Original

35¢

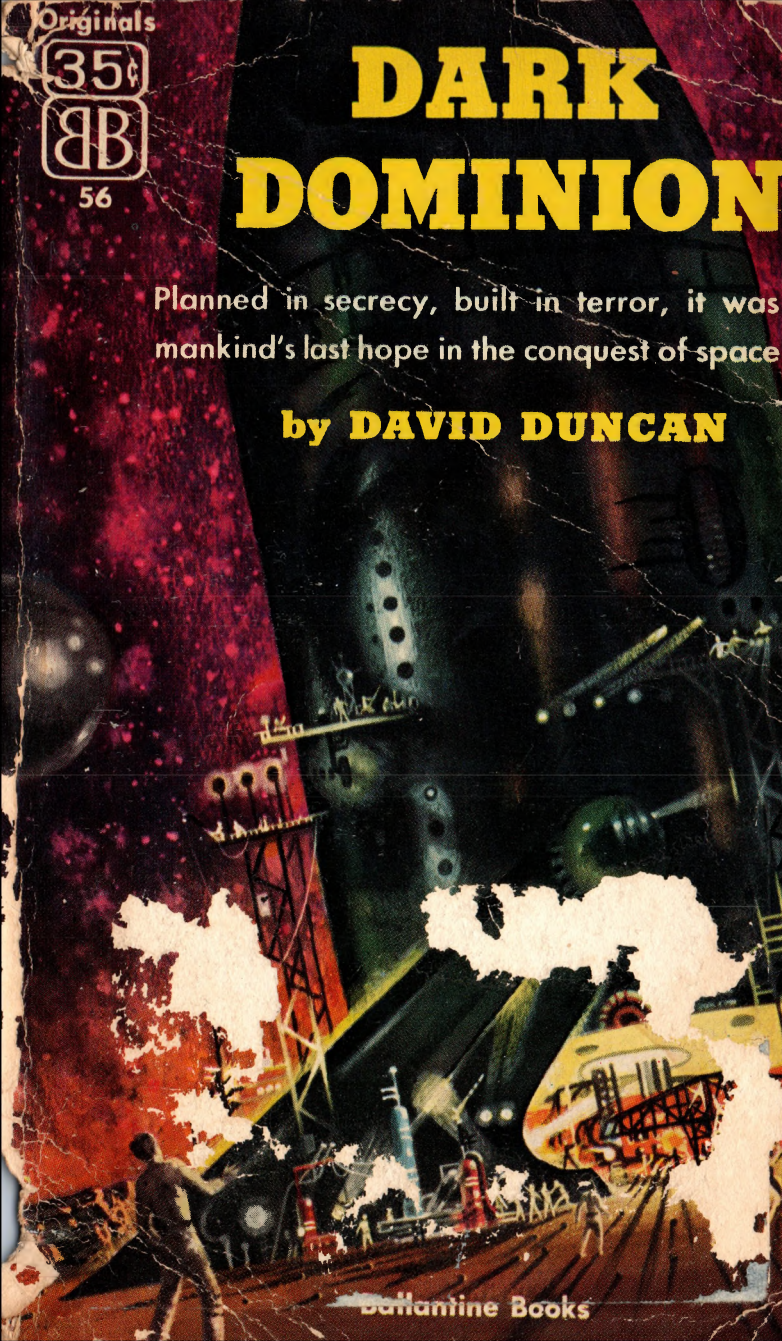
BB

56

DARK DOMINION

Planned in secrecy, built in terror, it was mankind's last hope in the conquest of space

by DAVID DUNCAN



Ballantine Books

"We were building what everyone fervently hoped was the world's first space station. Far away in the night outside we could hear the riveting hammers putting the final touches on the 'Black Planet' and the higher sing of the electric saws cutting through the bolts and braces which connected the ship with Earth.

". . . We expected success, in which case the men aboard might live to return to Earth again, but the 'Black Planet' would never return. Its destiny was space, to circle for untold ages through empty skies, perhaps until the species that created it had been replaced by a more adaptable form of life . . .

". . . What is the 'Black Planet' except the materialization of an idea, a dream? If the dream fails, mankind is finished."

Exciting, thoughtful, intense, DARK DOMINION is a distinguished novelist's conception of a daring adventure . . . which may already be under way.

A condensed version of this novel appeared recently in *Collier's* magazine.

By David Duncan

Remember the Shadows
The Shade of Time
The Bramble Bush
The Madrone Tree
None But My Foe
The Serpent's Egg
Wives and Husbands
Dark Dominion

This is an original novel—not a reprint—published by BALLANTINE BOOKS, INC. A hardbound edition of this book, priced at $2.50, may be obtained from your local bookstore.

DARK DOMINION

by DAVID DUNCAN

BALLANTINE BOOKS
New York

A condensed version of this novel
was serialized in *Collier's* magazine.

COPYRIGHT, 1954, BY DAVID DUNCAN

LIBRARY OF CONGRESS CATALOGUE CARD NO. 53-13038

PRINTED IN THE UNITED STATES OF AMERICA

BALLANTINE BOOKS, INC.
404 Fifth Avenue • New York 18, N. Y.

For

Emily, Margaret, and Miranda

DARK DOMINION

Lucifer in Starlight

On a starred night Prince Lucifer uprose.
Tired of his dark dominion swung the fiend
Above the rolling ball in cloud part screened,
Where sinners hugged their specter of repose.
Poor prey to his hot fit of pride were those.
And now upon his western wing he leaned,
Now his huge bulk o'er Afric's sands careened,
Now the black planet shadowed Arctic snows.
Soaring through wider zones that pricked his scars
With memory of the old revolt from Awe,
He reached a middle height, and at the stars,
Which are the brain of heaven, he looked and sank.
Around the ancient track marched, rank on rank,
The army of unalterable law.

George Meredith

CHAPTER ONE

I AWOKE IN DARKNESS and sat up to snap on the bedside lamp. It was three-thirty and the breeze that billowed the curtains of the bedroom window smelled wet and earthy from an autumn rain. At my side Susan awoke also, blinking against the light, and then putting a hand on my glistening shoulder.

"You're dripping," she said. "Are you sick?"

"No, it's all right now. That dream again. The same one."

"What dream is that?"

"Didn't I tell you last time?"

"I don't remember your telling me any dream."

"Then maybe it only seems that I dreamed it before. That can happen too."

Susan pushed her pillow against the head of the bed for support and sat up also, golden hair falling loose around bare shoulders, her warm familiar torso leaning slightly on mine. "Tell me now," she said. What I told her was this:

Years ago when I was a kid I was out hiking on the slope of the mountain that towered above the little mining town where I then lived. I sat down to rest, looking out over the plain that stretched as far as eye could see to the northwest, and while sitting there, I saw above the distant horizon the ghostly image of another world. It may have been a mirage, not uncommon in that locality, or maybe it was

only the product of my imagination. In any case, the vision frightened me enough that I averted my gaze until I could rally my courage and look again. When I did, the spectral landscape was gone. It was this abrupt disappearance—I was only twelve at the time—which made me suppose that I'd been singled out by Fate for a revelation. This belief didn't persist for long, but memory of the vision stayed with me.

Now it had been the subject of my dream. The scene returned, but exaggerated beyond anything imaginable. In my distorted dreamworld I once more looked out across the plains and saw another world beyond the horizon. But such a world! A fantastic region was unfurled across the entire reach of sky, painted in colors both grotesque and beautiful, and all of it filled with that emotional quality which in a dream seems to make the dreamer a part of the thing he observes. It was as though the distant land were a part of me, but there was no way I could ever reach it. Somehow I understood that by averting my eyes when I was a boy, I'd alienated myself from it forever. This filled me with such a sense of frantic despair that I awoke.

I related the dream to Susan, feeling a little foolish now that the walls of the bedroom were around me again.

"It's the effect of the Project," she said. "Another six weeks and the tension will let up. Everyone's having nightmares these days." She slid from bed, pulled a white robe around her and went to the window, where she pushed the curtain aside and looked out into the night. For several seconds she stood there before she said, "But whether it's the beginning or the end, you helped create it, Philip. It's because you can't go along that you feel alienated. I'm selfish. I'm glad you can't go."

I knew what she was looking at. From the window of our second-story apartment you could see the bulk of the "Black Planet" three miles away in the valley where the work continued day and night to ready it for launching. The "Black Planet" was the secret of the Magellan Project. Originally it was to be named the "Vittoria," after the only ship in Magellan's armada to circumnavigate the

earth, but when I arrived as director of the project, I referred to it as the black planet and the name stuck.

"Anyway, I'd never let you go without me," said Susan. "Why don't we have coffee? I'm not sleepy anymore." She went along to the kitchen without waiting for my reply, and I heard the scrape and clatter as she pulled the coffee pot from the cupboard, knocking it against the other pans, and then the hiss of water as she filled it and put it on the stove. Noises of reality. A woman in the kitchen and a fluttering breeze at the window bearing the scents of earth. Let me tell you something about the Magellan Project.

Five years I'd been there. The project was located a few miles inland from the coast and about two hundred miles south of San Francisco in an area known locally as the Big Sur region. First a refuge for wild life, it was later a refuge for destitute painters, writers, philosophers, and retired millionaires, and was finally taken over by the government of the United States.

Within the project boundaries were nine hundred square miles of land lying on both slopes of the Coast Range. The contrast between the country itself and the work we were doing there gave a graphic demonstration of the speed with which technology has developed. Until we arrived, this part of California was still in its native state. No plow had disturbed the shallow earth of the hills. The oaks, the sage, the manzanita, the wild lilac, the lupine, the yucca, and the grasses were still as they were less than two hundred years earlier when Stone-age Indians hunted deer across these same hills. Even the first Europeans to arrive were little more advanced than the Indians, except in the efficiency of their weapons. None of them had ever flown through the air or even been transported by a mechanical power. And now this same wilderness was the site of the most ambitious scientific undertaking of my time.

We were building what everyone fervently hoped was the world's first space station. There was nothing particularly secret about the nature of the thing. It will be recalled that designs for a space station were captured from

the Germans at the end of the second World War. Subsequently books were published on the subject, and a number of articles appeared in newspapers and magazines, so that every ten-year-old child in the country had a fair working knowledge of the principles involved. Our secret was simply the fact that such a satellite was being built, and so well was the secret kept that after five years of work there was no indication that anyone on the outside guessed what was going on. But such secrecy required a high sacrifice in individual liberty.

Every man, woman and child on the project—and the population was close to ten thousand—was there for the duration. No one could leave until the space station was launched and safely rotating around the earth. Meanwhile every workman and secretary went through a daily check by the security officers, and every department head in the technical and scientific divisions was assigned a guard who kept himself constantly informed as to the whereabouts and activity of his charge. The security officers even guarded each other. In this respect there was no favoritism.

The hundred and twenty miles of project boundary were patrolled by an outside military force which was ignorant of the project's function. Just inside this barricaded boundary was a strip of land a mile in width which someone had appropriately named "the bare midriff" because every bush and tree had been plowed up and the hills themselves smoothed over until a garter snake would have had difficulty wriggling across it unseen. On the inside of this strip was another boundary line patrolled by the inside security force which was never allowed to communicate with the outside. Whenever a trainload of supplies entered the project, it was taken over from the railroad by the outside military personnel, who brought it onto the bare midriff section and left it there while they returned to their posts. Then the inside security personnel would bring the train on in.

All military and commercial flying was prohibited within fifty miles of any border, and the prohibition was enforced by an outside air group with orders to shoot down

any trespassing plane which failed to ground upon command. During the life of the project there were very few violations in the air, and only one to my knowledge which ended in tragedy when a sport flyer got into forbidden territory, became frightened at the orders to ground his plane, and tried to fly home instead.

An attempt was made, however, to alleviate the stringent security measures in every way possible. The residential area of the project was attractively laid out and the housing was good. The multiple dwelling units resembled those built near war plants during the last war except that ours were designed for permanence. All of the scientific and administrative personnel occupied second-floor apartments, not because of social superiority but because guards occupied the floors beneath, where they could watch the single entrance to each residence. In fairness it should be said that the purpose of the guards was to protect us and not to spy upon us, and they tried hard not to interfere in our personal affairs.

The schools were excellent, wages and salaries were high, the food shipped to the project was the best available, and there was every sort of recreational facility from horseback riding to ping-pong. It was a complete little world, even including a graveyard, and in many respects coincided with concepts of a social utopia. It struck me as ironic that man should finally achieve social equilibrium while building a machine that could destroy him utterly.

This machine, the "Black Planet," was about finished. From the outside it resembled a gigantic drum resting upon hundreds of concrete supports and surmounted by a volcanic cone. The cone was camouflaged to look like a hill from the air, and the painters were constantly busy changing its color as the seasons changed the surrounding hills and mountains from green to brown with the passing seasons. Although its shape differed from early space station designs, its principles of operation were generally the same as those in projected models. The greatest difference between our satellite and those which were first proposed lay in that ours was built on earth instead of being assembled in space from parts carried up by rockets.

There's no doubt but what it was much simpler to build on earth, but originally this was thought impossible because we lacked a propellant powerful enough to lift such a heavy payload into the free-flight zone. Credit for developing such a propellant belonged to Warren Osborn, chief of the rockets and guided missiles section, and once this was accomplished we thankfully gave up the idea of sending the parts up a bit at a time by rocket to be assembled by free-floating humans.

Instead, the "Black Planet" itself was a rocket. Its cylindrical body was built around a hollow core through which the jets would make their thrust. The cone acted both as a shield on the upward journey and as a huge fuel tank which would become lighter and lighter as the fuel was exhausted until at a predetermined speed and altitude, the cone would be released and allowed to soar off into outer space, leaving the cylinder revolving like a millstone about the earth.

At an altitude of slightly more than a thousand miles it was to careen around the earth at the brisk pace of one revolution every two and one-half hours, using a north-south orbit so that it passed over the earth's poles. Meanwhile the earth would be rotating beneath it so that in the course of every forty-eight hours there'd be scarcely a square mile not subject to inspection by those peering down through telescopes from their lofty positions in the sky. But these observations wouldn't be altogether simple because the "Black Planet" itself would be spinning on its own axis in order to create a synthetic gravity for those aboard. Like people inside a whirling drum, their feet would all point toward the outside and their heads toward the center.

Osborn was emphatic in his opinion that they wouldn't get dizzy. He said they wouldn't get dizzy even if the "Black Planet" were only one hundred feet in diameter instead of being the size of a football stadium. Supposedly there'd be no sense of rotation at all. Instead it would appear that the earth was rotating around the "Black Planet" once every twenty-two seconds, which for a body that size is the period of revolution necessary to produce a

centrifugal force equal to one gravity at the outer circumference. But if I looked out the window and saw the earth revolving around me every twenty-two seconds, *I'd* get dizzy. I don't care what anybody says.

The purpose of the space station was military. Many of my staff liked to believe that the scientific value of the satellite would soon overshadow its military function, but one had only to compare the storage space alloted to instruments of research with the amount of space assigned for hydrogen bombs, guided missiles, and detective devices to recognize the grim character of our creation. But we also knew that theory must always yield to fact and that the true nature of outer space could be known only after men had experienced it. Columbus was only one of many men who followed a theory toward the Indies and arrived at a new continent.

While Susan and I were drinking our coffee, the telephone rang. It was Tom Hernandez calling from his laboratory.

"Phil," he said, "can you come over here?"

"At this hour? What are you doing there yourself?"

"I've been here all night, and I wouldn't have called except that Gail Tanager came in a moment ago and said the light was on at your place. If you're having insomnia, I wish you'd have it over here."

"What's wrong?"

"Something damned queer. I'd rather show you than tell you."

I told him I'd be right over. "Just as well I got up," I said to Susan.

"Do you want breakfast before you go?"

"Better not. Tom sounded worried. He must be if he's routed Gail out of bed to help him. If I can make it, I'll be back to have breakfast with you and the kids."

"Bring Gail with you," said Susan.

I slipped on my clothes and walked down the hallway to the head of the stairs, glancing into the children's rooms as I passed. Louis was ten and had only a hazy memory of any life outside the project. Marjorie, at four, recalled no other life at all. She was one of the first project babies.

They both accepted the environment more matter-of-factly than I. The "Black Planet" was only one more thing in their surroundings that needed explaining and was no more puzzling to them than thunder and lightning. One time when I was Louis's age our grammar school principal hurriedly sounded the fire alarm to get the children out into the school yard so they could watch a small blimp fly over! We thought it an amazing thing.

As I went down the stairs and out the building, a dark figure came silently after me. "Sorry to get you up so early, Elmer," I said.

"Not at all, Dr. Ambert. I enjoy it. Smells sort of like spring, doesn't it?"

CHAPTER TWO

YES, IT SMELLED LIKE SPRING, even though it was November. Rain had fallen and the grass would be green by Christmas. Over the tubes and conduits and the harsh metallic outlines of a world created by science flowed the breeze fresh from the hills that were already springing to life in their annual rebirth. There was still a wilder magic than man's.

Gail Tanager met me at the entrance to Q Building, which housed the department of nuclear research. I could see her silhouette in the lighted entrance for some time before she saw me. Her dark head was lifted and she was breathing deeply as though drawing some invigorating essence from the air. She stood with her sandaled feet slightly apart, her hands pressing against her slim waist, her sweater sleeves turned up, and the wind rolling lazily among the folds of her skirt. She appeared so enraptured with the dying night that I hesitated to disturb her. But she saw me and changed her position with a self-conscious laugh.

"I'm not being mystic," she said. "Just trying to clear my fuzzy brain."

"What's wrong with your brain?"

"Why ask, Philip?" she said ruefully. "You know. I can't sleep much these days. At least, I didn't sleep until about an hour ago, and then that madman in there woke me up again."

"Was Aaron with you?"

"Until midnight. But what good does it do, Philip? It's as though he's gone already." Then she gave me a sad, fleeting smile and linked a friendly arm through mine. "I'm sorry. I won't talk about it. Dr. Hernandez is waiting for you."

Tom Hernandez was bending over a table beside the calculating machine, his short black beard bobbing as he successively scanned several pages of notes. When he heard our footsteps he turned, his face weary but his eyes bright with excitement.

"Sorry to drag you out at this hour, Phil."

"Blame me," said Gail, and slid away from me to take over the calculating machine. She flung her dark hair back from her forehead and then her fingers started dancing over the keys as though she were playing a musical instrument. We left her there while I followed Tom toward the far end of the laboratory.

"This had better be good."

"Good or bad, I can't say. Puzzling—yes." Tom, an Argentinian by birth, was educated in France. I met him there after the war when he was studying at the Curie Laboratory. His sharp beard and dark eyes gave him the appearance of an old rake, but actually he was the youngest man on my staff and wore the beard more to protect himself from women than to attract them.

His experiment, which he'd been working on for months, was an attempt to produce a stream of neutrinos of sufficient force to bombard atoms. The whole thing was very hypothetical because there's still a difference of opinion as to whether such a particle as a neutrino exists. He hoped to settle this question, among others. Such a particle has been deduced experimentally because the quantum of energy resulting from the annihilation of matter which takes place when a positron meets an electron isn't sufficient to account for the loss of mass. It's assumed therefore that something else also results from the annihilation, and this "something else" has been called a neutrino because it can't be detected in a magnetic field and hence must carry no electrical charge. If a stream of

such particles could actually be produced, it would constitute the most delicate tool yet known for exploring atomic interiors.

"I've been getting nowhere," Tom said as we moved toward the wide control panel which covered the south wall. "I was about ready to admit Osborn was right, and then—this curious thing. For no reason I can understand, my uranium pile—or something in it—seems to be increasing in weight."

"How can it? You're not adding anything."

"Nothing that would add so much as a gram a year. But it isn't the total weight that's increasing. It's the density—the specific gravity. And it's too much. Far, far too much, so that I'm sure I've made a foolish mistake in my calculations and I hated to call you in until I tried to find the mistake myself."

"I take it you haven't found it."

"Nothing. It was easiest to think something was wrong with the instruments but they all work perfectly. Then I thought something was wrong with me—that I didn't see right when I took the readings. But my assistants checked me with the same results. So now I've done what I hate to do but what is really simplest—stop the experiment while I test the concentrate and see if the specific gravity is really increasing."

"Is it?"

He shrugged. "I'll say nothing until Gail finishes. She has the data now. But I want you to check over the experiment again."

It took a long time going over his procedure and records, and I couldn't find any place where an error was possible. Meanwhile Gail finished at the calculator and brought us her results. There was no doubt about it. The specific gravity of the concentrate showed an increase, and it was nothing to be measured in micrograms. The weight per cubit unit had really jumped. The three of us cast apprehensive glances at the doorway leading to the great leaden vault containing the uranium pile. Tom wet his lips nervously.

