of pain. With a purple face, he began hopping up and down.

Wordlessly, Dr. Miller offered him a handkerchief. Sir Edward snatched it and wrapped it around his bleeding finger.

“And what’s more,” he snarled, “baseball is a game for idiots!”

He turned away and clattered down the stair.

10

Danny Grows Desperate

It would not be absolutely true to say that the next two weeks passed in gloom for Danny and his friends. Of course, they were banished from the observatory, so they had to content themselves with hearing about Project Gnome instead of seeing it in action. But then, as Professor Bullfinch explained, there wasn't much to see. The Zero-maker was mounted in place so that it would cool the maser, the largest of the telescopes was set to scan certain target stars, and then it was just a matter of waiting patiently, hour after hour, for any unusual signal. The two astronomers, Dr. Badger and Dr. Miller, took turns on watch with the staff of the observatory. Professor Bullfinch visited the place every day. Mr. Pearson went to London after a few days, for he really did have important business to see to in England. And the four young people found more than enough to keep them busy and interested, although their minds were often on what might be happening in that brick building where men were listening eagerly for a whisper to cross millions of miles of space.

The mothers came back from their excursion, rosy, excited, and loaded with purchases. Then there were trips to be made to many delightful places. They had a picnic on the Malvern hills, from the highest point of

which they could see seven different counties laid out around them, from the flat farmlands of the Severn Valley to the dark, steep mountains of Wales. They visited the ruins of Goodrich Castle and climbed about on its frowning walls and towers. They watched Morris dancers with their bells and staves in the tiny old stone village of Painswick and drank rough, country cider in a pub with a thatched roof that made it look like a man with a fur hat pulled down over his eyes. Meg and Irene became very good friends and sometimes took the local bus together to the nearby city of Worcester to look in the shop windows and have tea in a cozy little cafe. Irene helped Meg feed and care for her animals, and sometimes felt tempted to give up her ambition to be a scientist, in favor of becoming Meg's partner in a zoo.

Still, with all the fun of exploring and sightseeing, Danny was never completely happy. He could not keep his mind off the observatory. Yet the days passed, and each evening at dinner, when they all gathered together in the dining room of the Bell, the news was the same: "Nothing today."

On the eighth of August, they were all seated as usual around the dining table. It had been raining on and off all day with periods of sunshine, and now the sun was out again, still high in the sky, although it was seven o'clock. Being farther north than at home, they never lost their surprise at how light it remained until quite late: by ten at night the western sky would still be glowing. A sweet, fresh smell came in through the open,

unscreened windows.

“England is certainly a lovely place—when it isn’t raining,” said Mrs. Miller.

“We can’t complain. We’ve had plenty of fine weather,” said Mr. Pearson, who had returned from his business trip that morning. “Not that those poor fellows—Badger and Miller—have had much chance to enjoy it. They’ve been sticking close to their telescope.”

“Without much luck, I’m afraid,” sighed Dr. Badger. “It looks as though the project is going to be a failure.”

“Oh, come, Badge. Not altogether a failure,” Dr. Miller protested. “We’ve learned some interesting things, even if you haven’t received any indication that there’s life somewhere else in the universe.”

“You can’t be discouraged about that, either,” put in Professor Bullfinch. “You have only sampled a few stars out of millions.”

Dr. Badger nodded agreement. “I have one more target I want to try,” he said. “A very interesting possibility—61 Cygni. I’ve left it for last since it didn’t seem too good a candidate.”

“That’s a two-star system, isn’t it?” asked the Professor.

“Yes, and for that reason many astronomers feel it couldn’t have a planet supporting life.”

“Why not?” said Joe. “Seems to me two suns would be better than one. You’d have nice warm winters. And

there'd be twice as much school vacation because you'd have twice as much summer."

"Not quite, Joe," said Dr. Badger. "The problem is that a planet in a system with two suns might have a changeable orbit, since it would be pulled about by the gravity of both. It might get too hot for life, sometimes, and sometimes, far too cold."

"Well, if 61 Cygni is a system with two suns," said Danny, "what's the use of trying it?"

"Because in the first place, the two suns are far enough apart so that a planet might orbit one of them without being troubled by the other. Actually, one of the two stars in 61 Cygni has a slight wiggle in its movement around the other. So we know that there is at least *one* planet—a very large, heavy one—circling that sun and having some effect on its movement.