"Then it goes without saying that the total cubic con-

tent of the pile must be decreasing. In some way it's being compressed." He shook his head. "It's not a thing that should result from the bombardment. In fact, it's not a thing that should result no matter what the circumstances —unless there's something about this particular ore——"

"It came from Canada and the same ore is being used industrially around the country. We'd have been informed had it shown any queer properties."

"True, true—all the same——"

"There's still plenty at the reduction plant. Let's send for a sample."

He put the call through and while we waited we checked through Gail's calculations again, still believing there might be an unobtrusive error somewhere. The search only confirmed the increase in specific gravity. Then the new sample of the concentrate arrived and we tested that. It was exactly what it was supposed to be.

Tom shook his head sadly. "That settles it. I've got to call off the experiment while I analyze the uranium pile and see what's happening to it."

"Why do you have to do that?" said Gail.

"Because I'm working with a radioactive element which keeps increasing in density. That can only mean that an internal tension is being built up, and if I don't stop I might blow the whole Magellan Project off the face of the earth."

"I still don't see why you have to stop," said Gail. "Go ahead and blow it off the face of the earth. That'd be bully."

"Maybe so," said Tom smiling, "but when men are making very elaborate preparations to destroy themselves, it's too anticlimactic to be killed by accident."

"Men are a bunch of ham actors," said Gail.

"It may take weeks," said Tom. "And then the whole experiment to be done over again. Won't Osborn laugh!"

"I don't know why you need tell him."

"Oh, he knows. For all his pretending not to care, he keeps coming around to see what's happened. He dropped in three days ago and went over the whole experiment

with me. He was so civil I thought he'd changed his mind."

"But he hadn't?"

Hernandez shook his head and smiled ruefully. "No. After he finished looking at the record, he gave me his 'Science must disregard personal feelings' line and told me the experiment would fail."

"Then consider the analysis of the uranium pile as your experiment. Follow where the devil leads you—and be careful." I turned to Gail. "You're coming back to the apartment with me and have breakfast."

"So the devil's going to lead me too," she said.

Daylight had come when we left Q Building and walked back along High Street toward the residential area. Tram cars were carrying the day shift down the valley to the "Black Planet" and other lines were shuttling the night shift home. There was no traffic on the street. Trucks used other roads, and passenger cars were almost unknown on the project. It made for quiet. The street followed what had once been the crest of a hill so that we could look down the long slope of the valley to where the cone of the space ship, painted a mottled brown at this time of year, was half brightened by the slanting sunlight. To the north and east the mountains were jet black against the dawn, with curls of pink and amber clouds above them. The breeze had turned chill as it often does at daybreak, and Gail shivered and drew herself closer to me.

"Cold?"

"It's the thing in the valley there," she said.

"It's not alive. Just another of man's machines."

"That's what's so horrible about it. Only a machine. We don't think of it as a god, but we still sacrifice to it. It's the best mankind has been able to do, and it's not enough. The soul has been left out."

"Would you really stop Aaron from going if you could, Gail?"

"But I can't stop him so it doesn't matter." Then she added, "No, I wouldn't. I'm like the rest. We're driven by a sort of compulsion. I've lost touch with reality en-

tirely. Last night Aaron said something that made me absolutely hysterical so that I laughed and cried for thirty minutes not knowing whether what he said was funny or tragic. And all he said, in that dry way of his, was that he thought he'd take along a few potted plants. Carrying geraniums to heaven! Why is it so absurd? Sometimes I think all the old myths were really true accounts of what happened, and that man has been traveling in a vast circle and is about to come face to face with all the pagan gods again."

"Then maybe there'll be a soul after all," I said.

"In that sterile void?" She lowered her voice, conscious of Elmer's following shadow. "But the odd thing is that Aaron thinks so—about the soul, I mean. He's changed, Philip—just in these few months."

"He'd be certain to change."

"Why? If it's only a machine? He said he had a dream a few nights ago. He was sitting on a mountainside looking out across the plain, and suddenly there was another world floating above the horizon."

My throat tightened. "Yes? And then what?"

"He said he got up and started walking toward it. A path seemed to open before him."

"Joshua," I said. "Not Aaron. Maybe the old myths will return."

Susan was getting Louis off to school and Marjorie was still asleep, so the three of us had breakfast and then I started for my office.

"Remember what you promised Louis," Susan called after me. "You're supposed to go horseback riding with us this afternoon."

"If I can get away."

"Yes, darling, we all understand that perpetual 'if.' But we've been waiting for weeks. Keep it in mind."

I left the house and went to my office, thinking about Gail and wondering to what extent her feelings about the "Black Planet" were shared by others. Complicated as it was by her personal life, it couldn't be general. Gail was the daughter of an Episcopalian minister who inculcated her from the cradle with principles of humanity. Like

others on the project, she was unaware of its purpose until she'd signed up and committed herself for the duration. She was told that her mathematical ability was in great demand. This was true, but she was shocked to find herself using it toward the construction of the most powerful weapon of all time. Then to confuse her life and principles still more, she fell in love with the ship's commander, Aaron Matthews.

I hurried on into the Administration Building, intent upon clearing up enough work to justify an afternoon off, but I was interrupted even before I could begin. I found Warren Osborn waiting to see me.

CHAPTER THREE

DR. WARREN OSBORN'S CONTRIBUTIONS in the field of rockets and guided missiles are well known. The man himself was harder to understand than his achievements. I met him first at Los Alamos where the original atomic bomb was produced and where he was supervisor of the section where I worked as a young physicist at the time. I stood in considerable awe of him for he was already famous and was outspoken in his impatience with anyone whose mind wasn't as quick or whose opinions weren't the same as his own. He was a handsome man with jutting nose and chin, searching eyes, and smooth black hair that had recently become gray at the temples. I often had the impression that he'd become a rocket expert for the same reason some men became doctors back in the days when surgery was the current marvel—for the social prestige it gave him. He wore his knowledge like a cloak and used it with all the dramatic effect of a magician. Not that his knowledge wasn't real. He studied constantly and was insatiably curious about what his fellows were doing, but again he gave the impression that it wasn't an objective interest which drove him so much as the necessity for making himself invulnerable against the type of criticism he ladled out so generously to others.

I was a younger man when I first met him and had a sort of schoolboy admiration for his contempt of author-

ity and the single-mindedness with which he pursued his own interests. He said to me once, "I'm not a lawless man, Ambert; merely an intelligent one, and intelligence must never betray itself. When laws and rules are stupid and serve no purpose, the man who recognizes their stupidity is duty-bound to disregard them. It's the only way to prevent our lives being governed by dolts."

Chief among those he considered dolts were professional military men, and his attitude toward uniforms wasn't improved when his wife deserted him while he was at Los Alamos and ran away with a buck private from the project garrison. To a man of Osborn's vanity, no insult could have been more cruel.

But I didn't realize how deeply he felt on the subject until after Aaron Matthews' arrival. Aaron wasn't at the project from the inception. He arrived only about a year before the time of which I write, a lonely man plucked by destiny from among the millions to become commander of the world's first space station. Before then he'd held a captain's rank in the Navy, which for a man of his age was proof enough of outstanding qualities, but this wasn't what won his appointment as commander of the "Black Planet." That came about because he was top man in a series of competitive examinations open to all officers of senior rank in the three divisions of the service. Over a thousand men started out and Aaron was the one who came out first. His crew of two hundred young men arrived soon afterward and lived in monklike solitude in a barracks across the valley from the project center.

As director, it was my job to meet Aaron when he arrived and introduce him to the "Black Planet." I'd felt a certain bitterness because the policy-makers insisted that the crew and its leader come from outside the project. They were taking no chances in manning the ship with those who built her and perhaps loved her and who might let their personal feelings interfere with the purpose for which the ship was intended. Matthews disarmed me. From the first, he, who so obviously enjoyed life, showed a deep involvement with the thing which was to remove him literally from the face of the earth. In the moment he

entered its giant enclosure he seemed to possess it. His questions sounded as though he were merely seeking confirmation of facts and operations with which he was already familiar. At the end of the first inspection he paused in the exit, reluctant to leave, and looked back into the interior.

"There's really only one important thing to know," he said: "Will it work?"

"It works on paper," I said, but he'd unerringly tapped the project on its most vulnerable point. One of the first things any student learns is that the data of science aren't manufactured in the minds of men but come from nature. Men don't invent principles; they discover them and put them to work. But discovery takes experiment, and in the case of the "Black Planet" the final, conclusive experiment couldn't possibly be performed prior to the launching, because the launching itself was the final experiment.

Aaron smiled at my answer. "I wasn't doubting. It has to work. It's in the cards." His quiet assurance seemed to spring from faith rather than facts. But no matter where it came from, I was glad he had it. And I found myself liking him immensely.

Not long after Aaron's arrival, Susan and I gave him a small dinner party at our apartment, inviting several people we thought it would help him to know. Paul Basich from meteorology was there with his wife Eleanor. Edgar and Marie Duval were there. Edgar was a thin, nervous little man with fluttery white hands who always looked as though he'd just been accused of making a mistake. He was a specialist on closed air-water life cycles. Ruth Franklin from biology was there. Tom Hernandez you already know.

Warren Osborn and Gail were also invited and I was surprised to see them walk in together. Osborn had made a bid for Gail's attention several months before with no success at all, and I wondered if she'd had a change of heart.

She hadn't. I was in the kitchen mixing drinks when Gail pulled Susan into the adjoining dining room to look at the table. "Where have you put me?" said Gail. "Thank

God, not next to Dr. Osborn. He's really a wretch. He knew I was invited so he just casually dropped by and said he'd bring me. And what could I do? Tell him to walk on twenty yards ahead?"

"I understand perfectly," said Susan.

"He's so damnably sure of himself. He squares his shoulders in front of you, arches those dark brows, gives you his piercing glance and expects you to faint into his arms. Then, when you don't faint, he laughs and says, 'Ah, so you're afraid of your own biology!' How can a brilliant man get that way about women?"

"Because a woman once insulted him, darling. And besides, brilliant men are as stupid as any where women are concerned——. Except Philip," she added loudly for my benefit.

Anyhow, Susan tried to place Osborn as far as possible from Gail at the table. It didn't work. He managed to insert himself in the seat next to her and when Susan mentioned she'd planned to have him sit elsewhere, he waved her aside. "Let's not be formal, Susy," he said. "I like it here."

"I'm not sure others do, Ozzy," said Susan, but this didn't bother him either. It looked as though only physical force would budge him, so we left him there—much to Gail's annoyance. Directly across the table from her was Aaron.

Until then Aaron hadn't seen much social life. He'd spent all his time training his crew and studying the endless details of the ship, but now he found himself facing Gail Tanager and he liked what he saw. He liked it so well that he became a little disconcerted trying to look at something besides Gail's face. She couldn't be a woman without noticing his attention. Her face warmed with a pleased self-consciousness, her conversation became more eager, she drained her wine glass as quickly as it was filled.

Osborn began to show annoyance. Apparently he thought his role as Gail's escort had been convincing and so now he felt compelled to assert himself. As dinner progressed he shifted closer to Gail and draped an arm casually across the back of her chair, leaning forward pos-

sessively now and then to correct some statement she made, much as a fatherly husband might correct a careless wife.

"Aren't you getting crowded there, Warren?" Susan asked sweetly.

"Not at all," said Osborn, and took a sip from Gail's wine glass, his eyes challenging Aaron's across the table. Aaron looked from Gail to Osborn curiously and finished his dinner in silence.

Usually we lingered about the table long after eating, but tonight Susan got to her feet. "Let's have dessert in the living room. Spread out a bit." Everyone seemed ready for a quick change of scene, but as Gail arose, Osborn slid an arm through hers. However, she'd had enough.

"Thanks, Dr. Osborn," she said clearly. "I think I can manage as far as the living room myself."

Aaron's face cleared at once and he rounded the table to her side. "Let me make sure you get there safely." He offered an arm which Gail seized with relief. Osborn flushed darkly.

"You might make it that far," he said quietly. "I thought your interests lay closer to heaven." The little room shimmered for a moment in unspoken rage as the two men faced each other. I heard Duval murmur, "Oh, dear!" and then I got a grip on Osborn and drew him into the kitchen for a drink, kicking myself for having invited him. "Have some brandy," I told him. "The gal just isn't interested in you right now."

"That's been made embarrassingly clear," he snapped. "It's your own damned fault if you're embarrassed."

I thought the incident was over. Conversation took a general turn in the living room and Osborn not only stayed away from Gail but isolated himself entirely in a little chair by the bookcase. But his eyes held a saturnine gleam which quickened as Aaron started giving an amusing version of the tests and examinations preceding his appointment. Osborn waited for a pause and then spoke with a note of sincere amazement.

"Am I to understand, Commander, that you owe your

appointment to your success in taking a few paper examinations?" He shook his head in wonder. "Amazing! It's so like the military to put their trust in the written answer. The mechanized mind."

"I understand that the examinations were devised by men who thought of themselves as scientists," Aaron replied.

"I know the type," said Osborn. "Vocabulary scientists, I call them. They've devised the means of separating the wheat from the chaff so they can preserve the chaff. It's true, of course, that the man who commands the space station must be of that caliber, a man of servile disposition who'll never question orders from below."

"Stop it!" said Gail breathlessly. "I don't like it."

Osborn smiled and turned his gaze on her. "Really, my dear, you should leave the Commander alone. A girl of your heritage has no business trying to influence a man whose assignment is the military domination of the world. It can get him into trouble."

"Warren," I said, "shut up. We're trying to have a party."

This at least drew his attention to me. He eyed me balefully a moment. "I doubt if I do shut up, Ambert," he said. "As director of this project you've been in a position from the first to insist that the primary purpose of the "Black Planet" be one of research. Instead you've played politics to hold your job and turned us into a bunch of educated slaves in the service of a barbarian master."

I couldn't very well clout him in my own living room. "Sorry you feel that way, Warren. There's still plenty of research in progress."

He went right on with his accusation. "By which you mean that wild idea of Hernandez' which will cost God knows what and which has nothing to do with the work of the project as a whole. I suppose you approved it as a sop to your conscience. That's all it'll be because I'll tell you and Hernandez both right now that it won't work."

"Did you have an experiment you wanted approved?"

"I don't need your approval for anything!" To my relief he got up and left after that. A completely exasperat-

ing man when he wanted to be—or perhaps he couldn't help it. I was nowhere near as calm as I tried to appear, so after he was gone I loaded everyone with more drinks than anyone should have had and the party came to life. Gail and Aaron walked out together.

Personality conflicts weren't unusual where we were all cooped up for five years with no chance of getting away from one another. When flare-ups occurred we tried to forget them again as soon as possible. But Osborn continued cool toward me from the night of the dinner party on, and it was with foreboding that I found him waiting for me at the office.

CHAPTER FOUR

I USHERED HIM INTO THE OFFICE where he stretched out in the leather armchair and loaded his pipe, his face thoughtful while he waited for me to get rid of my coat and give him full attention. He told me, almost with indifference, that he didn't intend to waste any time for either of us.

Then he said, "I must leave the project, Ambert. I'll need your recommendation."

I was silent a moment, wondering how to reply to a request I couldn't possibly grant. He saw the difficulty and pulled an envelope from his pocket which he tossed on the desk in front of me.

"Don't start begging off until you know the facts. Read that."

There'd been a number of cases where people wanted to leave the project because of the death of a relative on the outside, or family trouble, or simply because they weren't getting along well. Without exception all such requests were refused.

"Bad news?" I said.

"Read it, read it." His manner was grandly impatient.

The letter was addressed to him at one of the several army post-office numbers which gave the impression to correspondents on the outside that they were writing to someone overseas. Incoming mail was censored only slightly. Outgoing mail was censored to the point where

about all the information you could give was that you were alive and well. I pulled out the letter and read it. It was addressed to Osborn by the secretary of the board of the Gledshaw Foundation, and the body of the letter read as follows:

> *You are no doubt aware of the death last month of our esteemed Director, Dr. Horace Rutledge, whose energies have guided and inspired the foundation from its inception. His loss has created a vacancy which few men are qualified to fill. The board has, however, selected the names of three eminent scientists and philosophers, including your own, whose achievements more than qualify them for the position, and I have been instructed to learn from you whether or not you desire the Directorship and if you will be available to accept it. It gives me great pleasure to inform you that your name is our first choice.*
>
> *We must, however, have this information at our next board meeting, the third Tuesday of this month, and must be assured that you can take over the duties of office on the second week following. The entire board desires me to express our wish for a quick and favorable reply.*
>
> *Cordially . . . .*

I replaced the letter in its envelope and handed it back to him. "It's a great honor. I congratulate you."

"Congratulations are meaningless unless I can accept the offer. If you've read the letter carefully, you'll see that I have only a few days to give them a favorable reply and less than three weeks to make my appearance in New York."

"Yes, I read the letter." There was still no possibility of his leaving the project but I felt there might be some other solution to his problem. That the job he was offered carried great prestige, there was no doubt. The left-hand margin of the letter listed the names of the governors, about fifty of them, and fairly glittered with brilliance. They were

chiefly honorary governors, it's true, men and women who had lent the use of their names not only for the benefit of the Foundation but also for the esteem it brought to themselves. They were scientists, statesmen, industrialists, religious leaders, educators, a couple of playwrights, and several whose recommendation was only wealth and position in society. The purpose of the Gledshaw Foundation was to "preserve and expand those known and unknown resources of the human spirit which are the true index of progress." It ground no axes and carried no torches but moved instead in the rarified atmosphere of pure rationality. Through the will of the late Bertram Gledshaw it was given immense funds and the useful task of correlating the various branches of knowledge so that the specialist need no longer be an ignoramus outside his own field. The task had so far proved difficult because it had to be done by specialists. My personal criticism of the Foundation was that it was ivory-tower, but this didn't mean that Osborn shared my opinion. The important facts as far as he was concerned were that he wanted to accept the directorship and that under ordinary conditions there was no reason why he shouldn't. But the circumstances weren't ordinary.

"I know what this means to you," I said. "If it were in my power to release you from the project, I'd do it. But in that respect I have no more authority than my private secretary."

"I didn't ask you to release me," he said wearily. "I asked you to make a recommendation for my release. Then I'll take the matter up with Humphrey."

"Humphrey would throw any such recommendation in the waste basket."

"I have no intention of losing this opportunity," he said. "It can come only once. If I'm not available, another man will be chosen."

"Take it easy. I don't think your conclusion is justified at all. If you're their first choice—and that's what the letter says—then I'm sure they'll wait another month or two if they know you want the job and know you'll be available eventually. Your first problem is to let them

know you want the job and that's going to be difficult in itself. You can't tell them your present situation, and what you'd be allowed to tell them would sound meaningless. So I suggest this: Let me put a report through to Washington explaining the situation and requesting someone there to get in touch with the Foundation and tell them you'll take the directorship if the board can wait until you're available."

"What use is that?" he said heatedly. "Those push buttons in Washington will drop your report in the wastebasket faster than Humphrey. It's my personal career at stake and they don't give a damn about it. I've had enough proof of that already!"

"I'll make the report persuasive."

"To hell with your persuasion. I want to get the release right here where I can see it happening. Not three thousand miles away. All this secrecy may have had a purpose in the beginning but now it gets more senseless with every passing day. It would even help the security of this place if I made an appearance in New York. Then all the glamorous spies who've wondered where I've been the last five years would decide they were too late to find out and go home. There's no risk at all!"

"I'm not arguing that point, Warren. I'm simply telling you my hands are tied."

"Because you don't want to trouble yourself!"

"That's not true. I've told you I was prepared to go to a great deal of trouble."

"All right. Supposing you did? Even suppose that by some remote chance your request was carried out and the message delivered to the Gledshaw Foundation. And then what if they said, 'Sorry, we can't wait'? Would you then recommend that I be allowed to leave?"

In spite of a sympathy for him I was getting irked by his insistence on the impossible. "Can't you understand that such a recommendation would be worthless?"

"Then I'll do this," he said decisively. "I'll write to the Foundation and state simply that I accept. There's nothing censorable in those two words."

"I'm not the censor, and it's your privilege to try. You

might even make them delay their choice that way and string them along until you are available. Not a good way to start a new job, but that's your business."

"There'll be no delay. Within three weeks I'll have pounded on so many desks that I'll be out of here—legally released."

"I'm afraid not," I said. I looked at the wall calendar. "Six weeks from tomorrow the 'Black Planet' is to be in absolute final shape, every detail completed and ready to take off. The crew is to have finished training. But that deadline is only the one we were told to work toward and doesn't mean the space ship will be launched immediately. No one except the President of the United States knows the date, and the signal will come from him. I can't see any reason why he'd delay but I can't guarantee he won't. And until that ship is in outer space, no one can leave the project, least of all you, who'll be responsible for the fueling. But I'm still fairly confident the Gledshaw Foundation will wait if they have the simple information that you'll be ready in a couple of months."