"And I think it's just possible that life might find a way of adapting to a binary system, as we call it. When you think of all the ways in which things manage to live on our own earth—in blazing deserts, under enormous pressure on the sea bottom, even near the poles—all that's needed is for conditions to be right for life to start. And I think 61 Cygni may provide those conditions. Anyway, I'm going to try. I'm going to give the order when I go back to the observatory to put the aerial on that source. It's a long shot, but we've only got tonight and two more days left."

Irene put her fork down and bent forward eagerly. "Suppose you got a message. What would it be like?"

she asked.

“Well,” said Dr. Badger, “it might be a simple mathematical statement. Suppose we got a buzz and then another kind of sound, and then a buzz, and then a completely different sound, and then two buzzes—”

“One plus one equals two?”

“Right. That would tell us, perhaps, that we were dealing with intelligent life which reasoned as we do. It would also give us *plus* and *equals*, so we’d know two words of their radio language.”

“Big deal. All that work to send word across space that one and one equals two,” Joe protested.

“Yes, but it might not be ‘one and one make two,’” said Danny. “It might be five code letters spelling the word *olopoo*.”

“Huh? Olopoo?” Dr. Badger blinked. “I don’t think I know that word.”

“Well, that’s just it. It might be the way you say *hello* in their language,” said Danny.

Professor Bullfinch laughed as Dr. Badger rubbed his chin, thoughtfully.

“That’s one of the problems, my boy,” said the Professor. “Not only deciphering their language, but understanding their ideas. They might think so differently from the way we do that we couldn’t begin to figure out what their message says.”

He grew grave. “The important thing would be to

know that it *was* a message from another world. It would mean that we are not alone in the universe.”

There was a silence when he finished, as each person thought for a moment about the meaning of that awesome idea. Then Dr. Badger pushed his chair back.

“Well, I’m off,” he said. “As it’s so lovely out, I think I’ll walk to the observatory. Are you coming, Al?”

Dr. Miller patted his stomach. “I’m going to have an after-dinner cigar, and then I’ll drive out and meet you,” he said.

“I’ll come along with Alvin,” said the Professor, beginning to fill his pipe.

The children excused themselves and left the table with Dr. Badger. They said goodbye to him and ran out to the garden to meet Meg, who was cleaning the snakes’ cage. She had the two grass snakes draped around her neck like ribbons, and they lifted their heads sleepily when Irene ran her finger along their dry, smooth, warm scales.

“Wouldn’t it be funny if on another planet people looked like snakes?” said Irene.

Danny twitched his shoulders. “Don’t keep talking about other planets,” he said, irritably.

“Why, Danny!” Irene said, in astonishment. “What’s wrong?”

He kicked at the floor. “Other planets, space, messages—oh, heck! It’s just driving me crazy, that’s

all. Here we are, we came all this way and I had such hopes of being in the observatory—and specially being there if something exciting happened—and we can't even go near the place."

"I'm sorry," Meg said, humbly. "You're right to be angry. It was all my fault."

"Ah, forget it, Meg," said Danny. "We were all in on it. If you had asked me about taking Mr. Parsley, I'd have said yes, too. Who'd ever guess anything like that would happen? Or that Sir Edward would get so mad? I'm not angry, anyway; it just makes me feel so low."

Joe shook his head. Not being able to think of anything to say, he punched Danny lightly on the arm.

Danny looked up, his lips tight, the light of battle in his eye. Joe backed away. But his friend wasn't even thinking about him.

"Do you know what I'm going to do?" Danny said. "I'm going out there. Tonight!"

"Out—out there?" Joe stuttered. "You mean—outer space?"

Danny couldn't help laughing. "No, you nut. To the observatory."

"Dan, you wouldn't!" Irene said. "Sir Edward might—"

"Sir Edward won't be there," Danny retorted. "He almost never comes at night. And he certainly won't come when I plan to go, because I'm going after

everybody else is in bed. It's only a mile from here, on a nice, easy road."

"But what will you do when you get there?" asked Joe. "Won't Dr. Badger and Irene's father fuss about it?"

"I just want to peek in through the window," Danny said. "Just to watch them for a while. Gosh, you heard Dr. Badger. He's going to try that new star. I'd just—well, I'd just *bust* if I wasn't there and they got a signal."

"You're right." Irene nodded vigorously. "I'm going with you."

"Swell!" said Danny.

"What about you, Meg?" Irene said.

"Ooh, no, I wouldn't dare. I'd be afraid of meeting Sir Edward, no matter what Danny says. I think I'd better stay at home."

"Same here," said Joe decisively. "I'm going to roll up in my nice warm blankets, and I'll wake up long enough to think of you two walking down that dark road in the cold. It's probably crawling with ghosts, too. Good luck!"

11

“Something’s Coming In!”

It was nearing midnight and the house was still, when Danny got up softly. He had gone to bed with his clothes on and all he had to do was put on his sneakers. As he was lacing them by the moonlight that came in through the window, Joe mumbled from under the bedclothes, “Is it time?”

“Yes, I’m just going.”

“Uh-huh.” Joe crawled out of bed, groaning, and began to struggle into his jeans and shirt.

“What do you think you’re doing?” Danny demanded.

“What do *you* think? You don’t expect me to walk to the observatory in my pajamas, do you?”

“Oh.” Dan drew a deep breath, grinning happily. “Good.”

“Good? I hate it. But I can’t let you face ghosts alone. Anyway, you’d probably get lost without me.”

They slipped into the hall. A flashlight went on, suddenly, making them both jump. Irene whispered, “It’s about time. I’ve been waiting for hours.”

“Hours?”

“Well, five minutes, anyway. Let’s go.” They went

down the creaking stair holding their breath, and out into the silvery night. Things looked quite different, but they found the road without much trouble and soon branched off into the lane which led to the observatory. Once, they had a fright when a small animal burst out of the hedge and ran across the road in front of them, but otherwise they got to the edge of the field without incident.



They struck out across the open field toward the lights of the station.

Peeping through a small window on one side of the building, they saw Dr. Badger at the desk, writing in a notebook, and Dr. Miller lounging drowsily in a chair nearby. Professor Bullfinch wasn't to be seen. A pot of coffee and two cups stood on the table among the papers. As they watched, Dr. Miller stretched and yawned. He sat up and reached for a cup. Swinging around in his chair, he was just lifting the coffee to his lips when he saw the eavesdroppers.

His hand jerked. Coffee jumped out and splashed to the floor.

The three dodged back out of sight.

“Let’s run!” said Joe.

The window was flung open behind them.

“Irene!” said Dr. Miller in the kind of father’s voice which stops children in their tracks.

“Y-y-yes, Daddy,” Irene faltered.

“It *is* you. And Danny and Joe, eh? I thought I had fallen asleep and was dreaming. Come in here—right now, please.”

Sheepishly, the three walked around to the side entrance. Dr. Miller let them in, and they followed him into the control room. There they stood with their heads hanging, while Dr. Miller and Dr. Badger eyed them in silence.

Then Dr. Miller, his voice trembling between annoyance and amusement, said, “I might have suspected something like this would happen. Your idea, Dan?”

“Yes, sir.” Danny raised his head. “I’m sorry, Dr. Miller. But we just couldn’t stand not knowing—”

Dr. Badger glanced at one of the clocks. “Twelve thirty-seven. Kind of late to be wandering around, isn’t it?”

“We weren’t actually wandering,” Danny murmured. “We knew where we were going.”

Dr. Miller bit his lip, and then burst out laughing. “You are all three the most awful—the most—oh, never mind. Now that you’re here, you may as well stay for a

few minutes.”

“Hold on, Al,” Dr. Badger said, worriedly. “What about Sir Edward?”

“Hmm. True.”

“But I thought you said he almost never comes here at night?” said Danny.

“Almost never. But today, he and Professor Bullfinch made up again—you know, after your escapade with that monkey things were very tense between them. Sir Edward would only speak to the Professor very formally and stiffly. But as I say, today they got over it. They went off together, this evening, to a discussion and meeting at the Royal Radar Establishment in Malvern. They said they might come by after it was over to tell us about it and to check on how things were going here.

“I hate to say it, but I think maybe I’d better drive you home.”

He put an arm around his daughter’s neck. “Sorry, hon. It’s for your own good.”

She sighed. Danny said, mournfully, “I don’t suppose you’ve had any success anyway, have you?”