"You just said yourself that no one except the President can guarantee that."

"But it's probable. That's the best I can do. But I'm sure our men in Washington are aware of the contribution you've made and will do all they can to help you."

He gave this remark a barking laugh. "Are you suggesting they'll show gratitude? Don't be stupid, Ambert! What gratitude was shown after my services at Los Alamos? My wife was inducted into the army. A great reward!"

"That wasn't an official government act."

He wasn't amused. "And then here—I should have been director, not you, Ambert. When I signed up, I assumed as a matter of course that I'd be in charge. My phase of the work is the most involved, most essential, most ——"

"Damn it, that's *why* you weren't made director! You were needed in the laboratory. Do you think I've enjoyed messing around with these piles of paper and personnel problems while you and Duval and Hernandez and Basich

have been having the time of your lives with the best equipment in the world at your disposal?"

"Don't be ridiculous. They made you director because they needed someone who'd accept their stupid orders without question. I'd have seen to it that the men who designed and built the ship had something to say about how it was used. There'd have been a scientist in charge, not a cardboard soldier like Matthews. Instead I've been forced to watch you sell the scientific integrity of every man on this project to the powers of destruction!"

"Osborn," I said, "you've been harping on that theme for the last eight months, but I have a very clear memory of the years after Los Alamos when many of us volunteered our time and money to stump this country and Europe in an effort to make people see the necessity of peace. You weren't with us. Instead you were getting fat writing books which advocated the very thing we've built —a machine that can conquer the world. You didn't start worrying about your scientific integrity until you learned you wouldn't be in charge of building it and realized someone else was going to operate it. If five minutes from now you were made the ship's commander, you'd turn militaristic all over again." I went to the bookshelf, where I plucked out one of his own books, *Conquest From Space*, and flung it on the floor at his feet. "That's a fourteenth edition. Do you recognize it, or don't you let your left hand know what your right hand's writing?"

He glanced at the book and brushed it aside with his foot. "In a world where people will pay for progress only when they're frightened by war, it's necessary to scare them." But the appearance of his own words on the floor cooled him somewhat. He jabbed at his pipe bowl with a match stick. "The situation is this—my work is finished here. My assistants can take care of what's left. I was virtually finished a year ago, and since that time the emphasis has been all on methods of perpetuating life within the space ship. So I find myself a prisoner. Some men might like to idle away their time in such comfortable surroundings but I'm more concerned with my duty to myself. To remain free." He arose, straightened his shoul-

ders, and meticulously brushed a tobacco crumb from his lapel. "You're afraid to send a recommendation to Humphrey, so I'll have to speak to him myself. Then I'll talk to you again. It's clear that you don't want to help me, and I'm not going to plead. You've authorized a million dollar expenditure on Tom Hernandez' hopeless experiment but for me you refuse even to write a strong recommendation. Well, we'll see what happens." He stalked out the door and closed it firmly behind him.

I picked up the book from the floor to return it to the shelf, and as I did so, it opened to the dedication: *I write this book in the interests of the nation I love and serve, with the fervent prayer that she will recognize her greatness in time to rule the world rather than be ruled by another. Her destiny is the sky—to tower godlike above all others, to punish the wicked with the wrath of her thunderbolts and to anoint the humble with the blessings of her rain.*

A strange man, Osborn. The personification of group concepts such as states, races, or nations always frightens me. It's like falling in love with a woman who isn't there and it opens the possibility that when you find her missing you'll believe you've been deserted and start hating where once you loved.

For the rest of the morning there were no interruptions and so at one o'clock I was able to knock off and go home. A brisk horseback ride with Susan and Louis and an evening lunch under an oak tree, with the sand and grass of the ancient earth all around me, was exactly what I wanted.

CHAPTER FIVE

SUSAN LEFT MARJORIE at the project nursery and then she, Louis, and I set off for the hills at a brisk gallop, with Leo Roach and Elmer Curry bringing up the rear. Overhead the sky was clear but ahead of us to the west a fog bank from the sea lay like whipped cream along the top of the divide. Once away from the project center, the land was primitive—low craggy mountains with patches of forest in the sheltered hollows and smooth rounded hillocks in between, the grass a peltlike tan at this time of year. We headed for a little canyon we'd discovered, in the early days of the project, where a spring maintained a plot of green grass the year round and where the oaks and sycamores gave relief from the semidesert appearance of the surrounding country.

After we arrived, I spent an hour hunting fossils with Louis and was lucky enough to discover a few calcified shells and several leaf imprints embedded in an outcropping of slate. This satisfied him so he went down the canyon on a ramble with Elmer, leaving me with Susan and Leo while she fixed the lunch. A few minutes later we heard a shout from Louis and saw him and Elmer returning, Louis with a long face and carrying a dead bat. By one of those queer chances he'd flung a rock at it and hit it on the wing and now he was grieved because he'd been under the impression that it was impossible to hit a flying bat with a

stone. He'd not only killed it but had disproved a childhood axiom in which he wanted to believe. How well I know the feeling!

But since freshly killed bats aren't often come by, I took the opportunity of giving him a natural history lesson based upon the carcass. Susan made noises of disgust at the sight of the beast's ugly little face but Louis was interested. After explaining the specialization of the bat's ear and demonstrating beyond doubt that it was a mammal, not a bird, I opened it up to find what it ate, disclosing the remains of a few small locusts. But while doing this I noticed on its fur several grains of a white substance which was moist and claylike to the touch. I looked at it under the magnifying glass from the rock kit and tested it with some vinegar Susan had brought along. The stuff was a calcareous clay and gave off tiny bubbles of carbon dioxide when I dosed it with vinegar. Louis could see nothing exciting about this operation and carried the bat's body off for burial, but I was excited. This species of bat should have been spending its days hanging head down from a tree twig; instead it had apparently flown out of a limestone cavern not long before Louis hit it with the rock.

I had Louis accompany me down the canyon to show me where he'd first seen the thing and then I tramped around the vicinity awhile, examining the exposed rock along the side of the canyon in an effort to determine the direction and slope of the stratified layers. The short autumn day was drawing to a close and no more bats appeared in the canyon, so I rejoined Susan and we packed up. Then I led the way to the rim of the canyon from where I had a good view of the surrounding country. The day was late now, and I hadn't long to wait before I saw against the pale western fog bank a tiny speck which by its erratic movement disclosed itself for a bat. With a pocket compass I got a direction and then led the party off at a trot along the ridge of the canyon. I estimated a distance of a hundred meters before I stopped again and waited until another bat arose against the sky in the distance. Once more I took a compass reading and then calculated a rough triangulation.

"Don't you think we ought to start home?" said Susan.

But I was too interested to start home. In spite of its dry appearance this section of the Coast Range of California is spotted with many springs, particularly on the western face, some of them hot springs, and there are a number of limestone deposits of commercial importance. Nearly all the California earthquakes originate in this same range of mountains, and the constant faulting was certain to have opened passageways in the earth to underground water. These factors are all favorable to the formation of caverns, but so far no one had mentioned finding a cave on the project, and I wanted to do some searching. It might be months before I had another chance.

So I started off at a gallop across the rough terrain toward the apex of my triangle, hoping the measurements were close enough that I could find the point of the bat's origin with my eyes once I got there.

"Dad is up to something," said Louis.

I was stopped finally by a sharp cliff where the granitic rocks had been lifted upward and had actually shelved out over the sedimentary layer of slate of far more recent origin. I followed along the face of the cliff to where it melted into the mountain, and from there mounted onto a little knoll which made a good vantage point. The trouble now was that there were too many bats, a score or more, zigzagging through the evening, and it was impossible to tell where they came from. But from the knoll I could look across a gentle dip to the ascending slope beyond, and there—not much above my own elevation, was what at first appeared to be a shallow gully filled with a growth of brush and scrub oak. But it couldn't be a gully because its lower end showed no effects of erosion by water.

I told the others to remain where they were and started off to investigate, but Elmer insisted apologetically that he had to come along.

"I'm only going into the thicket there for a few moments," I told him.

"Oh," he said. "In that case, excuse me ——"

So for once I got away from him. I pushed down

through the bushes and was out of sight. It was a typical pothole, a sink in the earth, and much deeper than I expected. What had appeared to be bushes were actually the tops of good-sized oaks growing from the bottom of the depression. I climbed down the funnel-shaped slope into a thick dusk and at the bottom found several rocky ledges smoothed as though they'd been in a stream bed. But there was no stream. Whatever water ran into the sinkhole didn't run out on the surface.

Nature is very adroit at hiding her secrets. I stumbled around in the gloom poking into every crevice and tapping all the exposed rocks with my hammer, hoping to get a hollow sound in response, all without success until one series of tappings was answered by the distant but undeniable squeak of a bat. I increased my blows and heard more squeaks which led me back to a crevice I'd already examined three times. It appeared to be no more than a split in the rocks filled with some kind of thorn bush and low cactus, but now I stomped the cactus down with my boots and ignored the thorns while I squeezed into the crevice until I could hardly breathe. I was gratified by a whiff of cool damp air and a series of squeaks much louder than before. I sucked in my belly and pushed on another two feet with the brush clawing at my face and neck, and then on the left, the wall of the crevice doubled back toward the side of the sinkhole. As my hand went around the crook of the rock I could feel the cool air distinctly. A moment later my entire body was around the turn and I was on my hands and knees peering into a jagged, black hole from which a clammy breeze blew upward into my face.

The excitement of the search made me forget the passage of time, and having found the entrance to the cave I wasn't going to retreat without knowing more about it. So I pulled out the flashlight I'd brought along and squirmed into the hole. It went downward at a gentle slant for some ten or twelve feet, the floor a layer of that same slate from which I'd chipped the fossil shells. Then I came to a sharp break where the slate had apparently caved in, and I turned on my light.

The bats were the first thing I saw because when I turned on the light, they all began squeaking angrily and several dropped from their resting places on the ceiling and began gyrating about the cavern and darting at my head, not so much as though they were attacking me as that they wanted me to move so they could get out of the place. It was probable, therefore, that I was in the only entrance.

The walls of the room below me gleamed from the damp but there were no great calcium deposits. It was as though I was peering from a high window down into a huge vault. The floor was at least fifteen feet beneath me and there was no way of getting down, so I had to content myself with lying on the slate ledge and observing what I could with my flashlight. At first I thought the bat chamber must be the total extent of the cavern, and then at its far end I saw where the floor sloped steeply downward, and there my flashlight beam probed into a deep abyss where I caught the glitter of stalactites. Meanwhile the cool breeze continued to rush past my face and in addition to the squeaking of the bats I could hear the distant dripping of water which had a singularly bell-like quality. I was scorching with curiosity and the desire to continue my exploration but there was no way to get to the floor of the cave unless I wanted to risk breaking my neck by a jump, and then I'd have no way to get back. So I was forced to retreat. The ledge was too narrow to turn and I had to creep backward up the tunnel, ripping the seat of my pants on a sharp rock and getting all manner of dirt and sand up my back when my shirt tail worked out. I'd almost reached the exit when I heard Elmer outside.

"Dr. Ambert!" he was shouting. "Dr. Ambert! Where are you?"

I hadn't the least inclination to tell him. For the first time in five years no one in the world knew precisely where I was or what I was doing, and the indescribable pleasure this isolation gave me can hardly be imagined. This was my cave—my hole in the ground. I'd discovered it through my own observation and was damned if I was going to tell the guards about it if I could keep it a secret.

But this was the difficulty. For all I could tell from the position I was in with my head pointing down the tunnel, my posterior might already be exposed to view. I stopped moving while I tried to decide what to do, and then Susan saved the situation.

"Elmer," I heard her call. "He's not down there. He just shouted from the edge of the hollow."

There was a thrashing of brushes as Elmer retreated, so as quickly as possible I backed out of the hole, thankful for a bright wife. It was plain from what she said to Elmer that she guessed I didn't want to be disturbed and was lying to protect me. When I squeezed back out of the crevice, the bushes closed behind me and the entrance was as invisible as ever. I clambered up the side of the sinkhole and emerged about twenty paces from where Elmer was frantically looking for me, his face pale with apprehension.

"Dr. Ambert!" he said. "Thank God! You really gave me a fright that time."

"Sorry, Elmer. I slipped and snagged the seat of my trousers on an oak stub. Had a time getting loose."

"It's all right now, sir. But if I should lose you, I don't know what I'd do." A queer occupation—being a guard. If he lost me, he'd be in the soup, that's what. And yet I don't think his interest in me was entirely selfish. He and Leo had watched over my family for so long that I think they regarded us as the average parent regards his children. The children exasperate you and drive you frantic but you still go cold at the suggestion that they're in danger.

We rode home in the dusk, Elmer and Louis dashing ahead and Leo bringing up the rear. When she was certain everyone was out of earshot, Susan said, "All right, where were you? You gave me a pretty fright, too."

"A cave," I told her. "I've found a cavern. A magnificent place if I can ever find time to explore it."

"You certainly sound delighted at the thought!"

"I am. Nothing in years has pleased me so much. Here, while we're on the verge of sending a ship to explore outer space, the old inexhaustible earth has opened a door to

regions no man has ever seen." The thought made me laugh. "Matthews is going to heaven, but the moment I get the opportunity I'm making an exploration of hell."

"I hope that isn't prophetic," said Susan. "But if the cavern is your hell, at least I can go with you."

"You can if you'll dream up a way so that no one else will know about it."

"So you plan to keep it a secret?"

"Only until I have first look at the place. And when I take you there, of course I want it a secret. How long has it been since we've been alone? I mean really absolutely alone—just you and I?"

"Too damned long," she replied and gave me a sweeping sideways glance so charged with fire that all our years of marriage melted away and I pulled close to her and tried to lift her from her horse to mine. "We're not alone yet," she murmured. "But we'll be sort of alone after the children are in bed."

That did nothing to dampen my exhilaration so I saw to it that both children were in bed by seven-thirty, much to Louis's disgust. Then feeling like a Turk I led Susan to our bedroom and slid her out of her clothes. She sat smiling at me from under her lashes, her shoulders blushing almost as much as her face, and then the damned telephone rang and it was Tom Hernandez.

"Phil!" he was fairly shouting. "I've been calling for an hour. You have to come. Right now!" For once in my life I was about to say I couldn't come right now, but he'd shouted so loudly over the telephone that Susan had heard. She rolled under the covers and reached for a book on the bedside table.

"I'll think of a way to get into that cave," she said.

So I kissed her lips and left the apartment with the uncomplaining Elmer picking me up at the ground floor.

CHAPTER SIX

TOM'S FACE wore a queer expression, half apprehension, half wild elation when he met me at the door to his laboratory and pulled me in. My immediate reaction upon seeing him was one of relief because his manner on the telephone made me think someone might be hurt and this plainly wasn't the case. But he refused to enlighten me with words. With his pointed beard jutting ahead of him and a tight smile on his lips he literally dragged me across the laboratory to a steel-topped table against the wall, where he stopped and pointed to a solitary object resting upon its surface.

This object was utterly insignificant in appearance. It was a sphere about the size of a number-two garden pea, dull gray in color and possessing a very low metallic luster. Tom let me look at it a moment before he said huskily, "That's the alien substance I found in the uranium pile." His voice trembled from excitement and I wondered if he hadn't cracked up from overwork. He'd been up all the night before, had worked all day, and now looked as though he planned to keep going another twenty-four hours.

"Wait a minute, Tom," I said uneasily. "You can't have analyzed your uranium pile yet. It would take weeks."

He kept staring in fascination at the little pellet on the table. "I didn't have to analyze it. Hank Kuka helped me

and we took the pile down in sections, testing for nothing except specific gravity. Queer as all hell because the stuff had returned to normal. Five tons we handled, and nothing at all until we cleared the last section out of the vault, and this—" He stabbed a finger at the object on the table. "—was left. In exactly that form."

"Well, what is it?" I said with annoyance.

He sighed in relief. "I'm glad you ask that. Now I know at least that I'm not imagining it. What is it indeed? Go ahead, examine it. Touch it, feel it, pick it up."

His behavior was so odd that I could only stare at him. He mistook my concern.

"There's no radioactivity. I've tested for that. It's completely inert. Pick it up."

I shrugged and started to do as he asked, grasping the small gray sphere in my fingers. To my astonishment I couldn't budge it. "It's made a union with the metal of the table top," I said. "Got a chisel handy? I'll jar it loose."

"Sure," he said, and there was a note of humor in his voice. "Go right ahead and chisel." The proximity of the tools on the next bench made me suspect he'd been using them himself before I arrived. But evidently he wanted me to repeat a few of his own experiences, so I obliged him by placing the blade of the chisel against the table at the base of the small mass and giving the chisel a tap with the hammer. The sensation was precisely the same one I've experienced hundreds of times when I'm out rock hunting and try to drive a chisel into the face of a stone mountain. You could feel a tremendous resistance. In a mountain you'd expect it, but with an object this small the sensation was positively eerie. I tapped harder and then gave the chisel some really solid blows, annoyed at the thin grin on Tom's lips. To my relief the stuff moved. I won't say it came loose from the table because obviously it wasn't fastened to the table. It rolled with tantalizing slowness about half a turn and lay still again. Quickly I seized it with my fingers and tried to lift it again with the same result as before. It wouldn't budge.

"It must be a powerful magnet of some kind," I said. "Won't let go of the steel table top."

"Then why didn't it attract your chisel? That's steel too." As he spoke, Tom handed me a dish of iron filings and watched as I sprinkled them over the tiny sphere. No result. The iron filings fell like dust and showed no magnetism at all. I bent close to the table and blew them away, and then I noticed that in turning over, the object had left behind it a small but nonetheless definite indentation in the sheet steel of the table top. I began to feel the way Tom looked. He watched me expectantly as he waited for my opinion.

"Have you weighed it?" I said.

He nodded. "Measured and weighed it. Hank Kuka helped me move it. Its total volume is slightly more than a cubic centimeter and it weighs approximately two hundred pounds. That's better than a ton to the cubic inch."

"Why do you say approximately? Won't your balance give you an exact weight?"

He ignored my impatience. "After you weigh it a few times, you'll use the same word. We weighed it very carefully the first time, but afterwards we couldn't believe it, so we weighed it again. The second time it weighed slightly more, and that made us try a third time. Still more. I'm going crazy, so I called you. The thing frightens me. Maybe there's no danger, but I made Gail and Kuka and Fred Clark leave."

"How about its size? Have you measured it more than once?"

"That was the first thing we thought of—that it was growing. But, no. It gets no bigger, just heavier."

There was no point in further speculation until we learned more about the substance on the table. Anything with such density as this stuff possessed could be expected to have other queer properties, and the weight itself—which I'd already experienced—was enough to send chills down my back. The complete unsubstantiality of an hallucination couldn't have been more startling than the profound substantiality of this object on the table. Such density is difficult to illustrate by ordinary comparisons. Lead, for example, is generally considered a heavy metal, and one cubic foot of it weighs some 685 pounds. But a

quick calculation with the figures Tom gave me showed that a cubic foot of his new element—if it was an element—would weigh three and one-half *million* pounds! The bit we had on the table was only one-sixteenth of a cubic inch and even its weight was sufficient to dent the steel table top simply by resting upon it.

But what was it? And aside from its weight, what were its other properties?

"At least we can give it a name," I said. "How about Hernandium?"

"No, thank you," said Tom. "The discovery may be a big mistake. Let's call it Magellanium, after the project." So we called it that.

"I can't help the horrible feeling," he said, "that it may be lying dormant like a time bomb. The atomic tension must be a thousand times greater than in any of the heavy elements we know. And that means the force holding it together has to be greater in the same proportion. If something should disturb the equilibrium ——"

"If that happens we won't live to worry about it."

We gave it every quick test we knew. The lump of Magellanium resisted all acids even though its low luster gave it a metallic appearance. It refused to form a compound with any other element, not even carbon, under any of the conditions we created. Even more astonishing, many of these tests were performed at high temperatures and the Magellanium wouldn't even get hot. A very slight increase in the temperature of its outer surface was registered, however, which made us think that if it were left in the furnace for a long enough period, it might eventually be warmed through.

It was nonmagnetic and wouldn't conduct electricity. Under a high-powered microscope its surface failed to disclose any striations or irregularities. This last fact made me wonder why, then, it gave off any luster at all, so I examined it under a polaroid lens. Again I found nothing distinguishing until a heavy truck passing on the street outside jogged across a drain gutter and jarred the foundations of the building. Not a jar you could feel with your body, but I heard the jolt of the truck while looking

through the polaroid, and at the same instant a shimmering wave of iridescence passed over the object I was examining. It endured only a fraction of a second.