“Not a peep.” He nodded toward a digital computer in which a roll of paper tape was slowly moving. Small holes were punched in this tape as information was fed into it from the telescope. Right now, only an occasional click came from it. “Nellie’s been quiet all evening.”

He started for the door with the young people close behind him.

Dr. Badger glanced out of the big observation window. "Too late!" he snapped. "A car just drove up."

"Oh, murder!" Dr. Miller looked from side to side. Then, "Into the library," he said. "Hurry! And if it's Sir Edward, wait until you hear us talking in here and then slip out the door. Can you get back to the Bell all right?"

As he spoke, he pushed them ahead of him into the hallway.

Danny grabbed the knob of a door to the right.

"No—not that one!" Dr. Miller almost yelled, in his agitation. "To the left!"

Danny snatched his hand away. But the knob kept turning.

Before they could move, the door swung open, and they found themselves face to face with Sir Edward. Professor Bullfinch was directly behind him.

Sir Edward had a big smile on his face and it froze there. Then, slowly, it began to slip and melt, as his face grew redder and hotter, until it had turned into a scowl.

"Aha!" he exclaimed. "So this is what goes on behind my back."

"Just a moment, Sir Edward, it's not that at all," protested Dr. Miller. "Let me explain."

"Explain? *Explain?* No explanations are necessary. This is outrageous! I—I—I will—"

No one ever knew what horrible punishment he had in mind. For at that instant, there came a wild shout from the control room.

“Hey!”

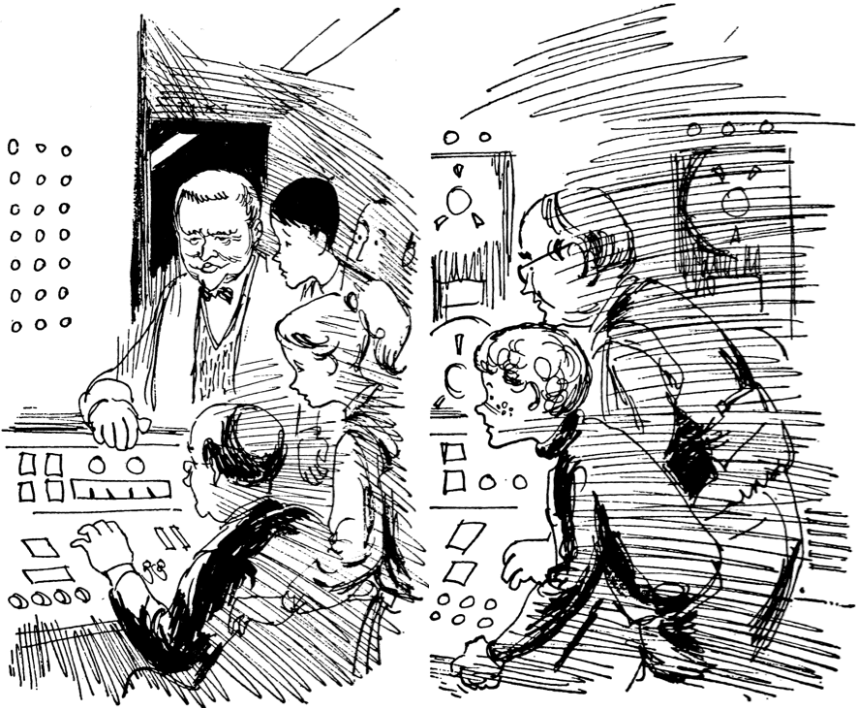
It was Dr. Badger. “Come in here—quick!” he howled.

Professor Bullfinch was the first to move. The rest were not much slower. They rushed into the control room.

Dr. Badger faced them, white-faced and with blazing eyes.

“Something’s coming in!” he gasped.

From Nellie—the computer—poured a flood of rapid clicks.



12

Dots and Dashes

They all stood speechless. Danny felt the hair rise up on the back of his neck. Then Professor Bullfinch's voice cut across the silence, calm but full of authority.

"Have you checked the computer's circuits? Perhaps there's something wrong with the machine."

"I haven't had a chance to check anything," Dr. Badger replied.

At that moment, the clicking stopped.

"Gone," Dr. Miller said, with a long sigh.