"My God," I said, "I think it's a liquid. Pound the table."

"Pound the table?"

"With your fist. Give it a few solid blows while I see what happens."

Tom did as I asked and with each blow of his fist the same wave of multicolored light appeared in the microscope. I let him observe while I pounded. This iridescence wasn't visible with the naked eye, nor with an ordinary lens, but the sudden flash of varigated light could be explained as submicroscopic ripples which in a substance this dense would travel across its surface at atomic speeds.

"That could also explain the spherical form," said Tom. "A drop of any liquid as heavy as this would form into a ball. Even small drops of mercury do that. A high surface tension." He paused, thinking about this, and then went on in sepulchral tones. "Has it occurred to you that what we may have here is a single gigantic atom of some new element? The force holding the protons of an atom together can be treated as surface tension too. My positron bombardment may have filled up all the interstices of space with neutrinos."

"There's no doubt but what your positrons had something to do with producing it because that's the only new factor you introduced into your experiment. But I won't say yet that this is a single atom or even a single molecule."

"But the incredible weight."

It always came back to that. In spite of its other peculiar properties, or lack of properties, the weight was the single quality differentiating it most sharply from any known substance. The psychological effect of this is hard to describe. One might say, "What is so remarkable about its weight? Only two hundred pounds. Only double the weight of a sack of cement." True enough. But when a man picks up a sack of cement, he expects to grunt a little. Reduce the bulk of two cement sacks to an object the size of an aspirin tablet without altering the weight,

and the whole quality of the experience in dealing with it changes. You can't shake off the belief that it's fastened to whatever surface it rests upon. Place it in the palm of your hand and it would crush through skin and flesh just as though a fully-grown man with a blunt spike protruding from his heel were standing on your hand grinding down on you. Except that no man would be there—only that pea-sized sphere.

Tom and Hank Kuka had weighed it the last time just before I arrived, and now Tom and I weighed it again, carrying it to the balance in a basket he'd rigged out of a steel crucible. The spectacle of two strong men straining themselves to transport so insignificant an object was ridiculous. It was as though some giant invisible hand were trying to pull the thing away from us.

Tom looked at the balance arm and goggled. "Santa Maria! Now it shows a decrease in weight. Maybe it breathes!"

We tested it for radioactivity again, thinking it might be subject to some periodic change whereby it absorbed particles for a time and then emitted them. Again the results were negative.

It was only a little after ten o'clock but Tom had been up for nearly forty-eight hours and I'd been up since three-thirty that morning, so I suggested that we get some rest and tackle the problem again the next day. He sadly agreed. So we lowered our sample of Magellanium, steel crucible and all, into a lead casket which was ordinarily used for storing radioactive elements. Use of the casket was purely precautionary because the Magellanium had still shown no activity at all except by changing its weight. Then we bolted down the lid.

Tom shook his head wearily. "I hate to leave the stuff until I know what it is."

"A little sleep might help."

"I'm not sure. Sometimes when you're faced with a problem it's a mistake ever to leave it until it's solved. There are little things a man notices without realizing he's noticed them. If you can let them accumulate in your

mind, sometimes they all fall into place at once and you have the answer."

"And sometimes they fall into place while you're asleep, and you wake up with the solution."

"Maybe so. Anyhow I'll try sleep this time. I can't very well handle the Magellanium by myself." He looked across the room toward the lead casket and smiled. "One thing pleases me. It will be such a pleasure showing the Magellanium to Osborn. That's why I wish I knew more about it first."

"You'll have time to learn more."

"Not much time. Gail and Hank Kuka were both here when we found it. I shooed them out afterwards but Hank had already worked with it. They can't help talking about it, and soon it will be all over the project."

"Well, it might take Osborn's mind off his other worries. We've all been packed together too long, faced with the same daily problems. This is something new."

He corrected me. "There is nothing wholly new. This is something we've discovered for the first time, but it has existed somewhere before."

"All right. But it occurs to me we'd better discover some more of it. You'll need more than a single sample for experimentation." I took a scratch-pad and pencil from the table and made some rough calculations, and as I did so, the incredibility of the Magellanium returned to me. "This isn't good," I said. "From the five tons of concentrate you were using in your experiment, you isolated one cubic centimeter of Magellanium. If that ratio holds good, it will take about eighty-five thousand tons to produce a cubic foot. There isn't that much uranium ore on the project."

My statement made him laugh. "And why do you mention a cubic foot? Just because you're curious to see if it will really weigh over three million pounds? Anyhow, that isn't the way the thing works. The Magellanium isn't something I isolated from the uranium pile; it's something that was created there. I stopped the bombardment to get this one sample, but I think if I continued it, the entire pile might be reduced to Magellanium."

This hadn't occurred to me. I couldn't get away from the feeling that Magellanium was a foreign material that had somehow coagulated into a single drop. If Tom was right, it was simply a highly compressed state of matter. "Then work with small quantities of the concentrate a while and see what happens."

He nodded sleepily. "First thing in the morning."

We left Q Building together and walked across the way to the laboratory commissary for a nightcap before parting. There were six commissaries on the project, but the one in the laboratory section was the largest and fanciest, with all the appointments of a large private club. People gathered there at all hours of the day and night, with the crowd particularly heavy in the evenings. It had thinned out enough to be comfortable by the time we arrived so we found a small table and ordered drinks. Tom had vodka which he liked to drink neat and then sink his teeth into a slice of salted lemon. I had coffee and bourbon. Tom finished his drink first and said he was going along to bed. I remained a while, finding it good to relax after a long exciting day.

There was considerable racket in the place. A group of young engineers were entertaining their wives and secretaries at a long table across the room, dancing now and then to music provided by the garishly-lighted juke box. The favorite number was a tune called "He Married a Maid on the Moon" which had been composed and recorded by the boys in the sonar laboratory and dedicated to Aaron Matthews. But what held my attention was the sight of Aaron himself seated with Gail at a table not far from mine. They didn't see me. Obviously they weren't seeing anything in the room except each other. Aaron's face was a shade paler than usual, his eyes brighter; and his gestures displayed a nervous tension new to him. Gail was in no better state. She'd smile brightly at him, then the smile would suddenly fade to an expression of hopeless adoration and her cheeks would flood with warmth only to become pale again a moment later. They displayed all the symptoms of a couple on the brink of a passionate love affair trying hard not to let it overcome them.

I was surprised. I'd known from Susan, from Gail, and from my own observation that Gail and Aaron were together much of their spare time. Gail was an emotional girl who made little attempt to conceal her feeling toward Aaron. What surprised me was the realization that they hadn't done anything about it. They wouldn't have been sitting there pining at each other if they had. This seemed to me a trifle absurd—not that I advocate love affairs out of wedlock, but the case of Gail and Aaron was a peculiar one and they'd have offended no one—particularly not on the Magellan Project where five years of close relationships among people had created a moral climate more to the liking of a sinner than a saint. Aaron wouldn't marry Gail because of his assignment. He was going to leave the earth on a mission which, if successful, would keep him away for years. It wasn't like a soldier going to war where there's always the hope that the war will end or that the soldier can come home on a leave of absence. For Aaron there'd be no leave of absence. Perhaps, too, he didn't want to saddle himself with any earthly memories which could increase the loneliness of his long vigil in the sky. But that only made his present behavior the more peculiar because the cause of loneliness is the absent loved one—wife or not—and he had certainly let the arrow get into him too deeply to pull it out without pain. In spite of this they weren't having an affair—at least, not yet.

I noted the fact and looked away. There's something about watching two people with an intense passion for each other which is both ludicrous and embarrassing. It's as though they're both naked without knowing it. Some force operates between them which everyone in the vicinity can feel. Their passion is helplessly advertised and they can do nothing at all to conceal it. In cases where you know the man and woman will soon reach a permanent and satisfying solution to their suffering, the situation is happily comic; in the case of Aaron and Gail, I couldn't help feeling it was tragic.

I then saw Warren Osborn sitting alone at the bar. He'd just arrived but already he'd noticed the new intensity of Aaron's and Gail's relationship. He looked at them across

the top of his drink with haunted, unfriendly eyes that belied the patronizing twist of his lips. Even for Osborn he seemed unreasonably annoyed by what he saw. I learned later that he'd just come from an unsuccessful interview with Humphrey and was already full of spleen when he entered the place. He downed two drinks in quick succession and chatted a few minutes with the bartender while his gaze kept wandering back to Gail and Aaron. Then abruptly he tossed a couple of bills on the bar and headed for the exit by a long detour which took him past Aaron's table. I was close enough to hear what he said when he stopped there. His tone of voice was more irritating than his words.

"You two look about ready for bed," he said. "What's holding you back?"

Both Gail and Aaron looked up, startled. Gail flushed deeply but Aaron merely stared, his face tense.

"Better use the opportunity while you can," Osborn continued. "Because I intend to take care of her after you're gone." He laughed sharply at his joke and started to move on. He didn't get far. Aaron leaped to his feet, seized Osborn's shoulder and whirled him around. On Aaron's face was a fierce rage that contained an element of joy. You could almost feel the surge of relief with which he left his intricate problem at the table and faced one that could be handled with dispatch.

Osborn lost his dignity even before Aaron hit him. His hands went up in a womanish gesture of defense that left his jaw wide open. The smack was heard by everyone in the place and they all whirled in time to see Osborn lurch backward, trip on a chair and do a complete back somersault to a prone position on his belly. Aaron stepped forward and looked down at him.

"At least I didn't miss that opportunity," he said. "Maybe you'd better worry about taking care of yourself."

Such conflicts as this, thank God, were not under my jurisdiction, so I remained at the table to let things take care of themselves. Osborn groggily hauled himself to his feet, his usually well-groomed hair lopping over his forehead, the front of his suit grayed by dust and bits of lint.

I expected to hear a stream of indignant language and I was even admiring his courage in getting up at all, when I saw he was unaware of his own movements. His eyes had the glassy stare of a boxer who's just taken the kayo punch but manages to stay on his feet by instinct. He looked sick rather than angry and was groping for a place to sit when the two M.P.'s who were stationed at the commissary arrived on the scene and helped him to a chair. Then the M.P.'s turned on Matthews and without much respect for his rank told him he was out of line.

Having witnessed the entire incident and not wanting either Aaron or a member of my own staff to spend a night in the guard house, I interposed and suggested that as long as the fight was over and neither participant causing any more trouble, it would be best to forget the entire thing and let them both go home. Matthews refused to repeat the words which had started the trouble but insisted that they'd given him sufficient justification for what he did. Being unable to get the right or wrong of it, the military police finally told them both to leave. Gail was terribly upset so I volunteered to take her home with me. This settled, Matthews departed for his quarters after looking at his clenched fist and muttering, "Felt sort of good."

Osborn recovered a few moments later, seemed relieved that his enemy was no longer present, and said in a loud voice, "I trust my unfortunate experience teaches all of you what to expect when the same man is in space with a load of bombs over your heads." This speech restored him to his usual self, and with a bitter glance toward Gail and me, he departed.

When Gail and I reached the apartment we woke up Susan, who had to hear the entire story. The three of us had coffee while we tried to calm Gail down. She didn't calm easily, and it was soon apparent that she was disturbed by more than the fight.

"It started earlier," she said. "When I was on the 'Black Planet' with Aaron."

"You were on the 'Black Planet'?" said Susan.

"I've been asking Aaron for weeks to take me. I wanted to see it—see where he'll be when he's gone. I know I

haven't any business there now that the work is finished, but just once I wanted to be there with him. So when Dr. Hernandez found that queer stuff today and told me I'd better clear out of the laboratory, I decided it was time. I called Aaron and he said he'd come get me. He did. He took me there about nine o'clock, and—oh, I was awful!" Having started, Gail babbled on recklessly. "I can't understand why it excited me so, but it did. It was like an assignation—more than that. Somehow I must have felt I was challenging the space ship!"

She gave an intimate picture of what happened. Too intimate to use her own words.

CHAPTER SEVEN

WHEN SHE LEFT Q BUILDING it was already dark and she was in a state of breathless excitement, the blood pounding in her temples until it dizzied her. The shaded lights of the project were designed to give only a vague illumination at night, and the dimness shielded her as she half walked, half ran past the laboratory station of the tram line to the protection of a small transformer shed which stood beside the winding road that came up from the valley. Here she waited in impatient silence until she heard the motor of a jeep ascending the road. She withdrew around the corner of the shed, peering into the darkness below as the headlights advanced toward her and prevented her from identifying the driver. Then the jeep drew near the building and stopped. She heard Aaron's voice whisper her name. "Gail?"

She came out then, running to the side of the jeep where she gripped his hand. "Aaron, it's all right, isn't it? You won't get into trouble?"

His low laugh reassured her. "Get in." She ran around the car and slid into the seat beside him. He turned in the roadway and started back.

"Darling," she whispered, "I know it means so little to a man. You have your work—the excitement of the unknown. But I'll have nothing at all except the memory. So I want the memory to be clear. I want to be able to

close my eyes and see you as you'll be. Don't mind the foolish things I say. I'm excited and afraid, and—I love you, Aaron." She moved against him, her gaze searching his face. The smile on his lips was a little tense.

"Don't worry so about it, Gail. I've broken very few regulations in my life. In fact, this is the first time I've ever done so deliberately, and it isn't very important. The regulation, I mean. If you want to see where I'll be, I'll show you. It will give me a memory too, don't you understand?"

She pressed close to him, wondering at the tumult inside her and unaware even as they approached the "Black Planet" that she had any purpose other than the spoken one—to see where he'd live and work, to fix it upon her mind and to leave behind an impression of herself.

They drove down the road to the sentry gate, where Aaron stopped to have Gail sign a pass. She was afraid the sentry would humiliate her by asking what business she had on the ship, but Aaron's presence vouched for her and they drove on.

"Don't look so guilty," he said. "We're not doing anything wrong."

"But I *feel* guilty."

They drove in under the belly of the "Black Planet" where the concrete supports arose like the columns of an ancient temple all around them. Dim lights glowed here and there, throwing a crisscross of shadows on the smooth concrete which extended for acres under and around the space ship. Aaron drew her among the pale columns to the base of the long steel stairway leading upward to the ship's entrance. "Up we go, quickly." She needed no urging. Her sandaled feet flew up the stairway with Aaron close behind her. Reaching the platform at the top, she pushed through the partly opened door into a square corridor beyond. Aaron followed and pulled down on a lever near the door. There was a sharp hiss of air and the thick door slid shut. In the dusk she leaned trembling against him. "Now where?"

"We'll have to skip the lower tier. Part of the crew is at work in the chart room. This way." His hand gripped

hers and she was pulled along a dim corridor toward the core of the ship and then into a cubicle where a ladder ascended through a narrow shaft. "We can take the elevator at the second tier. On this tier it's right in front of the chart room."

"I'm glad to know you have an elevator. I'd hate to think of you creeping up and down this ladder every time you went from one part of the ship to another." The secrecy increased her excitement because she knew it wasn't regulations he was worried about. He wanted her for his personal secret.

"It won't be a ladder in space," he said. "This is next to the core where the centrifugal force will be least. We'll just sort of float along it using the rungs for handholds." But it was a ladder now. She went up it fast enough although her legs felt weak when she reached the landing on the second tier. She looked down to see if Aaron were following and heard him calling to one of his crew. "It's only Matthews, Sid. I'm going up. Remain at ease." Then she saw his figure climbing upward to join her.

"Now that we're past them, we can do as we please. Shall we start here or do you want to start at the top?"

"Anything," she said, "just take me." She moved toward him and stood on tiptoe to brush her lips across his cheek. "It's so silent and lonely."

"Not here in the shaft," he laughed, and led her out of it into a broad dim compartment where his hand touched a switch. Immediately the floor beneath her glowed with a soft radiance. Around her were a series of glass cylinders and spheres filled with water which was swarming with a hundred forms of life and dancing with air bubbles. It was a part of Duval's air-water life cycle which turned the entire "Black Planet" into a balanced aquarium. She glanced about and suddenly felt as though she was upside down. The room was shaped like a keystone with the longest side directly in front of her. Furniture rested upon it, thrusting out at right angles to the floor upon which she stood. She clutched Aaron's arm for support.

"We're standing on a wall," he said. "When we're in space, that will be the floor over there and all these tanks

will be against the ceiling. Everything's bolted into place." She felt almost weightless now, standing on a wall this way and seeing the furniture beneath her.

"Isn't there any place that's level?"

"The first and sixth tiers. We'll go up." They walked on across the wall to a doorway at the angle where it met the tilted floor, then into another square corridor where she felt on an even keel again. Aaron stopped before a sliding panel, and pressed a button for the elevator. "In space this will be a shuttle from one end of the ship to the other."

They stepped into the elevator and ascended, passing the third, fourth, and fifth tiers and stopping at the sixth, where they got out. The furniture was right side up here. This tier would be occupied by the crew during the ascent and altered after they arrived in space. Great windows overhead were blacked out by the cone which covered the ship, but eventually this would be an observation room, this and a similar room on the first tier. She ignored the maze of intricate mechanisms which differed little from those she'd seen in Tom's laboratory. All she was conscious of was the silence, the vast surrounding walls and the presence of the man she loved behind her.

In the wall that would sometime be a floor, a bubble of clear substance protruded outward. She stood before it and found she was looking out over the project. Never before had she realized how high the "Black Planet" stood above the ground. She looked across the buildings, over the rim of the valley, and into a clear night sky pinpointed with stars. It will be something like this, she thought. Except that men will be kneeling around this window instead of standing on the wall beside it. They'll all be looking down. No matter how the "Black Planet" turns, they'll always be looking down. The earth will be a giant ball and the moon will be in the sky much more of the time than it is now. A bigger moon and brighter stars. Perhaps the stars will be great flames in the sky. And the sun—why, it will nearly always be daylight except when the earth makes an eclipse. Daylight and a dark sky with the stars and moon and all the planets and the sun visible at the same

time, and a group of men here—doing what? They'll be watching the silent earth through their instruments, listening for commands from below. They'll be all powerful with orders to remain that way. *Let nothing start that can challenge your supremacy.* A ship in the Pacific. Destroy it. Then the turn of a dial, the clocking of progress on the radar screen, the missile and target come together and the ship is gone. A city, an army, a nation. *Let nothing ever again rise to challenge you.* Then, perhaps—peace. The long enforced peace—of fear.

She whirled away from the bubble of visibility and flung herself against Aaron, suddenly crying. "It's not real! I don't care what the plans are; it won't work that way! It can't. That isn't the way humans are. That's not why men were put on earth!"

His arms wrapped around her and held her close. "But finally it will be best for everyone. Isn't that what men want? The end of conflict?"

"No," she cried. "They want an end to senseless conflict but not an end to life!" Then she controlled herself, aware that she was closer to him than ever before and that she mustn't fling so direct a challenge at the life that was to claim him. She looked about dreamily. "We're all alone, Aaron. I heard you close the door behind us. Think what would happen if the ship were ready to go—if the fuel was in the tanks and the food stored and the ventilation system working."

"It is working in this tier," he said. "The air hasn't been replenished in months. Won't be."

"Then at least I'll leave a breath of myself with you. But think, Aaron, this is a complete world in itself. It doesn't belong to the earth even as much as the moon does, for the moon can't get away or change its orbit. But the 'Black Planet' can be as free as the men who operate it."

"What are you talking about, Gail? It can't be free. It's power will take it only to the free flight zone."

"Just dreaming," she said. "If the tanks were fueled and the food stored—what's the margin of safety—twenty years? Twenty years with you? If you should pull the lever while you and I are alone here? With just the two

of us I'm sure the supplies would last a lifetime. And it would be all our world! The whole universe and just you and I."

"Gail! Even dreaming——"

"A better dream than the dream of circling the earth with your load of bombs! That isn't human. It's the dead end of everything. It's sterile and lifeless and mechanical and meaningless. It won't happen! I tell you, men don't know why they build things. They simply build and name a reason, but there's something else that guides them and never tells why!" She became angry as she spoke and found herself beating Aaron on the chest with her doubled fists. He seized her wrists, not roughly, and pulled her down on one of the ascent cots.

"See, now you've cut your wrist on a brass button."

"I hate brass buttons!" she cried. Then she flung her arms around him. "But I love the man behind them!" She kissed him passionately, knowing that her own feelings were much more powerful than his but suddenly not caring how much she showed them if only she could force him to respond. She felt his fingers tighten on the soft flesh of her shoulders and then realized in a wave of giddiness that he wanted her as fiercely as she wanted him. He'd only concealed his feelings better. But his lips and hands told her now as he crushed her limply against him. There was no further need to encourage him. Instead she was filled with a sick self-anger and recognized the absolute necessity of stopping him. She put her hands on his breast and pushed herself free, stumbled to her feet and backed off toward the doorway.

He watched her with smoldering eyes and arose to follow. She felt herself the epitome of that most disgusting type of woman—the woman who smiles and beckons, winks, and invites, and then when her victim finally yields to her charms and places his dignity in her care, laughs and runs away. Except that she wasn't laughing. She wasn't even being moral. She simply knew that if anything happened now, it would be the end of their relationship. Men were like that. His sense of duty would reassert itself; he'd be shocked at having forgotten it even for a

moment; he might even feel that he'd fulfilled an obligation toward her. But worst of all would be the sickening depression which always follows when the physical fails to live up to its spiritual promise.

She didn't think these things concretely but felt them through an instinctive understanding of the opposite sex. Men couldn't love as long as women or as completely and unselfishly, but for the duration of their love, they loved more blindly and with a wilder, more exultant sense of power. She could see it on his face now as he moved toward her—the knowledge that she was his if he insisted, a recklessness that disregarded anything else. But when he reached her again there was a new tenderness in the touch of his hands, a deep sympathy in his hoarse whisper. "Gail, I've been blind. Have you felt like this all along?" But it was his own feeling he was recognizing.

"We must go, Aaron. Please, please, forgive me! No, darling, I love you. I'll love you forever. I'm like water but we must go. Don't you understand why? No, please take me home. Please, Aaron, please!"

The words made him pause. He held her close to him rolling her body back and forth against his as though unwilling to ignore her plea and unable to grant it. She tore herself away again, reached the doorway into the corridor, and pushed the button for the elevator itself. The purr of the machinery broke the silence of the space station and reassured her with its promise of an end to the situation. When they stepped into the elevator and started sliding downward, she turned and gave herself to him wholeheartedly, clinging desperately until they reached the lower tier.

They went down the long stairway into the night, to the waiting jeep where he handed her to her seat, with a note of forlorn apology, then started back along the road the way they'd come.

But they couldn't bear to part yet. They'd aroused each other to the point of physical sensitivity where the touch of a hand, the cheek, or the lips had all the electric quality of an intimate caress, where even their mingling breath gave them a sense of union. In this deplorable but exalted

state they remained seated in the jeep in a torture of mutual self-restraint until Gail finally suggested they go have coffee or some iced tea or a drink of whisky to lessen the tension.

They did. They went to the commissary where not much later the unpleasantness with Osborn occurred. Osborn couldn't have picked a more unfortunate time to interfere. After hearing Gail's story, I had no difficulty understanding why Aaron's reaction to Osborn's remarks was so violent.

But Gail's behavior still puzzled me. Feeling as she and Aaron did, why didn't they go to Gail's apartment where they could have all the privacy they'd need? Was I being vulgar to think of it? Putting too much emphasis on the physical? I don't think so. Women know more about men than they think they do, and, unlike men, they can keep on thinking while in the throes of passion. Without her being deliberately conscious of it, I was sure that Gail didn't want to cure Aaron of the suffocating desire she'd inspired. She'd as much as admitted it by saying she felt as though she was challenging the "Black Planet." For what? For Aaron's attention, of course. And I know from my own experience that a man in love isn't quite sane during the period of his affliction. Gail might be afflicted, too, but she wasn't going to stop it. I didn't like the situation at all.

CHAPTER EIGHT

I HAD A TROUBLED SLEEP that night and was oppressed by sensations of some unknown and inevitable doom in which the Magellanium, swelled to mountainous proportions, threatened to crush the world and all its inhabitants. Then when I awoke I was surprised to find Susan sitting in the bedside chair, pencil and notebook in hand, watching me apprehensively.

"What's wrong?" I said.

"Nothing, I hope. The things you've been saying!"

"What have I been saying?"

"Figures. You've been babbling like a calculating machine with a loud-speaker on it, about something called Magellanium. Only sometimes you just call it *it*."

"I don't remember doing that. What are you writing?"

"I've been taking down what you said. I thought the figures might be important. Just what is this Magellanium?"

"I'd have told you last night except for Gail. What are the figures?"

She glanced at her notebook. "If this something or other weighs what you say it does, a cubic foot weighs seventeen hundred tons, a cubic yard weighs forty-seven thousand tons, and a cubic mile weighs 453 quadrillion tons. It has a density sixty-one thousand times that of water and two thousand times that of platinum."

"My God, did I really say that?"

"Oh, that's not all. According to your dream calculator, the weight of the earth is sixty-six quintillion tons. Is that right?"

"I don't know. I may have read it somewhere."

"And according to the same authority, the volume of the earth is two hundred and sixty-eight billion cubic miles. That being the case, a block of Magellanium twenty-three miles on a side is equal to the entire weight of the earth, and a piece of Magellanium the size of the earth would weight as much as the sun. I didn't get that figure because I didn't have room on the page for all the ciphers. You're been lying there going '0, 0, 0, 0, 0,' for the last hour. Here, is it valuable?" She handed me the page where she'd kept the notes and I looked it over, not able to see much because I was laughing at the spectacle I must have presented talking in my sleep. I put the notebook aside.

"I wouldn't trust these figures until I'd checked them with the machine, and there's not much point in doing that."

"But what's it all about? Just a dream?"

"No. It's something Tom has in his laboratory." While she made breakfast I told her all I knew about Magellanium. "But for Pete's sake, don't quote me. The stuff is so queer that for all I know it's evaporated overnight, and in that case everyone will think I've gone crazy."

"But you said Gail saw it."

"Gail is incapable of thinking about anything except Aaron right now."

I was hoping to drop by Q Building before going to my own office but I was delayed in doing either by a call from General Humphrey asking if I had time to stop by and see him. So I went to the security office instead.

Humphrey was a squat, powerful man in his sixties with folds of loose skin under his eyes that gave him a melancholy expression like that of a Saint Bernard dog. He ran his office with exceptional efficiency but his personal behavior always gave you the impression of great weariness, as though he was tired of all the nonsense in life and

wished it would leave him alone. I found him sitting at his desk trying to wipe an ink stain off his wrinkled shirt.

"Have a seat, Ambert," he said. "Damn these ball-point pens. With the kind we used to have, when you dropped ink somewhere you could blot it up, but let a drop of this stuff get spilled and before you know it, it's smeared over half an acre." He stopped wiping his shirt and hitched his chair closer to the desk. "I have a report here that Dr. Osborn and Commander Matthews kicked up a rumpus in the commissary last night."

"A short one. I saw it."

"Uh-huh. Understand Matthews got him with one punch."

"I gave my account of it to the M.P. last night."

"Sure, I have it here." He tossed the report aside. "Too bad. I sort of expected trouble after Osborn left here."

"Osborn was here last night?"

He nodded. "He came to see me about getting a release from the project. Wants to accept a position with some foundation or other."

"Yes, he talked to me earlier about the same thing."

"So he said." A twinge crossed Humphrey's face and he pressed a hand to his abdomen. "Damned ulcers acting up again. Wish this show would get over. What'd you tell Osborn?"

"I told him it wouldn't help him any for me to recommend a release but that I thought the position might be held open for him if I let Washington know the situation so that someone could get in touch with the Gledshaw Foundation for him."

Humphrey shook his big head and pursed his lips sourly. "Not even that. Only a few weeks left and there's too much at stake to take any risk at all. Osborn signed up for the duration and it's got to stick. He's no different from the rest."

"Then he'll have to forget it."

"I wanted you to understand that. No use giving him any encouragement at all."

"All right. If that's the way it is."

"That's the way it is." I thought he'd finished what he

wanted to tell me but after a moment he went on. "You fellows have your job to do and there's no sense in worrying you with reports from the outside. But no security is perfect. There's been plenty of people wondering where men like you and Osborn have disappeared to. Stories are always coming out in foreign papers—sometimes in our own papers. Feelers. They circulate a rumor hoping to get a denial."

"I suppose so."

"None of your responsibility, of course. What it means to you is that there won't be any delay in getting that ship off the ground the moment it's ready to go. I tried to explain that to Dr. Osborn."

"I told him the same thing."

"Uh-huh. He was pretty unreasonable. Lost his temper and said some nasty things. One thing he said was that you'd been mismanaging project funds. Wait now, don't get your guts in an uproar. He specifically mentioned an expenditure you approved for Dr. Hernandez which he said had no justification at all."

"That's not in your department, General."

"Hernandez' experiment isn't in my department. But Osborn was trying to say it could delay things. Hell, Ambert, I'm only mentioning it to you. I have to check these things."

"All right. You've checked it. Hernandez is doing some magnificent work."

"Glad to hear it. Another thing Osborn said was that his work here was all finished. Is that true?"

"No. Certainly not if he meant he was sitting on his hands with nothing to do. His department is working right now on methods for servicing the 'Black Planet' after the ship's in space. In the future that will be the big job of the project. His department is also in charge of fueling the ship, which will be the final operation prior to the launching. I suppose Osborn meant he's no longer personally indispensable. That's true enough. His assistants are all good men."

"Uh-huh," said Humphrey glumly. "Then there's plenty to keep him busy. Just wondered. I suppose you're

boiling now I've told you all this. Reason I'm telling you is because I was boiling too when he left here last night. I don't like being called names any more than the next man. I damn near had him locked up when I heard about that Matthews thing, then decided it would look like personal vindictiveness." He shifted lower in his chair and gave me the ghost of a wry smile. "That's what makes the situation so annoying. You're his boss. I was hoping that just as a favor to me you could think of a way to keep him out of my hair."

"There's no way I can make him shut up if he doesn't want to. We're not on very good terms."

"He made that pretty clear. But do what you can. He's a civilian and I'd rather you took care of the difficulty yourself. If I should lock him up for calling me names, he could really make it hot for me once he's released from here." Then he added, "Not that I won't lock anyone up if I decide it's necessary."

"I hope it isn't necessary."

That was all he had to say to me. I left him and went on to Q Building, more angry than worried by Osborn's behavior. His trouble was that his department no longer occupied the center of the stage as it had for the first couple of years when the problem of projecting the "Black Planet" into space was our big problem. At that time Osborn's requirements received precedence over everything else. But with that problem solved, emphasis shifted to the type of work Duval was doing—making the space ship a place where human life could exist. Osborn was shaded and didn't like it.

It occurred to me that the Magellanium might give him a new interest in life. I envied him the opportunity of working with Tom, and at the moment I was in no mood to do him a favor, but it was certain I couldn't spare much more time myself. I'd have to make sure this was agreeable to Tom, of course. The Magellanium was his. With this in mind I entered Q Building.

CHAPTER NINE

TOM WAS STANDING in the center of the big room, his hands clasped behind his back, his gaze fixed with intense concentration upon the floor. He straightened with a start when he heard my footsteps and looked at me accusingly. "Have you been in here without me?"

"No," I said, surprised at his tone. I glanced around to see what bothered him, looking first for the casket containing the Magellanium sample. It was no longer against the north wall where we'd left it. For an instant I was gripped with the fear that I'd imagined the entire episode and then I saw the casket some twenty feet away against the west wall. "You've moved it," I said. "Why?"

"*I've* moved it? That's what I'm accusing you of! I got here about five minutes ago and found the thing shifted."

We stared at each other a moment, then at the casket, both of us struck by the absurdity of our accusations. "No one could have moved it alone," I said. "The casket itself weighs a half a ton. Surely there hasn't been a gang of men in here without permission."

He pointed to the floor at which he'd been staring. "And even so, why would they move it in a curve? Why not push it in a straight line?"

This was the oddest thing of all. The path the casket had followed from its original resting place to its present position was plainly marked on the floor, which was

asphalt tile. The corners of the casket had grooved into it deeply, marking out a series of concentric curves which started from the north wall in a southeasterly direction, veered more and more to the south, and then swung to the west and led up to where the casket was now resting. Curiously, this path of movement had taken the casket beneath one of the laboratory tables where a table leg was sheered off, a steel table leg originally bolted to the floor.

With unspoken agreement we both stepped to the casket, unbolted the lid and looked in. The Magellanium was still there although it, too, had moved. The steel crucible containing it wasn't in the center of the casket where we put it but was against the side of the casket next to the wall. It might have been jarred into that position if the casket had somehow been tilted.

"But how in hell did they do it?" said Tom.

"A more interesting speculation is *why* would they do it? What earthly or unearthly purpose has been served by moving the damned thing?"

Tom straightened and returned his attention to the grooves on the floor, his face thoughtful. He got a meter stick and made a few measurements, then looked at me queerly.

"I'll answer your last question," he said. "There's no 'why' about it. No one has been in the laboratory and no human agent moved that casket. Look at the lines on the floor. Every one of those curves is an ellipse—a perfect ellipse. I'll take some finer measurements later, but just by using my eyes I'll swear I'm right."

There was no argument about this. The curves on the floor were absolutely regular with the points of greatest elongation beneath the laboratory table. Had the general curve been continued past the place where the casket now lay, through the west wall of the room and back around the outside hallway, the casket eventually would have ended up very close to, if not exactly, at the spot where it started. This was merely the observation. Tom's deduction from it was that no human agent could have moved the casket, and again I felt he was right. It's difficult enough to draw a perfect circle on the blackboard with a

piece of crayon. Except for Michelangelo's celebrated ability along this line, I don't think anyone can do it without using a string for a radius. A perfect ellipse, requiring two focal points, is even more difficult. To think that any person or group of persons could have pushed or dragged the casket in such a path was absurd. Such curves belong to the cosmic forces of outer space or to the microcosmic forces of the atom. However, *something* had moved the casket. Sometime between ten o'clock the previous evening when we left the laboratory and this morning when Tom entered, some force had been at work.

I got down on hands and knees and followed the grooves along the floor like a bloodhound on a cold scent, and immediately one more peculiarity became evident. The casket had cut deeply into the floor at the beginning, going all the way through the asphalt tile and scratching the concrete beneath. But as I progressed, the groove became steadily more shallow until at its farthest point beneath the table it was no more than a faint scratch on the surface of the wax. Then it gradually became deeper again until at the point where the casket stopped moving, the tile was once more deeply scored. I pointed this out to Tom.

"It's as though the casket became lighter or was subjected to a lifting force for part of its journey and then became heavier again."

"I don't know about the casket becoming lighter," he said. "But your theory accounts for what we know about the stuff *inside* the casket."

"There was no variation in weight as great as that."

"I know. But we didn't continue weighing it for a full twenty-four hours. We put the stuff to bed a little before ten and went home." He was still studying the floor and now his eyes brightened. "I keep thinking that with a substance as dense as Magellanium, the ordinary law of gravitation may not apply. Inertial mass and gravitational weight aren't the same. The reason a lump of lead and a block of wood fall at the same rate of speed is because the inertia of the lead offsets the greater gravitational pull.

The block of wood is attracted less by gravity but at the same time has less inertial resistance. The rate of fall is simply the difference between these two forces, and with ordinary varieties of matter this difference is a constant for everything. But with Magellanium——"

"Yes?" So far he'd said what anyone could say.

"——the earth turns, but the inertial mass of the Magellanium is so great that it doesn't want to turn with it. Like a swinging pendulum maintaining a constant position relative to space. It wasn't the Magellanium that moved; it was the floor moving underneath it—until the casket came up against the wall." Then he shook his head in annoyance. "That's no good at all. You and I were able to move the Magellanium. With effort, but we still were able to carry it around. And anyhow, why the curving path!"

"At least you've given me another theory," I said. "Maybe with Magellanium the inertial mass is so great that it falls far slower than anything else. Maybe the reason we keep getting different weight measurements is because we don't leave it on the balance long enough. Perhaps it has to sort of settle into place."

"At least that's something we can try."

So once more the two of us hoisted the crucible holding the Magellanium out of the casket and onto the balance. My theory was dashed immediately. The balance hadn't been changed since our last recording, and now the arm lifted abruptly as the Magellanium came down on the platform. It was several grams heavier than at any other time.

"I'm going crazy," said Tom.

"You'll have company."

We paced about the floor thinking about it and finally began laughing at our own bewilderment. Never before was I so conscious of my dependence upon the work of men in times past. Over the centuries men have slowly accumulated knowledge of hundreds of processes for discovering the secrets of the world about them. With this painfully gained wisdom handed to him in a textbook, contemporary man can answer in a few minutes questions which baffled his forebears for years. It's easy to forget

that wisdom is endowed, not innate, but I had no trouble realizing it now. Faced with a problem unknown to textbooks or the laboratory, I was right back with the primitives. Nor was I going to have the time to enlighten myself.

"I'd like to spend the next week here," I told Tom. "I can't. About all we've established so far is that the Magellanium doesn't appear to be dangerous."

"I'm not certain of that."

"At least there's no indication of disintegration. So you'd better call your staff back to work."

"I'll do that this morning."

"And one other thing. How do you and Osborn get along?"

"Well, I haven't enjoyed his remarks about my experiment, but we've never come to blows, if that's what you mean. Why?"

"He's had a disappointing thing happen to him—a chance for a fine position outside, which of course he can't accept. But I think if he had the opportunity to work with you on the Magellanium it would more than make up for his loss. That's only part of my reason for suggesting it. More important, I think he might have some ideas."

Tom thought it over and smiled. "At least I'll have the pleasure of showing him I'm not a total failure. Go ahead and send him over. When he really gets obsessed with a problem you can't shake him loose until he's solved it. I think the Magellanium is weighty enough for both of us."

I thanked him and returned to my own office where I telephoned Osborn immediately. His secretary told me he was at the rocket range, so I had the call transferred to him there and told him I'd like to see him at my office whenever he had the time. His voice sounded suspicious over the telephone.

"I'm pretty busy getting things in shape so I can leave," he said. "Been out here most of the night."

That was a poor beginning but I didn't argue. The rocket range was several miles from the project center

and there was no reason why he had to come in immediately. "Make it this afternoon then."

"Is it important?"

"I think it is."

"Can't you tell me over the telephone?"

"No. It's something you'll have to see with your own eyes."

"All right," he said. "Four o'clock."

The rest of the morning passed without incident, and at noon I walked over to the apartment to have lunch with Susan. When I entered, the living room was a scene of confusion. Normally it was a neat and even luxurious place, furnished at government expense in a manner calculated to keep the project director's wife happy, but now the floor was strewn with sleeping bags, camp cots, folded tents, camp stoves, lanterns, coils of rope, and other paraphernalia, with Susan sitting in the midst of it, her face smudged, her hair down, and a gleeful light in her eyes. She had a notebook in her hand and was checking a list of items against the piles of stuff around her. It looked as though she might be planning an expedition to the top of Mount Everest. While I stood gaping, she glanced up from the folded tent she was using as a sofa and said, "Well, do I have everything?"

"It certainly looks like it," I said, examining a small alpine pick. "Where in hell are you going?"

"Camping, of course. I've cleared with the security office and it's perfectly all right as long as Leo or Elmer goes with me."

"I forbid you to go camping with Leo or Elmer. Most of the time they don't seem human, but they might be if I weren't around."

She giggled and pulled me down beside her on the tent. "Not so loud. I've never been sure but what all the apartments on the place aren't wired. And anyhow, they can hear you right through the floor when you start booming that way."

"The apartment isn't wired. I check it once a week."

"All right, then. What do you think of my equipment?"

"There's nothing wrong with the equipment, but isn't

it a little like a Kansas farmer buying himself a whaleboat? Where'd you get all this stuff?"

"At the PX in Security. They have everything. Now please, Philip, look it over and see if I've forgotten anything you'll need."

"Anything *I'll* need?" Then as I noticed the rope ladder, the flashlights and balls of twine, I caught on. "The cave!"

"Goodness, you're slow today. Something must be worrying you."

"No more than usual, but go ahead and tell me about this."

"All right, here's the plan. I explained at the Security Office that Louis is very interested in fossils and that we've found a place where we can dig for fossil shells. But I told them we never had much time to dig because it took so long coming and going, so wouldn't it be all right —and very fine for Louis, to camp out a night once in a while. You know how gooey project policy is where children are concerned—everything to educate the little dears. So that's that. We go camping overnight. Then it's up to you to figure out how to get out of the tent in the middle of the night and explore your cavern."

Her enthusiasm was contagious. I took the notebook from her hand, turned to a blank page and drew a map of the sinkhole as well as I could from memory. "You'll have to engineer this yourself and I'll try to join you later in the evening. Leo can put up the tents for you but you'll have to show him where they go. If he wonders why you choose a sinkhole for a camp site, tell him you like the trees or some damned thing."

"Don't worry. I'll tell him some damned thing."

"The tent should go here——" I marked an *x* on the map. "—The back of it as close as possible to a crevice in the rocks which you'll find about here."

"So that's where the entrance to the cavern is. Any danger of Leo spotting it?"

"I doubt it. It looks like a blind alley full of bushes. But to play safe you might use the crevice for storage to keep Louis and Marjorie out of it."