"Let's wait a minute," said the Professor.

A short time passed, full of tension. Then the computer began its recording again.

"If it is a message," said Dr. Badger, "it may be in segments, or it may be the same message repeated over and over."

"Or it may be a fault in the wiring," Dr. Miller said, grimly. "Let's look at those electrical circuits."

Both Sir Edward and Professor Bullfinch stripped off their jackets. All four men began inspecting the wiring of the computer and then of other machines. The children stood forgotten, mouths and eyes wide open.

Sir Edward straightened up, wiping his hands on a

rag.

“Everything seems to be in order,” he said. “Great heavens! It may actually be a signal—”

“I suggest we try a simple experiment,” said the Professor. “We’ve got the aerial set on 61 Cygni. Well, let’s turn it away from that source. If the pulses keep coming in, then we’ll know they are *not* coming from that star but from some radio source on earth.”

“Right!” Dr. Miller sprang to the controls. Floodlights went on in the field. The crisscrossed girders and immense shining saucers of the telescopes looked like a fantastic stage-set against the black sky. The larger of the dishes began to move.

The computer’s ticking faded away.

“There we are,” breathed Dr. Badger. “Get back on the target, Al.”

As the telescope swung back into its former position, the clicks began again, as if the room were filled with busy typewriters.

“No doubt about it,” said Dr. Miller. “I can’t really believe it.”

“It *is* the hydrogen frequency, isn’t it?” Sir Edward said.

“Yes.” Dr. Badger studied the clock. “They’ve been coming in for a total of twenty minutes, now. What shall we do?”

“I suggest we wait,” said Professor Bullfinch, quietly.

He sat down and took out his pipe. "The pulses are coming at the rate of about five per second. There appears to be transmission for nearly two minutes, and then about a three-minute pause. Let's see whether this goes on steadily, or comes to a halt altogether after a certain length of time. There may be a limit to the amount of power they have." He paused. "*They*," he repeated. "A strange thought."

"Very well," said Sir Edward, with a return to his former briskness. "What about these youngsters? It's frightfully late. Shouldn't someone take them home?"

He had lost all his anger in the excitement of what was happening.

"Oh, no, *please!*" Danny burst out. "Please let us stay. We'll be good. We won't get in the way. We won't stir from this spot."

Professor Bullfinch raised a hand. "This is a great moment," he said. "One of the greatest in human history. I wouldn't dream of sending them away, Pomfret, and neither would you, if you stopped to think. If this is indeed a message from another planet, it's an experience which they will remember all their lives."

"Of course," said Sir Edward, gravely. "You're quite right, Bullfinch. They must stay by all means." He looked around the room, passing one hand rather shakily over his white hair. "Let's all sit down, then, shall we?"

Another half hour went by. No one felt bored or tired,

although there was nothing to do but listen to the rhythm of the computer. Dr. Miller made some more coffee in the little kitchen, and found some cookies—digestive biscuits, they were called—to go with it. Then the clicking stopped.

After a quarter of an hour, when it had still not resumed, Dr. Badger said, “I believe they’ve knocked off work for the night.”

“Be patient,” said Sir Edward.

But at the end of another fifteen minutes there was no further signal.

“Well, let’s see what we have so far,” Dr. Badger said.

He removed the paper tape from the computer and they all clustered around the desk to examine it.

“They were certainly strong signals,” the Professor observed. “Whoever They are, They must have marvelous equipment and lots of power.”

“There were 559 pulses in each of those segments,” Dr. Badger said, after a bit. “Some appear to be longer than others. There were 105 of those and 454 of the shorter ones. Altogether, we received twelve complete segments. They are all the same: the message was repeated over and over twelve times.”

“Drink Martian Cola,” muttered Joe, whom nothing could subdue for long.

That broke the spell, and everyone laughed.

“But it may not be so funny,” said the Professor. “We can’t begin to imagine what they are like. Perhaps they have a whole civilization based on Martian Cola—whatever it is—and that’s precisely what they *would* send. Let’s keep an open mind. Joe is sometimes right even when he seems to be at his craziest.”

Dr. Miller stifled a yawn. “This has been quite a night,” he said. “Now we’ll have to start decoding, to try to find out what this message says. That may turn out to be the biggest headache of the whole project. And what about the newspapers? Shall we release the news to them?”