"Sure. I'll stow lanterns and the rope ladder and whatever else you'll need in the crevice where they'll be handy. And please, Philip, I want to go with you. You might get lost if you go alone."

"We'll see. But don't you try going in alone. If I don't get there, just have a good night's sleep and let Louis chip at the rocks."

We called Leo and Elmer into the apartment, told them we were going camping overnight and put them to work packing the equipment. If anything, they were more pleased with the idea than Susan because their usual work was horribly monotonous. Susan planned to leave as soon as Louis was out of school, and I promised to join them as soon as I could that evening.

With this in mind I returned to the office and plowed through a dozen routine jobs, refusing even to think about Magellanium until my secretary buzzed and said Osborn had arrived. He came in with an expression of defiance on his face which was enhanced by a swollen jaw. I wondered if the jaw wasn't his real reason for hiding himself out on the rocket range. He sat down and twisted around so that the good side of his face was toward me and said, "All right, I'm here. What's on your mind? If you mention Aaron Matthews, I walk out."

"You mentioned him, I didn't. I wanted to talk to you about Tom's experiment. It hasn't turned out according to his theory."

"Am I to be surprised?" he replied.

"Not by that. He did, however, get another result which has us both baffled."

"Yes?"

"He's found what may be a new element, a man-made element like plutonium except that this doesn't resemble plutonium in any way other than being a product of the laboratory."

"And why is that so baffling?"

"You'll have to see for yourself. We've named it Magellanium."

"How original!"

"Look, Warren, I'm in dead earnest about this. As far as

I'm concerned, it's the most interesting thing that's happened since the project started. This is new. Everything else has been applied technology."

"Did you call me in here to make me envious of Tom? If so, you're wasting your time."

"No. I called you in here to tell you I want you to help him. I realize you're bound to be skeptical but that's what's needed. I've already asked Tom if he'd like your help and he said he'd be delighted." This was an exaggeration but there was no sense in being half-way about the invitation.

"You mean he wants to pick my brain?"

"Call it that if you wish. You'll get full credit for whatever you contribute."

"Just as I have in the past?" he said bitterly. "How much time do you expect me to spend with Hernandez?"

"I can't say. All I'm certain of is that once you've seen and experimented with the Magellanium, you'll be so fascinated we won't be able to tear you away. I'm having a hard time tearing myself away."

He looked at me for several seconds with a half-smile on his lips before he spoke again. "Christ, but you're obvious, Ambert. Why don't you come out and say that your real purpose is to sidetrack me?"

"Sidetrack you from what?"

"From getting my release from the project. You don't think I've given up, do you?"

"I'd hoped you had."

"You're mistaken. I have no intention of giving up until I've achieved my purpose." He laughed contemptuously. "I know exactly what's happened. You've been talking to Humphrey. Humphrey didn't like some of the things I said to him last night, so he gave you a scorching."

"Hardly a scorching. I didn't like some of the things you said either."

"And that made the two of you pals. Security has you buffaloed, Ambert. No doubt he told you I accused you of wasting project funds."

"You're still only theorizing that we talked at all."

"Theory, hell! Why else are you so anxious to involve

me in Hernandez' experiment? Because you want to shut me up. I gave you a chance to help me yesterday and you refused. Now you're afraid of me, so you're trying to bribe me with some cock-and-bull story about a new element. When did Tom isolate this so-called Magellanium?"

"Two days ago."

"Exactly. But it never occurred to you to consult me at the time. Or is it possible that Hernandez has discovered nothing at all? You'll not get me off your neck as easily as that."

The man was infuriating, the more so because there was a glimmer of truth in what he said. I did want to shut him up, but not for the reason he claimed. I had to have peace on the project during this last critical period, and to get it I was offering him what in my mind was the greatest opportunity of his lifetime.

"Think what you please, Warren, but don't close your mind until you've examined the offer I've made you. It was you who told me yesterday that the important phase of your own work was finished, and I think that's one reason why you're so set upon getting a release. It can't be done. You're quite right when you say that Humphrey talked to me about it. He did. For your information he said I'd gone too far in saying I'd put your request through to Washington. So you're stuck here until the end whether you like it or not, and all I can say is that you won't mind a bit once you've examined the Magellanium."

He listened until I was through but his expression didn't change. "So now you've become the project psychiatrist as well as being its director. You've decided that all I need to become adjusted to the situation is a little occupational therapy. Well, I'm not so lacking in imagination that I'll look for help from amateurs. I have my own laboratory where I've been doing some interesting work of my own, and there's plenty for me to do setting things in order for the man who takes over when I leave."

Nothing would have pleased me more than his leaving, had he been able to. Failing that, the only authority I had over him was to remove him from his department headship, an act which would serve no purpose at all except

the petty one of punishing him for saying things I didn't like. So I took a deep breath and made one more try.

"I'll not argue about it. If your own work satisfies you, fine. But will you do this one thing for me? Will you come with me to Tom's laboratory now and let us show you what we're talking about? That's all I ask. Then you can make up your own mind whether or not you want to work with him."

He lifted his head haughtily as though about to refuse, then hesitated while a shrewd look came into his eyes. "I don't mind doing that," he said amiably enough. "Q Building is on the way back to my own office. Shall we go?"

"I'll call Tom and tell him we're coming."

"Of course! So he can set the stage."

It was easier not to reply. Tom said to come on over, so Osborn and I left my office and walked to Q Building in silence. Tom met us with a smile which disappeared when he saw Osborn's face. He immediately said the worst thing possible. "My God, Warren, did someone poke you in the puss?"

"Yes!" said Osborn. "Now shut up!" I'd forgotten Tom hadn't seen the fracas the night before, and although nearly everyone else on the project had heard about it, Tom had scarcely had his nose out of Q Building. Then I began to realize what a poor diplomat I was when I saw that Gail was back at work in the laboratory. I should have had Tom warn her Osborn was coming. She and Osborn saw each other at the same time, and Osborn's face flushed beet red. Gail frowned, gave me a withering glance, and turned back to her work. It wasn't an auspicious beginning.

To Tom I said, "Warren doesn't want to commit himself until he's read the record and tried a few experiments of his own."

Osborn looked at me with a note of pity. "I'll take the record first. Experiment may not be necessary."

"On the table there," said Tom. "I had duplicates made for the next staff meeting. Help yourself." We left Osborn sitting at the table studying the procedural record of Tom's experiment while Tom and I joined Gail and Hank

Kuka, who'd spent several hours making accurate measurements of the scratches on the floor and was now calculating the exact curve in hope of getting a clue as to the direction from which the moving force had come. Kuka was a lantern-jawed young fellow, as wide as a door, who looked more like a football player than a physicist. He and Tom and Fred Clark had moved the casket back to its proper position against the north wall and during the day had been making periodic checks of the Magellanium's weight. It had gained weight until 3:15 P.M. but when checked again twenty minutes later, showed a slight decrease which had continued at each weighing since.

In spite of his attitude toward Tom's work, Osborn took a long time studying the report. The first section of it was simply the step-by-step procedure of Tom's original experiment with which Osborn was already familiar. He leafed through this part rapidly until he came to the section dealing with the increased specific gravity of the uranium pile. Then his jaw set and he concentrated on the pages with the expression of a man in a poker game.

"Is the record complete?" I asked Tom.

"Through yesterday. I haven't entered anything yet about the casket being moved because we haven't any conclusions yet. There still may be an explanation that has nothing to do with the Magellanium."

Gail glanced toward Osborn with distaste. "If he goes to work here, I'll ask for a transfer."

"I'm sorry. I can't please everyone." The plain fact was that I'd forgotten about Gail when I asked Osborn to work with Tom. I thought she was going to accuse me of this but she only shook her head in a hopeless way and returned to work.

Osborn finally finished reading and put the clip back on the sheaf of papers. Then he folded them and thrust them into an inside pocket, his face studious. Tom and I joined him at the table. "What do you think?" said Tom. "Ready for a demonstration?"

I saw now that Osborn's silence was because he was trying to control his emotions. He ignored Tom's question as

he slowly came to his feet, his brows furrowed, his gaze fixed accusingly on me.

"I wouldn't have believed it of you, Ambert," he said icily. "I wouldn't have believed such lack of dignity existed. When I talked with you at your office I was tempted to give you the benefit of the doubt and assume that you really wanted my services. It's quite clear now, however, that you and Hernandez have gone to a lot of effort arranging a deliberate hoax—hoping, I suppose, that I'd fall for it and destroy my reputation."

Tom cried out in amazed disbelief, "But, Warren—you haven't even looked at the Magellanium yet."

"Don't worry, I'll look!" Then again he addressed me. "It must be because of the honor paid me by the Gledshaw Foundation. Your envy has driven you a little insane. You must be insane to think that any competent physicist or any intelligent layman would accept a single word or figure in this report." He tapped the pocket where he put his copy of the record. "You can't abide the thought of my becoming director of the Gledshaw Foundation and so you're not only trying to prevent my leaving the project but you're trying to cast doubt upon my ability while I'm still here. You'll succeed in neither. I still intend to leave. You've even given me some help." He smiled coldly and walked across the room toward the lead casket. "I might as well see all of your act." He reached the casket and paused to peer down into it. Tom's face flushed with anger, Gail and Kuka both stopped work to watch what was going on, and I was feeling horribly apologetic for bringing Osborn into it.

"So that's Magellanium," he said. "No, don't bother to weigh it for me or show me any of your hokeypokey. I don't doubt that it will behave as you say it does. Many an intelligent man has been led astray by spiritualists, dowsers, levitationists and poltergeists when he's so foolish as to let them perform for him, and magicians still make a good living doing seemingly impossible things. However, magicians are honest about it and admit their own trickery. That's more than I can say for you, Ambert!"

"Warren, will you slow down and ——"

He whirled on me angrily. "From now on will you address me as Dr. Osborn? If, indeed, it ever becomes necessary for you to speak to me again? I'm not going to work under your directorship any longer. I'll not become a party to the deceit and treachery undermining the work of this project!"

This was going past the point where it could be ignored. "On the contrary, any work you do will be under my direction."

"But I shall do no work from now on. My contract says only that I stay here for the duration; it doesn't specify what services I'll perform, and in any event, I'll break the contract. Until then I'll have the pleasant occupation of making a report of my own—a report on you, Ambert. Before I've finished, you'll wish you'd never heard of the Magellan Project!" He turned abruptly and marched for the door, where he paused for his exit line with the precision of a trained actor. But Gail was his audience this time. "The report will include mention of the attempts of Miss Tanager to sway the commander of the 'Black Planet' from his purpose—an objective I might endorse personally, but I have no intention of hanging myself by being party to it!" Then he departed.

He left behind him an embarrassed silence. Tom's beard was quivering and Kuka gave us both a sickly grin before he pretended to go back to work. Gail was speechless with anger. Finally Tom shrugged. "As I remarked earlier, once Osborn becomes obsessed with a problem, there's no shaking him loose."

"Only he's obsessed with the wrong problem," I said.

I called the apartment to see if I could stop Susan from her camping trip, but she'd already gone. I wasn't going to be able to join them. As long as Osborn refused to work with Tom, I intended to stay with him myself—all night if necessary. Osborn's accusations made me see the importance of discovering what Magellanium was. I told Tom I'd see him about seven-thirty.

CHAPTER TEN

TOM WAS ALONE when I returned. Late that afternoon Fred Clark had brought in another consignment of uranium concentrate and now Tom's original apparatus was all set up again, not for the original purpose, but to produce more Magellanium. The work done, he'd put up a cot for himself in the laboratory and was prepared to stay the night. From the far wall of the room, which held the control panel for the atom smasher, came a drowsy hum like the wings of some giant insect. Tom sat with his feet on the table, his beard doubled against his breast, lost in thought.

"We're getting somewhere," he told me. "Item one, I think it's a liquid. Item two, the curves on the floor are not perfect ellipses. Item three, the stuff has continued to lose weight until now it weighs a mere hundred and eighty pounds. Item four, I'm making more of it."

"All right. Take them one at a time now."

So he did. After my departure that afternoon Tom and Kuka put the sphere of Magellanium on the press and tried to find out how much pressure it would stand without crushing. It wouldn't crush but it did change shape. Under sixty tons pressure it flattened slightly and became spheroid in shape. Under one hundred tons the flattening was enough to observe with the unaided eye. Then they removed it from the press and it returned to its original

shape. They put it under the X-ray to look for resultant lines of strain but could find nothing, for the simple reason that X-rays wouldn't penetrate it.

"But only a liquid or a gas could return to its original shape after that much pressure," said Tom. "And it certainly isn't a gas."

"What happened under still greater pressure?"

"We ran into some kind of law of diminishing returns whereby it took doubled amounts of pressure to bring about any further flattening. At peak pressure the blocks were dented without hurting the Magellanium. We were pretty nervous doing it. I still think we may be dealing with a gigantic atom, and no matter how stable it seems, we might accidentally split it."

I went over the computations Gail had made that afternoon from the measurements taken by Hank Kuka. He'd located the two focuses for the curves on the floor and had then measured a series of radii. The result showed that instead of an ellipse, the general path was a section of a spiral.

"That's right," said Tom. "Of course that lead casket isn't exactly a precision instrument when it comes to drawing curves, but Hank could be several millimeters off and the result would still be valid."

Actually what this result showed was that the curves on the floor—supposing they were drawn on a large surface with no intervening walls—would never have returned quite to their starting place but would have inscribed a series of ovals like those we used to make in grammar school when we were learning penmanship. Except that these would have been exactly backward from the kind on paper, moving from right to left in reverse rotation. Toward the east.

"It suggests some connection with the rotation of the earth and the movement of the earth around the sun," said Tom. "I was pretty worried when Osborn left, but I'm beginning to calm down. We can't discover everything in a single day or even in a single year but gradually we're accumulating facts. If I stay on at the project after the launching, this will give me plenty to work at." He

had me go over his instrument panel to make sure everything was set as it had been during his original experiment. Then we sat down to wait until it was time to weigh the Magellanium again. We planned to do this at intervals all night and get a complete picture of its periodic change.

Far away in the night outside we could hear the riveting hammers putting the final touches on the "Black Planet" and could hear the higher sing of the electric saws cutting through the bolts and braces which connected the ship with earth while it was being built. The launching ceremony, like everything else about the "Black Planet," would be secret. There'd be no political speeches, no breaking of champagne bottles, no flagwaving. The signal would come from Washington but everything else would be contained within the project. There'd be only one signal because only one attempt at launching was possible. It either succeeded or failed, and either outcome was final. We expected success, in which case the men aboard might live to return to earth again, but the "Black Planet" itself would never return. Its destiny was space, to circle for untold ages through empty skies, perhaps until the species which created it had joined the giant saurians and were replaced by a more adaptable form of life. It was a cold thought—imagining an empty space ship revolving senselessly around the earth and slowly retreating through the ages as the moon is retreating, then drawing close to earth once more. Or some unpredicted force might twist its orbit and send it downward to flame across the skies in the form of a meteor until it was consumed by its own fire and vanished finally in a shower of sparks. Would a child exclaim, "See the pretty shooting star!" And what would it all mean then?

"It's peculiar, isn't it?" said Tom, "—man's need of believing in a purpose greater than any he can find in his own life. Where would the idea come from if it didn't have a basis? And yet, there never seems to be any purpose in any of the details. They always lead on to something else, and we follow by a sort of compulsion. Do you ever feel that way?"

"Yes, I do. At least I've come to feel that way here on

the project—as though our work is guided by instinct rather than knowledge. Like a bunch of wasps building a perfect nest without ever having teachers. For days I go along with perfect assurance until something reminds me that we're still human and fallible and that the damned ship might not work."

"It *has* to work," said Tom quietly.

"Our engineering isn't that perfect."

"I'm not talking about the engineering. The idea has to work. What is the 'Black Planet' except the materialization of an idea—a dream? If the dream fails, mankind is finished."

"From war, you mean?"

He shook his head. "No. From our own sense of failure. This is man's challenge to the universe. No matter what reasons are given for building the 'Black Planet,' the real reason is the need of men to rebuild their souls. For a long time now—ever since the establishment of the heliocentric theory, the result of scientific progress has been to make men feel increasingly insignificant in the grand order of things. Our planet has been reduced to a dust speck drifting through limitless space, and mankind to some sort of cancerous growth incapable of controlling its insane desire to destroy the body which nourishes it. Whether it's physics, biology, or psychology, the philosophical trend has been to destroy the concept of free will and attribute all that happens to a blind causality. But is that the true state of affairs or is it something we believe through a process of auto-suggestion? Man is a very suggestible animal but he's also gifted with self-awareness and may have an inkling of his own nature. Hence the 'Black Planet,' a supreme effort to leave behind the voices which say we're doomed and to find others to tell us the future is inexhaustible."

He spoke with deep conviction and then, as though embarrassed at having exposed so much of his private views, he flushed and blew his nose loudly. Angrily he added, "But I hate to think of the 'Black Planet' sailing around the earth, filled with bombs ready to be thrown on the

people below. All that's noble has gone into building it; why should it be used for such an ignoble purpose?"

"The same can be asked concerning a dozen other scientific achievements."

"All right. But in the nth degree, which is the 'Black Planet,' we'd better measure up to our own concepts. Otherwise we'll see ourselves for the worms we are and might as well dry up and die. The space ship should be the door that leads outward, not the padlock that shuts us in forever." There was defiance in the glance he gave me—as though he dared me to disagree.

I had no reason to disagree. It's possible that men attribute greatness to their works simply to salve their own vanity, but it's also possible that their works are sometimes truly great in an almost cosmic sense. No one can study the history and life cycles of living organisms without becoming deeply conscious of the titanic uphill struggle life has waged for countless ages against the mechanical forces of an inanimate universe. I'm not projecting a duality of force; there may be only one. But there's certainly a duality in the manifestation of that force. It can be blind and meaningless as it moves the stars in their orbits or flings a bolt of lightning across the sky, but the instant it enters into a living organism, plant or animal—microbe or elephant—it shows a quality which can only be called purposive. Life acts for a reason—to perpetuate itself in form and function, and in this respect it has far surpassed inorganic matter. The ants which crawl over the great pyramids are as healthy and lively as their ancestors in the days of the Rameses, but the pyramids themselves have taken a horrible beating from the elements. It's true that this continual resurgence of life is obtained at the expense of the individual, but it's also true that no one has yet explained satisfactorily just what an individual is. An illusion, perhaps. Maybe all of life is a single episode like a plant coming to flower. And isn't it just possible that in spite of earth's insignificance, it actually is the birthplace of intelligence? Our space ship wouldn't be an invention in that case. It would be more like a natural growth—a seed pod like a bit of thistledown ready to be tossed on the

winds of space and carry the spirit of reason—I broke off my fantasy, aware that I was getting more metaphoric than practical. The "Black Planet" was designed to go in circles.

I glanced at the clock. "Hell, Tom, we've been talking and missed the 10:15 weighing ceremony. Let's do it now." I looked at him for assent and then came to my feet, shocked by the expression of wild consternation on his face. He was staring past my shoulder toward the north wall, his finger extended.

"*My God, Ambert! Look!*"

I whirled, chilled by his tone, my scalp pringling. My feelings weren't altered by what I saw. There was no doubt about it. *That thousand pound casket with the incredible weight of the Magellanium inside it was sliding ponderously toward us across the floor!*

CHAPTER ELEVEN

FOR A FULL TEN SECONDS neither of us moved while we watched, unable to believe, yet forced to believe by what we saw. The actual motion of the casket was so slow that it might have escaped notice for some time, but what couldn't escape notice was the fact that it was now at least two feet out from the wall where it had been placed. Obviously it had been sliding forward at its weary glacial speed for quite a while before Tom noticed it. The sloth-like pace encouraged us to walk forward and kneel down for closer inspection.

At this range the motion was easily apparent. A garden snail could have just about kept up with it. Curiously, it was almost silent. By bending close and not breathing, you could hear the faint crackling of grit being crushed against the floor but the forward edge and corners of the casket plowed across the asphalt tile at such a tedious pace that the fibers were crushed before they had time to snap. The previous scoring was still on the floor and the new lines were being grooved parallel to them but not exactly over them because the casket hadn't been placed in its exact former position to begin with.

A vast amount has been written about the precision with which scientists work, and from reading about them one is likely to get the idea that every experiment is circumscribed by a host of delicate gadgets which record and

control every phase of the operation. This certainly wasn't the case now. In the face of something new it's often the chance observation rather than intent which leads to discovery. Radium was discovered through its effect upon a photographic plate left accidentally in its vicinity; Pasteur grasped the idea of vaccination after his chief critic unwittingly performed the services of a guinea pig for him; Galileo formulated the law of falling bodies by watching a swinging pendulum, and Archimedes allegedly recognized the principle of specific gravity while sitting in a public bath. In spite of these brilliant examples from the past, Tom and I watched the moving casket and failed to grasp any principle at all. But we did begin to putter.

I placed my foot in front of the thing to see if I could slow it down or stop it. I couldn't. The pressure against the side of my shoe increased relentlessly until I found I was being pushed along too. I got down on my knees and put my shoulder against the casket with the same result. Then we unbolted the lid, removed it, and looked in.

The sample of Magellanium was still lying in the little steel crucible but the crucible itself was now pressed tightly against the forward end of the casket. We debated the advisability of removing it and decided not to. It seemed of more immediate value to observe the full course of the casket's journey without doing anything to disturb it. But because the Magellanium was obviously in a different state now from any previously observed, I made another test for radioactivity. Still negative.

Meanwhile Tom equipped himself with a meter stick and a stop watch so he could determine the speed with which the casket was moving. We were so intent upon this that the telephone in Tom's office rang several times before I became aware of its insistence and went to answer it.

It was General Humphrey, and his voice showed impatience. "So I've located you, Ambert. Called your apartment—no answer. Called your office—no answer. A man in your position should leave word of his whereabouts when he steps out."

"There's a P.A. system in all the laboratories," I reminded him. "What's the trouble?"

"Didn't want to use the P.A. system. I'm in Security and want to see you."

"Now?"

"Right now."

"Is it important? I'm busy as hell."

"It's damned important or I wouldn't be hunting all over the project for you."

I glanced at Tom, so absorbed in his observations that he didn't even realize I'd left his side. I was in no mood to leave him. "What's it about?" I said to Humphrey. "Maybe I can take care of it over the telephone."

"Ambert, this concerns you as much as it does me. I want to see you at my office."

"Humphrey, we're in the middle of some observations that we may never have an opportunity to make again. If it's really urgent, why can't you come over here?"

There were a few seconds of silence. Then abruptly he said, "Maybe I'd better!" He hung up. He was angry about something but whether it was me or something which had occurred before he called me, I didn't know. I rejoined Tom.

He'd finished his preliminary measurements and ran the calculations on the machine. His result, in ordinary language, showed that the casket was moving at the rate of 7.5 feet per hour. By measuring its distance out from the wall, he calculated that the motion must have started at approximately 10:06 P.M.

"That's providing the speed is constant," he said. "I don't know that yet. There may be a gradual acceleration." This was the next point he wanted to determine so he kept on clocking the speed at one-minute intervals. I was more interested in the direction of the motion. The fact that it followed a path identical in pattern to the one of the previous night proved that no random force was at work. The power that moved it before was still operating in exactly the same way. The Magellanium—and we could not doubt that the Magellanium was the cause of the phenomenon—was being attracted or repelled

by some agency which had a fixed location either upon the face of the earth or elsewhere, but all I was able to determine immediately was that it had no connection with the magnetic poles of the earth. I wondered if there might be something in one of the other buildings on the project itself to provide an explanation. In that case, however, the casket should move in a straight line. My speculation was cut short by a sharp rapping on the outside door and I went to let in Humphrey.

He wasn't alone. With him were two grim-faced aides, Colonel Catwell and Major Griffin. Not that their normal expressions were grim—they were just grim now, and I seemed to be the reason for it. I wondered if they were annoyed because I hadn't rushed over to the security office at Humphrey's bidding, so I invited them into the laboratory to show them why I couldn't come. But Humphrey closed the office door and sank scowling into an armchair, waving his two aides to the couch. "You might as well sit down too, Ambert. There's a lot to talk about."

I sat down with as much patience as I could command while Humphrey got a brief case from Catwell, opened it and drew out a sheaf of papers. I recognized the papers at once. It was a copy—part of a copy—of the record of Tom's experiment, and the only copy which had so far left his laboratory was the one Osborn had carried out with him. I began to smell a rat. Humphrey laid the papers on his knees and raised his weary eyes to mine.

"When I talked to you this morning," he said, "I told you I'd been having trouble with Dr. Osborn. I told you I didn't like to mess around with the men in your department unless it was a matter of security, and I kinda expected you to take the hint and straighten things out for yourself."

"I tried. A complete bust, I'll admit. What's happened now?"

"I don't like the situation a bit, Ambert. Osborn was back to see me again. Making the same charges only stronger."

I blew up at that, not so much because I was angry at

Humphrey as because I wanted to get back into the laboratory with Tom, where I felt all sorts of strange things might be happening. I told Humphrey I didn't give a damn what Osborn said or didn't say, that I wasn't going to waste time listening to a lot of nonsense, that I was surprised he'd pay attention to it himself, and that if he felt Osborn ought to be put into confinement for a few days, it was all right with me. About the time I finished talking, I noticed that Colonel Catwell was taking down in shorthand everything I said. "Just what the hell is this?" I asked.

Humphrey grunted but showed no other sign of emotion. "When two of the project's top men get into a beef that threatens to involve a lot of other people, I've got to step in," he said. "I'm trying to find out who's right and who's wrong."

"Then hurry up and ask what you want to know. I haven't any secrets and I'm not worried about what Osborn might have said while he was in a fit of temper."

"This time he didn't show any temper. He was quite collected."

"Fine, I'm glad to hear it."

"He even apologized for his behavior yesterday. No emotional strain."

"All right, damn it, he was like a cake of ice. I'm more interested in what you have to say than anything he said. Get on with it."

Humphrey didn't like being prodded and if anything my impatience only made him slow down. He became wearier than ever. "Dr. Osborn repeated his charges of yesterday. He also told me that his desire to leave the project was only partly because of this position he's been offered. He said he was equally concerned over the chance of being implicated in serious trouble if he stayed here."

"Trouble over what?"

"Over your activities." He thumped the sheaf of papers on his knee. "This."

I didn't quite know what to say to that. It's always the most ridiculous charges that leave you speechless because you can't believe they're being made seriously or

that the person making them believes them himself. I started to ask him if he was deliberately trying to pick a quarrel when he cut me off with a curt gesture.

"You don't need to tell me I'm not qualified to judge. I know I'm not."

"Under the circumstances, Dr. Osborn is hardly qualified either."

"I know that too. But whether you like it or not, I've got to listen to every rumor or suggestion that might affect the safety of this place."

"Fine. As long as you don't confuse rumor with fact."

"So I listened to Osborn," he continued stubbornly. "He claims that you and Dr. Hernandez tried to involve him in a fraudulent experiment in order to wreck his reputation."

"That's a damned lie. I don't know why you pay attention to it. Have you developed a personal grudge against me?"

"No," he said sourly. "I wouldn't bother to tell you all this if I didn't hope you'd be able to clear yourself."

"Clear myself?"

"What's your opinion of Dr. Basich?"

"What's he got to do with it? Has Osborn been talking about him too?"

"I asked you a plain question. What's your opinion of Dr. Basich?"

"I have a good opinion of him!"

"Capable? Honest?"

"Certainly. I'd trust him anywhere."

"Thanks. And your opinion of Dr. Strauss?"

"The same."

"And Dr. Klein?"

"As far as I'm concerned every one of them is not only professionally competent but a damned fine fellow to boot. What about them?"

"I wanted your opinion," he said, "and you've given it. Now understand this, Ambert—I didn't take a word Osborn said at its face value, but when I asked him for evidence to support his charges, he gave me this." Again he thumped the copy of Tom's record. "I read it myself and

found it highly improbable, but as I said I don't consider myself competent to pass on such matters. So I asked the three men for whose honesty and ability you've just vouched—Strauss, Klein, and Basich—to serve as a panel and give me three separate opinions on this report from Hernandez' laboratory. To insure impartiality I removed Dr. Hernandez' name from it." He spoke slowly now, rounding out each word carefully. "Each of those three men studied it and gave me a written statement. I have them here. And without exception, each man stated that standing by itself the report was entirely unacceptable and that in his opinion this substance called Magellanium could not exist as described. In short, they supported Osborn's contention that the whole thing must be a fraud."

I got up. "Humphrey, for Christ's sake, relax. If a week ago someone had showed me that report, I'd have said exactly what your board of experts did. A man would be an idiot to accept those statements without physical proof. But you could have saved yourself a big headache by coming to me directly and letting me show you the stuff instead of collecting opinions on the record of preliminary findings. Sure, sure, you want to be methodical and you need a record of the case if it should develop into something serious. But as long as you've got the record, let me finish it for you without wasting any more time."

I opened the door and called for Tom. He stepped into the office a moment later, looking curiously at the three visitors. "A simple problem," I told him. "I want the General and his aides to come into the laboratory and examine the Magellanium. I want them to see what it's doing to that casket. Then we'll take it out and weigh it for them. I want each of them to see it, touch it and try to lift it. And tomorrow I'm going to call a full staff meeting and let everyone in on our findings so far. Maybe we won't be able to give them any conclusions but at least we'll be able to stop these rumors about a hoax. It's your Magellanium. All I need is your permission."

Tom thought the matter over a moment and nodded. "Might as well. As long as word of it's getting out anyway." He started back for the laboratory, then paused

and turned to Humphrey. "But I want one thing clear. Osborn took one look at the stuff and walked out. If you men want to understand what we've found, you'll have to do better than that."

"Don't worry," said Humphrey. "I'm ready to be shown. In fact, I'll be damned happy to be shown."

So the five of us entered the laboratory with Tom leading and the general's aides bringing up the rear. We started across the room toward the casket. It was only about a four-second walk and I began to get a queasy feeling long before we got there. Something had changed. When I'd last looked at the casket, it had been moving and now it had stopped. When we reached it and looked in, I saw why. It was the strangest thing the Magellanium had done yet. It had disappeared completely!

The feeling that swept over me as I gazed down at the empty steel crucible in the casket was one of embarrassed stupidity coupled with a sense of vast loss. I forgot about Humphrey and his aides, forgot about everything except that little pellet of Magellanium which had vanished, and Tom was no less concerned than I. He jerked the steel crucible from the casket in the hope that the Magellanium might somehow have gotten beneath it, and then in spite of the emptiness which met his eyes, he ran his hand frantically about the inside in a futile search.

But how could it possibly disappear?

The depth of the casket was twenty inches and the Magellanium had been at the bottom. It couldn't have rolled out. Something had to lift it out. But what? I dropped on hands and knees to scan the smooth floor and saw absolutely nothing at all. If it was there, it was invisible. Behind me Humphrey, the Colonel and the Major waited with their hands clasped behind their backs. Humphrey coughed impatiently.

"We're waiting," he said. "Where's your Magellanium?"

Tom straightened, his face red with frustration, losing his temper for the first time in my memory. "It was here when I left it! If you'd kept your god-damned nose out of

here it wouldn't be lost!" At his vehemence the three officers recoiled a step, looking at each other in genuine confusion. Humphrey began to show signs of anger himself.

"Lost? What's lost?"

"The Magellanium, you fool!" Tom was simply shouting into space as he continued his frantic search. I forced him into a chair.

"Easy, Tom. It's not the end of the world."

He sat there rubbing his temples. "How do I know what it is? How do I know I'll ever produce another sample? It was here, right in the casket. I wasn't out of the room more than sixty seconds and now it's gone! How? Where?" He pounded his fist on the table in frustration. Humphrey stalked slowly to Tom's side, his face dangerously placid.

"Am I to understand," he said, "that this stuff you were so anxious to show me has—vanished?"

There was nothing to do except face it. "Yes," I said. "That's what you're to understand, but don't ask for an explanation. I haven't got one. It was in the casket there."

He glanced from Tom to me with narrowed eyes, then walked slowly to the casket and looked in. "If you had it there and now it's gone, then obviously someone removed it."

I shook my head. "I wish that were true. But the only entrance to the laboratory is through the office where we were all sitting. No one came through. The doors over there lead only to the vault. The windows are screened and latched on the inside. No one could have come in and taken it."

He looked at me as though he thought I was mad and his patience began to desert him. "Dr. Ambert, I'm not suggesting that anyone stole it."

"What are you suggesting?" I was naïve, even hopeful that he might have grasped the solution.

"Just how stupid do you think I am?" he barked. "Either you or Hernandez or both of you have hidden it and don't want me to see it. But I'm going to see it! You can play jokes on Osborn but you're not going to mess

around with me! Now cut the nonsense and show me your Magellanium!"

The situation was so utterly perverse that I could do nothing except sink into a chair and stare at him. "I'll be a son of a bitch," I said.

"Possibly," he snapped. "But that doesn't convince me of anything."

"But of course you think one of us has hidden it. How could you think anything else?"

"Damn it, I don't think anything else! And I'm not going to stand here and have my leg pulled. Are you going to show us or not? You asked us to be patient, to take our time, and make a thorough examination. All right, what am I supposed to examine?"

I got up again and took him by the arm, trying to steer him toward the door. "I'm sorry, Humphrey. Under the circumstances I can't blame you for getting sore. All I know is that we don't have any Magellanium at the moment. It's lost, understand? I can't explain it and neither can Tom. We may find the explanation later on, but right now I'm as confused as you are."

He flung my arm aside. "I'm not confused the slightest!"

"And all I hope is that by this time tomorrow we'll have succeeded in producing another samp[illegible]"

"Damn it, Ambert, you're hiding it! Will you show it to me?"

"I can't show it to you."

"You mean you refuse to show me. And so does Hernandez."

Tom got out of his chair and joined us. "I'm sorry I shouted at you, General. I was upset. Still am. You'll have to give us time, that's all."

Humphrey examined us both coldly. "It seems clear to me. Osborn was right about a hoax. Maybe he's right about the wasted funds too. When I called you tonight, Ambert, you knew you were about to be exposed and that's why you refused to come to my office. You needed time to hide the evidence of whatever you're doing here and time to cook up a story to tell me. Just why a man in

your position would go to such lengths for a practical joke is beyond me—unless it's much more serious than that. What the devil are you up to?"

I couldn't even get angry with him. Appearances were all in favor of his viewpoint. "I'm not up to anything. The only favor I ask is that you withhold judgment for another twenty-four hours."

"And just what requires twenty-four hours?"

"That much time, more or less—to produce more Magellanium."

At this he gave me a blank stare and started for the door again. "I'm not sure you'll be director that long."

I had to answer that. "Just a moment, Humphrey. The work of this project is the 'Black Planet,' not Magellanium, and I've heard no criticism of the 'Black Planet.' You can't remove me without consent from Washington anyway, so keep your shirt on and stop worrying about this until tomorrow."

He walked on out. It was evident that he didn't believe me and that he was going to keep right on worrying. I could almost read the report he was formulating to send to Washington.

CHAPTER TWELVE

AFTER HUMPHREY AND HIS AIDES left the laboratory we were able to consider the problem of the vanished Magellanium more calmly. Tom took a more serious view of Humphrey's attitude than I did. "I'm afraid I've gotten you into the soup, Phil. Humphrey was really boiling."

"I know he was but he never acts on impulse. And if it comes to an investigation or hearing, we have plenty of witnesses. Kuka and Gail and Fred Clark can all confirm your report. I'll admit we're in an embarrassing spot right now, but time will take care of it."

So we stopped worrying about Humphrey and made a final thorough search of the laboratory, without success. Then we sat down to attack our problem on the basis of what we already knew about the Magellanium. Our discussion was fruitless until Tom mentioned the scoring made on the floor by the casket the previous day. "They were deep at the start," he said. "Then they became less so until at the apex of the curve they hardly scratched the floor at all. Then they gradually became deeper again. It was you, I think, who suggested that the casket was being subjected to a lifting force."

I saw what he had in mind. "And at that time, the lid of the casket was bolted on. Tonight we had the lid removed. We already know that the Magellanium moved from the center of the casket to its forward side."

Tom finished the thought, speaking slowly as though unwilling to voice a seemingly impossible conclusion. "Then perhaps it moved *up* the side. There being no lid to stop it, it escaped. But where?"

We returned to the casket and examined it thoroughly. In spite of its great weight, the casket wasn't a huge box. The walls and floor were about three inches thick but the total volume of lead was less than two cubic feet. If it had been shoved across the floor empty, its own weight was sufficient to score the floor deeply. Therefore, in spots where it failed to make deep scratches, the only possible conclusion was that a force almost equal to the weight of the casket was lifting it. Such a force couldn't be generated by the lead, a substance with which we were well acquainted. The unknown factor was the Magellanium. But in order to lift the casket, the little sphere of Magellanium would have had to move up the side of the casket until it pressed upward from within, against the lid. If you imagine a matchbox containing a small lump of iron being acted upon by an exterior magnet, you get a fairly decent analogy. As the iron moves toward the magnet, it draws the box along with it. Place the magnet above the box and you can lift the whole thing. If the box has no top on it, the piece of iron will come out. Then suppose that your magnet is invisible, and you have quite a mystery on your hands.

This was our mystery. Whatever attracted the Magellanium was like no magnet known on earth, and it was definitely invisible to us so far. However, the constant speed at which the casket had been moving, the regularity of its path across the floor, and the periodic change in the weight of the Magellanium all pointed forcibly—almost conclusively—to a single controlling principle. The same principle, whatever it was, should also account for the disappearance of our sample.

Our close inspection of the casket seemed to confirm Tom's theory. On the interior of its forward wall the relatively soft lead bore two very shallow grooves extending in straight lines from near the casket floor to the top. One of these proved to be slightly deeper than the other. I

examined the lid of the casket and discovered what we hadn't noticed before—a slight indentation on the underside of its lip. When the lid was put in place, this indentation fitted exactly at the top of the deeper groove. We concluded, therefore, that this deeper groove had been made by the Magellanium during its first night in the casket. It had moved upward until stopped by the lid, then at a later time had moved down the groove again into the steel crucible. The first groove was deeper because the Magellanium had traversed it twice.

There was no second indentation in the lid to correspond with the second groove, nor did this groove quite terminate at the upper edge of the casket wall. It seemed instead as though the Magellanium had rolled over the edge as though pressing at an angle upward and away from its container. And where was it now——?

Tom suddenly knelt beside the casket, sighting across its top in the direction the casket had been moving before the Magellanium vanished. He exhaled a long breath of satisfaction mingled with amazement and pointed toward the south wall. At first I didn't know what he was pointing at. Then I saw it. Between two windows, the white plaster was punctured by a small dark hole. It was about six feet above the floor and was circular. It had a diameter the same as our sphere of Magellanium and had been punched by something moving with such terrific momentum that the plaster around it wasn't even cracked. A forty-ton drill press couldn't have done a neater job.

We said nothing. I knew as well as I know anything that our vanished Magellanium had made that hole in the wall, but I couldn't bring myself to say it because then I also had to believe that the Magellanium left the casket at an upward inclination of about fifteen degrees and literally floated through the air until it struck and penetrated the wall. Or was float the right word? We hadn't seen it vanish and it may have been going at bullet speed or faster. The cleanness of the hole indicated that.

I took a glass rod from the supply closet and thrust it into the hole. It was a tight fit but the rod went clear through the eight inch thickness of wall without cracking.

The Magellanium was moving in a straight line then, not a curve, when it penetrated the wall. Or else it was moving in a curve so vast that any small section of it appeared straight. Tom next removed any doubts that still lingered concerning the cause of the hole by fitting a straight extension onto the end of the glass rod. The extension pointed exactly to the edge of the casket wall where the second groove terminated.

"All right," I said. "I have to believe it. But I doubt if I try giving this explanation to Humphrey."

That's all we could do that night. We had new facts with which to work, but no Magellanium. Until Tom produced more, any work we did had to be on paper and I was in no mood to tackle that tonight. I saw that there was still plenty of time to join Susan and Louis and Marjorie and forget for a few hours about Magellanium and the mess it was getting me into with Humphrey.

CHAPTER THIRTEEN

IT WAS LATE when Elmer and I saddled horses at the project stables and galloped away into the night. With the lights of the project center left behind us, the clear night sky opened above, glittering with thousands of stars. The beautiful winter constellations of Taurus, Orion, and the Great Dog dominated the southern heavens while in the north the never-sleeping bears followed each other around Polaris. Algol was high and Arcturus had set. Why do men worry about the nature of time and space when the truth rains its light down upon them every night of the year? I galloped across the sage-grown hills in what I called the present, while from nine years back the white light of Sirius caught up with me. More remote still, as ancient as the earth's beginning, was the light from the dim jewel of the hunter's scabbard—the great nebula of Orion. Triangulated and polyginated across a million centuries, all came together at the point of my observation where space and time crossed to form the concept, '*Now*.' Was the future there too?

"A beautiful night," said Elmer.

"It is. I'm glad we couldn't get away earlier."