Sir Edward shook his head. “Not yet,” he said. “We must study our results carefully, first. We must keep the telescope on 61 Cygni—I’ll see to it that nothing interferes, now. We’ll have to have a continuous watch. The signal may begin again—probably will—and we must be ready for it.”

“It’s nearly two o’clock,” said Professor Bullfinch. “I hate to say it, but I really think the youngsters had better go home to bed. Will you drive them, Alvin?”

“But—” Danny began.

The Professor interrupted. “There won’t be any more excitement tonight, Dan. We will have to get down to the job of trying to figure out what we’ve got. Tomorrow morning, perhaps you can all come here again. What do you say, Pomfret?”

Sir Edward, who was bent over the tape, grunted.

“Yes, of course. But mind you, no monkeys.”

“Come along, kids,” said Dr. Miller.

They all got into the car, and he started off across the field.

“How will they go about trying to decipher the message, Daddy?” Irene asked sleepily.

“Oh, we’ll call in experts for that, I imagine,” Dr. Miller replied. “We’ll have a whack at it ourselves, too. No one will be able to pry us away from that station tonight. I imagine we’ll try a variety of ways. We’ll see whether the pulses seem to make mathematical symbols, or numbers. Maybe they’re binary expressions of atomic formulas—depends on what kind of information beings on another planet might want to send out.”

Joe, who was lying back in the rear seat with Danny, said, “Maybe it’s a kind of Morse code. You said there were two kinds of pulses, a long and a short. So maybe it’s just dots and dashes.”

Dr. Miller said, “It’s as good an idea as any.”

And then Danny sat up straight. “Stop!” he shrieked.

Dr. Miller stamped on the brakes. The car slammed to a halt.

“What is it? What’s the matter?” he said, turning in his seat.



“I know how to read that message,” said Danny. “I’ll bet I do! I’ll bet you anything I know what it is.”

“Oh, now, really Danny—” began Dr. Miller, considerably irritated because he had had to stop so suddenly and because it was so late and he was tired.

“But Dr. Miller, *honestly!*” Danny broke in. “It came to me when Joe said ‘dots and dashes.’ Professor Bullfinch told us, on the ship, how pictures were transmitted by radio. Suppose the long pulses mean that we should put a black dot in a space, and the short ones mean a blank space—?”

Dr. Miller said nothing. He was already turning the car, and a moment later they were streaking back toward the observatory.

13

The Voice from Space

“That was quick,” Dr. Badger was beginning, as Dr. Miller came into the control room. Then he saw the three young people. “What’s the matter?” he said. “Something wrong?”

“No—something right,” Dr. Miller retorted. “I think Danny is on to a wonderful idea.”

“The boy?” Sir Edward looked his astonishment. “I’m afraid I don’t follow you. What sort of idea could a boy have?”

“He thinks we may have received a picture message,” Dr. Miller said, bluntly.

Professor Bullfinch had been jotting down combinations of the pulses they had received. He raised his head sharply. “Go, ahead, Dan,” he said. “Tell us.”

Danny found it hard to speak. He was very weary, but at the same time bubbling with his idea.

“I started thinking, you know,” he said, “about what kind of message people from another planet would send. I mean, they wouldn’t have to send anything about how smart they were, because the fact that they could send us a message in the first place would show that they were intelligent. It would show that they thought something like the way we do, because they’d

want to send a message. And when Professor Bullfinch said that the signals were very strong—well, that would show that they were a lot further along in science than we were.”

“Good thinking,” growled Sir Edward. “The boy’s right.”

“Well, they’d want to send something short and simple, too,” Danny continued. “I mean, the more there is to a message, the more danger there is that you might get all mixed up and not understand it at all. On the other hand, you wouldn’t want to go to all the trouble and expense of sending a message across space just to say, ‘Hello.’ I thought, what would *I* want to send?” He rubbed his eyes. “I’d send a picture of myself so that people would know what I looked like. That would tell them more than almost anything else, wouldn’t it?”

Irene put in, “Don’t you remember, Professor, how you explained to us that you could send a picture by making a square and putting Xs in some of the spaces? Well, suppose we could figure out some way of—of making a square, or a circle, or something, and putting the signals into it, the long ones as black marks, the short ones as white spaces. Then the black marks would maybe form a picture of some kind.”

The Professor slammed his fist into his palm. “Absolutely!” he exclaimed. “It’s a splendid idea.”

“I can see several problems,” Sir Edward said, with a frown. “How can we establish the pattern? How can we determine how the spaces should be arranged so that a

picture will emerge?"

Dr. Miller had been staring at some figures on a pad in front of him, with his head propped on his hands. He said, "We've got 559 pulses. Suppose that's the product of two prime numbers?"

"What's a prime number?" Joe whispered to Danny.

"A number that can only be divided by one and itself," Danny answered. "If they can find just two numbers which produce 559 when they're multiplied together, then they've got two sides of a rectangle."

Dr. Badger had already gone to the computer and was setting up a problem. In a few seconds, he turned back to the others.

"Forty-three and thirteen," he said.

"Excellent!" Sir Edward rummaged in the desk and found a piece of graph paper. On it, he ruled off two oblong sections, each thirteen spaces wide by forty-three spaces long. "Now, which way shall we start?" he asked, biting the end of his pen. "Horizontal or vertical?"

"I'll toss a coin," said Dr. Badger. "Heads for horizontal, tails for vertical."

He flipped one of the large English pennies.

"Heads."

"Very well," said Sir Edward. "You read off the pulses, short or long. I'll leave the short ones blank, since there are more of them. When you come to a long

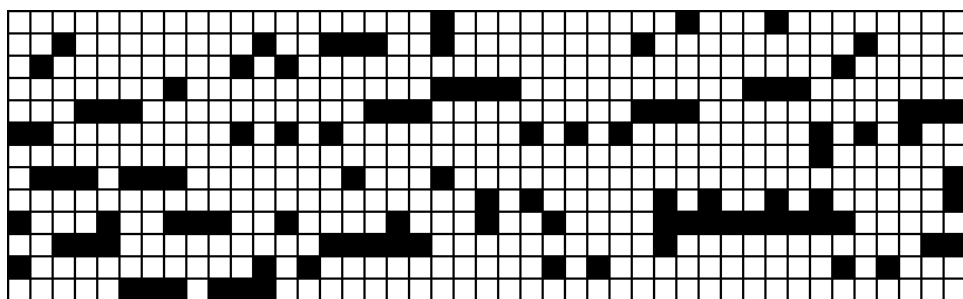
one, I'll fill in one of the squares on our graph." He paused. "I have a better notion. Since it was Dan's idea to begin with, we'll let him fill in the squares."

All Danny could say, as Sir Edward handed him the pen, was "Gosh!"

He turned the paper so that one of the oblongs was horizontal, with its forty-three spaces at the top. Dr. Badger began to read:

"Short, short, short..."

When he was finished, they all crowded to look at the paper.



"It doesn't look like anything," Joe said. "Like somebody dropped a crossword puzzle and it broke."

Dr. Miller turned the paper upside-down. "I'm afraid that's not it," he said. "Unless it's a picture of something we can't even begin to understand."

"Let's try it vertically," said Professor Bullfinch.

Once again, Dan bent over the graph paper. He now placed it so that he had thirteen squares at the top. Dr. Badger read over the pulses again.

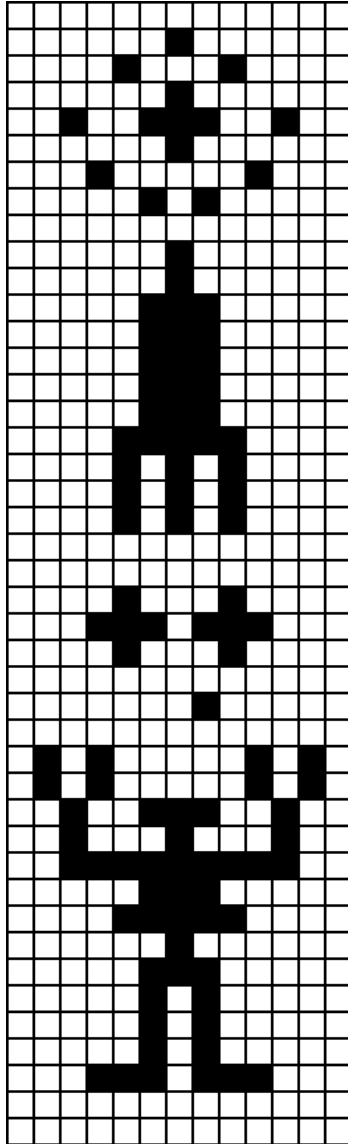
Before he was half finished, Irene gasped, "It's—it's

something!”

“Keep going,” urged the Professor.

Danny and Dr. Badger continued to the end. Then Danny put down the pen and drew a long breath of wonder.

“It *is* a picture,” he said. “But what does it mean?”



“Look,” said the Professor, pointing with a finger that trembled. “Here’s a cross surrounded by nine spots. *Nine*. What does that suggest to you?”

“Our solar system,” said Dr. Badger. “The rays of a sun and nine planets.”

“Then these two crosses below would be—”

“Two suns. 61 Cygni!”

“With one planet near one of the suns,” said Sir Edward.

“And that thing near the top looks like—could it be?—some kind of spaceship,” said Irene.

“Possibly,” said her father. He was gripping her shoulder tightly with one hand, but she was too absorbed to feel it. “Or perhaps simply a sign for direction. *Toward* our solar system from theirs.”

“And that shape at the bottom,” Danny said. “It’s like a kind of person.”

“If it’s a person, what’s that thing across the middle?” Joe said. “And he’s awfully flat on top. He’s got pinchers or something instead of hands—he’s holding them up.”

“No, Joe,” said the Professor. “We don’t know exactly what he has. All this shows us is that he stands erect, has some kind of legs and arms, and some sort of head.”

“But it is a message,” Irene said. “It’s clear, too. That being lives on a planet circling one of the suns of 61

Cygni. And they've sent a spaceship toward our solar system."

"An invasion!" Joe gulped. "That's what it is. An invasion by crab-clawed hammer-headed monsters!"

"I don't—" began the Professor. Then he passed a hand over his face. "I don't want to believe that. Yet I suppose anything is possible."

Danny shook his head. "I know what it is," he said, firmly.

He looked up into the faces of the scientists.

"Maybe I'm nuts," he said, "but if you wanted to show you were coming in peace, how would you do it? You'd show that you weren't holding anything in your hands, wouldn't you? It seems to me that no matter what they have—claws, pinchers, or some kind of fingers—they'd hold them up empty to show that they had no weapons."

Professor Bullfinch smiled at him. "Perhaps that's it. I don't know any better way of saying such a thing."

Sir Edward said, softly, "Unbelievable."

Dr. Badger, in the same tone, said, "Beings from another planet—sending a spaceship to our Earth, in peace. A ship! They must have an amazing scientific knowledge. And to be able to cross all that distance—!"

"They may be as different from us as a bee is, or an oyster," said Dr. Miller. "They may live for centuries—or they may travel in a kind of frozen sleep."

Professor Bullfinch went slowly to the door. After a moment, the others followed him. They all stepped outside, into the dark August night. They looked up. The sky was brilliant with stars. Near the Pole Star was the constellation of Cygnus—the Swan.



“There,” said Professor Bullfinch. “That’s their home.”

“Nearly eleven light years away,” said Dr. Badger. “Millions upon millions of miles.”

“We don’t know when they began sending that message,” said Dr. Badger. “What we received tonight was sent out eleven years ago.”

“Only a few minutes by the clock of the Universe,” said the Professor. “How long will it take them? Will they get here at all? And when?”

He put an arm around Danny’s shoulders.

“Yes, when?” Danny murmured, staring at the sky.
“When...?”

About the Authors

Jay Williams has written over twenty-five fiction and nonfiction books for children of all ages in addition to coauthoring fifteen books about Danny Dunn. Mr. Williams was born in Buffalo, New York, and educated at the University of Pennsylvania, Columbia University, and the Art Students League. (Available in Archway Paperback editions are the Danny Dunn series and *The Hew* from *Otherwhere*.)

Raymond Abrashkin wrote and coproduced the very popular and successful “Little Fugitive,” a film that won an award at the Venice Film Festival.

Leo Summers was born in California and raised in Seattle, Washington, where he attended the Burnley School of Arts. For many years he has done free-lance artwork for advertisements, magazines, and books, including a number of children’s books. He now lives in New York City and enjoys reading and music.