The trail to the sinkhole was unmarked, but from the top of a hill about a mile from our destination I saw the red glow of a campfire on the mountainside which served as a beacon to guide us into camp. Susan, Leo, and Louis

were still up waiting for me but Marjorie was asleep in one of the tents. I haven't said much about my children in this account, chiefly because it usually distresses me to hear a parent talk about his offspring. Nor am I sure I knew my children very well, because I seldom had time to spend with them. Louis seemed to be a typical boy of ten, towheaded and cowlicked, his clothing always half-disorganized. He was active physically and made decent grades in school. His interest in fossils wasn't specialized. He also collected butterflies, Indian arrowheads, and cigar boxes, and liked to listen while Susan told him stories of the gods and heroes of ancient Greece. He was supposed to resemble her in appearance. I was even less acquainted with my daughter Marjorie, who was supposed to resemble me. At least this was what people said, and it always got them into trouble. They'd say, "My, she looks like you, doesn't she?" Then realizing they were insulting my daughter, they'd add quickly, "Except much better looking." Then realizing they were insulting me, they'd say, "It's just that her features are much finer than yours. But there's something about the eyebrows——" Then they'd shut up. Marjorie had been in preschool during the past year and had amassed a great stack of finger paintings which the teachers assured Susan were masterpieces, but I couldn't see that they were any improvement over similar compositions which she'd executed at the age of two on the kitchen wall, using watery oatmeal as her medium.

Louis wasn't very pleased by my arrival because Susan had told him he could stay up by the campfire until I came, and he was hoping I wouldn't show up until morning. Besides, he was annoyed at having to sleep in the tent with his little sister instead of sharing one with Susan and me or having one to himself. "I'm just a baby sitter," he said, which was partly the case.

"Humph," said Susan. "You'll be asleep in ten seconds after you're in your cot."

But I let him stay up another fifteen minutes while we watched the fire burn low, and then everyone went to bed. Or rather, the others went to bed while Susan and I retired to our tent. Leo and Elmer were stationed on the moun-

tainside above the sink but Susan had succeeded in having our tents pitched down among the trees by telling Leo she wanted the children out of the wind.

The tents were the ordinary umbrella type with the center post and four corners. The doorway of ours faced the center of the hollow and the rear wall was about eight feet from the crevice which led to the cavern entrance.

"I couldn't put it any closer because of the uneven ground," said Susan. "And I'd forgotten that these tents have floors, so we can't crawl out the back anyway."

"I'll slit it." I used a jackknife to cut the stitches binding the floor of the tent to the rear wall and then I cut the stitches along a vertical seam so that a flap opened at the rear. It took several minutes and by the time I'd finished the camp was quiet. Susan went to look at the children, found them both asleep, and called good night to Leo, who was taking first sentry duty where he could watch over the hollow beneath him. Then she came back in the tent again, and all we had to do was steal out the back and work our way silently into the crevice and around the bend of the rock. It was difficult in the darkness, particularly since Susan had filled the floor of the crevice with items we had to have with us. In addition she got to giggling at the situation and threatened to give us away before we got started. That wouldn't have ruined our enterprise completely, but it would have meant taking one of the guards along with us to make sure I didn't risk my valuable neck.

Susan reached the cave entrance first and waited while I handed her the rope ladder, several balls of twine, a couple of lanterns, and a short spade. Then I followed her and wedged the spade sideways across the entrance, tying the two sides of the rope ladder to its handle. Then we crept on down the tunnel, dragging our equipment with us until we were far enough from the entrance so that I felt safe in taking a flashlight from my pocket and looking around. Susan ducked with fright as a bat dived at the light and careened away again. We were on the high ledge with the floor a considerable distance beneath, so I tossed

the rope ladder over and watched with the flashlight. Its lower end dangled about four feet above the floor. We lowered the lanterns on twine, dropped the balls of twine after them, and then I tested the ladder to make sure it would hold. The spade handle was firm. So I descended while Susan held a flashlight for me, and then I did the same for her. We were in the cave.

The first thing I did was pump up the lanterns and light them. A good two-mantle gasoline lantern is equal to a hundred-watt globe anytime, so the bat chamber was soon flooded with light. The bats didn't like it. They began dropping from the ceiling and swirling around us like a swarm of huge insects, and although none of them touched us, they kept us ducking and squirming until we passed through their chamber and started down into the black depths of the cavern. I tied the end of the twine to a projecting rock and unravelled it as we progressed. Behind us the thin cries of the bats diminished until they ceased altogether and then we heard nothing except the faint hissing of the lanterns, the slow mellow dripping of water, and the sounds of our own passage.

The floor of the bat chamber was dry, comparatively level, and from its appearance might have been carved out of the rock by man, but as we clambered down, the formations became increasingly irregular until we found ourselves in a broad passageway lined with pink shields of gleaming calcite and studded with stalactitic columns and half-columns. The layer or layers of limestone from which the cavern was carved were tilted at a marked angle to the surface of the earth so that it was impossible to tell whether we were descending through the thickness of a layer or going down one of its lower faces. Here and there fractures in the wall opened narrow passageways which we investigated with our flashlights but didn't enter. They seemed endless and many of them appeared to open into other chambers beyond the walls of less soluble material that intervened. At times our passageway split into equal halves so that we couldn't tell which was the main course of the cavern. We chose at random and went on, unwinding the cord behind us.

I'd brought along a pocket compass to which I referred from time to time, trying to ascertain the direction in which we were travelling, but the compass was wholly unreliable. It sometimes changed its mind about the direction of the North Pole within the space of twenty feet, which meant it was being influenced by iron deposits in the earth around us. We passed through several small chambers and one of enormous size. The big one was so high from floor to ceiling that only along its outer edges had columns formed. Elsewhere the stalactites hung like gleaming swords far above our heads, centuries away from the thick stalagmites that grew beneath them. We had been talking in whispers, influenced partly by the secrecy of our expedition and even more so by the solemn majesty of our surroundings. Susan noticed this and laughed. "Why are we so quiet? No one can hear us now." But the walls heard and babbled her words and laughter back to her from a dozen different directions. It took several seconds for the sound to die out, and then distantly there was a tinkling crash as though some glassy formation had dropped and shattered. It startled both of us and Susan whispered, "Surely no one else——?"

"Probably just the opposite," I said. "If it was your laughter that jarred something loose, it's good evidence that we're the first people ever to be here." But we kept our voices at a whisper thereafter and I began to feel guilty for what I was doing. My life wasn't exactly my own to do with as I pleased, and what had seemed only a lark with no danger attached on the outside of the cavern was something else inside. I hadn't contemplated finding anything so vast. Now and again we skirted the edge of deep pits and in other places the passageway narrowed until we had to wriggle through on our bellies. We'd allowed ourselves no more than five hours so as to be back in the tent before daylight, and two hours had elapsed when I decided to call a halt. Only fifty feet remained in our last ball of twine, and I wasn't going to do any exploring without that guiding strand to lead us back to the entrance. I shut off one of the lanterns to save fuel and we sat down to rest before returning.

"I won't be able to keep this a secret, Philip," Susan said. "I just know I won't."

"Neither can I. I'm going to tell Ralph Samson as soon as we get back to the project. He's a real troglodyte. But the place is ours tonight." We were silent a moment and then Susan lifted her head and sniffed several times. She moved her hand back and forth as though feeling the texture of the air. "What is it?"

"Something warm," she said. "Like a wet warm breeze. Can't you feel it?"

I concentrated on the sensation she described but could detect no movement of air at all. She still look puzzled and got up, moving on down the passageway to the next turn, where she bent and peered through the obstructing formations ahead. Then she turned toward me, her face frightened. "Philip!" she whispered. "A light! There's a light ahead!"

I left the lantern and scrambed to where she stood, thinking she must have found another exit although we had descended so deep into the earth that an exit seemed impossible. But it wasn't that kind of a light. It was a diffused glow of mistlike quality against which the intervening columns stood out blackly, and it seemed to originate from below rather than above. We couldn't go back after that. I unwound the remaining cord which took us to the turn in the passageway. A few yards farther I left one of the lanterns burning to guide us back, and with the other lantern we proceeded forward. The distance was probably no more than fifty yards although the irregularity of the course made it seem much more. With the lantern shedding a blazing light all around us, it was impossible to discern the glow ahead until the passageway widened and then opened onto a scene which stopped us awe-struck. Never had I looked upon a beauty so wild, so strange, so melancholy, so irresistible to the senses.

It was a chamber of majestic extent. How long? Two hundred yards? Five hundred? It was impossible to say, for the tortuous floor twisted among the great calcite deposits so that you saw it first in the foreground, then beyond a limestone shield, then beyond that again and again

as it receded into the distance. This floor was a turquoise lake with the nearest shore some twenty paces beneath us, and it was from the lake that the light arose, illuminating the walls and ceiling along its course with a pale blue-green light that rippled and undulated over the jeweled surfaces with every slight movement of the water. I shut off the lantern to let our eyes accustom themselves to the softer light of the cavern and then we climbed down to the water's edge, where we stood on a beach of snow-white salt crystals, holding our breath while we listened to the eerie music compounded of the dripping water and the beat of ripples on the shore.

That the lake was more recent than the cavern enclosing it was evidenced by the stalagmites which thrust their pinnacles through the surface of the water. They couldn't have been formed while the water was there. I bent and cupped some of it in my hand, hoping to learn the reason for the light, and discovered that the water was warm. The lake was fed by hot springs, then—or at least by enough hot water to offset the cold ground water percolating through from above. The water in my hands was limpid but gave off no light, nor could I see in it any organism responsible for the glow. But I'm sure the light was caused by some phosphorescent infusoria too small to be seen with the unaided eye and requiring the presence of billions of individuals to create visible light. The color may have derived from the same source or from an alga such as the type which gives the azure tint to the hot pools in Yellowstone Park. But whatever the cause, the water was unclouded and was transparent to a great depth and the presence of life in it had to be deduced because it couldn't be seen.

With linked arms we moved silently on along the shore. The place was a temple. High above us whole curtains of stalactites were suspended like rows of organ pipes, while along the walls behind us were naves and chapels and altars commanded by giant figures which were the more godlike for being less like humans. Susan and I were the primitive strangers, the first man and woman ever to enter this subterranean world.

"It's warm," she whispered. "Very warm. I want to go in the water. Will you come?"

"I'd rather watch." She left me and disappeared behind a gleaming curtain of stone. I reclined on the shore of the lake, sifting the sparkling crystals through my fingers, content to absorb the beauty around me. In terms of cause and effect the cavern was easily explained. Perhaps it's this simplicity of causal relationships which makes men try to find in them an explanation for everything and to deny the existence of that for which causality has no answer. Such procedure leaves a void—a large void, for even today life is largely a mystery which refuses to yield its secret to any rational treatment. I knew how the cavern was formed but that didn't tell me why I found it beautiful nor why a beauty which should have satisfied me only sharpened my sensations of desire and longing. In a very material sense, life is a devouring process. We eat and drink of our environment to keep us alive, we perpetuate the species by physical contact, and the offspring's first act is to start devouring its mother. But beauty can't be devoured, and ownership of the object from which beauty flows brings one no closer to possession of the quality itself. Fulfillment eludes us and leaves the desire to achieve it unreduced. But I think that if the gift of vision is proof of things to be seen, then the act of striving is proof of ends to be gained. What the goal is, I don't know, but I do know it must exit.

I turned at a sound and saw that Susan had slipped off her clothing and was walking down to the lake. She paused on the brink, the green light rippling over her body, while she touched the water with a toe. Then she sat down and slid in. She swam easily while the larger ripples caused by her movements quickened the beat of the music around us. At a stone's throw out from shore she drew herself up on an ancient stalagmite which had been flattened by the action of the water. She lay there like a nymph on a lily pad, looking about with unsmiling face. She was more like the spirit of the place than like my wife or anyone I'd ever known. Her silence, the dis-

tance between us, and this feeling of her strangeness filled me with a sharp foreboding, so I called to her and asked her to return. Without a word she slid into the water again and came toward me, pulling herself up on shore at my side. Wet and warm and still unsmiling she lay down in my arms. It is the way I'll always remember her, and the memory is hallowed.

She dressed and we started back. Near the head of the lake where I'd left the second lantern there was a cluster of roseate formations on the wall which I paused to examine. It was a colony of sea anemones coated with the glistening deposit of the cave and turned to stone. It told me that at some time centuries past this part of the cavern at least had been beneath the ocean, for sea anemones grow only in salt water.

We found our way back to the lantern we'd left burning and I pumped up both lights to full brilliance again. Then we located the end of our twine and started back, leaving the twine where it lay to serve as a guide when we came again, or for others who would be sure to come when we told them about the place. I knocked off a few small stalactites to take back to Ralph Samson as proof of our journey.

With the string to guide us, the return journey was much quicker than the ingress had been, so that we reached the rope ladder, climbed it, and squeezed back into the open air a good two hours before daybreak. The camp was quiet. We slipped into the tent, got out of our clay-smeared clothes, and crawled into our cots for what we hoped was about three hours sleep. The foreboding I'd felt on the shores of the lake was still with me and I remembered that Susan had been telling Louis the story of Orpheus when I arrived that night. Orpheus led Eurydice up out of Hades and lost her forever when he couldn't control the impulse to look back and make certain she was following. Sleep was troubled and left me completely when the earth trembled and the tent walls sagged from a double shock that brought me to a sitting position in broad daylight.

My first thought was that the roof of the cavern had

fallen in. Then I recognized the true nature of the shock and rushed from the tent, filled with apprehension, to scan the morning sky.

CHAPTER FOURTEEN

THOUSANDS OF PEOPLE in recent years have felt the same type of shock that made our tent walls sag, particularly if they live near an air base. The cause of the phenomenon is popularly attributed to the crashing of the sound barrier by a jet plane—or by any power-driven object in the air, although this is only a partial explanation, because it doesn't inevitably occur each time a plane accelerates beyond the speed of sound. It had occurred now, however, and the alarming feature wasn't the sonic blast itself, but the fact that it advertised the presence of aircraft above the project. Planes of any kind were absolutely forbidden within fifty miles of any boundary.

Clad in the bottoms of my pajamas I ran up the slope of the sink to the open hillside where I found Leo and Elmer both staring upward. The shadows were long and cool in the early morning and the sky was blue and cloudless. The shock wasn't repeated but I could hear the thin, dying whine of a plane receding in the distance, even though I couldn't see it. I kept watching. If the sonic blast occurred during a power dive, then the plane must now be gaining altitude. Then far to the west, already miles out over the ocean, I saw the start of the vapor trails—three of them, thin white lines like lengthening arrows receding toward the horizon. I shouted at Elmer to saddle horses for us and then I ran back to the tent to dress.

Everyone except Marjorie had been aroused by the shock wave, and while I pulled on shoes and trousers I explained to Susan what had happened. It might mean nothing. Planes from one of our own bases might conceivably have strayed over the project by accident. When you're traveling five or six hundred miles an hour an error of forty or fifty miles is easy to make. True, the urgency with which the planes were departing seemed to rule out friendly intentions but I hadn't heard any bombs bursting. I told Susan that she and the children had better pack up and get back to the apartment, and then I mounted the horse Elmer had waiting for me and the two of us started off for the project center at full gallop. Elmer had seen the vapor trails too but he didn't mention them or ask any questions. He didn't say a word during the whole journey. At the project I left him and entered the Administration Building.

Most of the offices didn't open for another hour but the place was already humming with activity, all of it due to the passage of the planes. The activity was largely meaningless—groups of secretaries and stenographers on the outside steps and in hallways torturing themselves with speculations concerning bomb attacks, department heads telephoning security, telephoning my office, telephoning each other, and asking for instructions when there were no instructions to give; maintenance men running from office to office to check fire extinguishers and sand buckets, half of which were missing.

I called the security office myself, told them I was in and asked to be kept informed. Humphrey had talked to Washington within seconds after the sonic blast, and Washington had immediately alerted all west coast air units. Those units in the vicinity of the project whose duty was to guard it were already aware of the unidentified jets and had sent out pursuit planes. My hope that the jets might have come from an American base was shattered. They were definitely foreign, but whence they came no one knew yet and I was asked to withhold what scant information I had until more was available. Hum-

phrey himself was still on the line to Washington and I didn't talk to him.

One conclusion seemed inescapable, however. If an alien plane had circled over the project, it must have come for purposes of observation, which meant it had to have some prior information in order to know where to come. And any nation which would take such a risk for observational purposes must be prepared to take even greater risks in an attempt to destroy the object its pilot had discovered. If, indeed, he or his cameras were able to identify it from the air. Or was it simply the location he wanted to verify? If they knew the place, they might also be expected to know the nature of the project. But all speculation aside, it was safest to expect the worst and act upon the assumption that our time had run out. We couldn't wait another six weeks to get the "Black Planet" launched. We had to launch it as soon as possible. Such an order must still come from the White House but I couldn't conceive of the President not giving it. In the meanwhile my own authority was sufficient to speed up our schedule, so I called an immediate staff meeting.

For all the speed of their machines, humans are still two-legged, slow-moving mammals. An enemy bomber could have traveled fifteen hundred miles during the time it took to get the department heads assembled. But at least the security office had some factual information to give us by that time—factual in a negative way. Two of the invading jets had been shot down over the ocean and one of them had been recovered by a patrolling cruiser. But this seeming stroke of fortune came to nothing when the jet, upon examination, turned out to be a pilotless robot plane with absolutely no identifying characteristics. Neither its engine nor any of its parts bore numbers or lettering of any kind, and all that could be said of its construction was that it resembled robot planes manufactured in the United States. The second plane shot down disappeared in the ocean and wasn't recovered but there was strong reason to believe that it too was a robot and that both robots were controlled from the third plane, which used them as decoys to lead off pursuit. In any event, the third plane escaped.

Parts of the robot plane were being rushed to laboratories where the metal could be analyzed and the processes used in its manufacture determined. This might eventually identify the nation from which it came, but it was going to take days or weeks to finish the analysis.

To us on the project the identity of the spying nation didn't much matter because our job remained the same. We had to get the "Black Planet" into space before it could be destroyed on the ground, regardless of who the potential destroyer was. We took it for granted, of course, that we knew which foreign nation was involved. It was supposed that only one nation had an interest in spying on us. This led to so many loose statements that people began to think the source of the jet planes was already proved, so the security office issued a strong warning to disregard such conjectures. This warning was the frankest admission of the "Black Planet's" purpose ever put into print and deserves quoting:

To: All Project Personnel
From: Security Office Headquarters.
At 0703, Tuesday, November 15, alien planes passed over the Magellan Project. Contrary to all rumors, *the source of these planes is unknown.* This office urges all personnel to refrain from making conjectures regarding the source or destination of said planes. Such conjectures, if often enough voiced, can lead to disastrous consequences. We refer particularly to expressions of hostility voiced against project technicians, many of whom were born in Europe and Asia. We point out to you that strained relationships existing between our nation and others do not constitute proof that an unfriendly nation is involved. The "Black Planet," when safely launched, will give this country domination over *all* nations, and it is not only conceivable but probable that a nation friendly to us now would nevertheless seek to destroy the "Black Planet" rather than face the inevitable subjugation which will follow the successful completion of our work. This office will

issue bulletins as facts become known. Information from any other source is to be disregarded.

(*Signed*)
Clyde L. Humphrey

I read this bulletin as the first order of business at the general staff meeting and then we settled down to work. Our original schedule called for technical completion of the "Black Planet" by the following Monday. At that time it was to be turned over to Aaron Matthews and his crew, who were to spend five weeks on it, finishing their training and testing all procedures and devices which could be tested on the ground. The crew, however, was already well trained and, in the emergency, could forgo the extra five weeks. It was up to the scientific staff then to compress their remaining work into as few hours as possible. This meant finishing the essentials and letting everything else go.

Edgar Duval announced that he would complete the changes on the ventilating system that day. This was essential and so I dismissed him from the meeting so he could continue supervising his work. The food lockers on the ship were all finished but no food was aboard yet. According to the regular schedule, the full food supply wasn't to go aboard until the end of the crew's final training period, nearly six weeks hence, but now it had to be loaded immediately. A difficulty arose when Bill Cokely, who was responsible for this division, said that at least twelve hours would be needed to bring the ship's lockers down to the proper temperature to preserve the food. This couldn't be helped. We hoped we had the twelve hours, and meanwhile he could be loading the nonperishables. The finishing touches on the ship's interior decorations were ruled out, and I regretfully told Paul Basich he'd have to forgo his preparations for a weather control experiment which he'd wanted the crew of the ship to carry out. At a later date it might be possible to send the material for the experiment up to the space ship by rocket plane. The construction division was already in the process of severing all connections between the ship and the ground, and

estimated that another fourteen hours would see the job finished. Then the ship would be resting on its pedestals, ready to take off.

But the biggest problem was the fuel for the jet engines. This had to be pumped into tanks located in the cone of the ship, and because of the fuel's highly explosive nature it was the last item scheduled to go aboard. According to Osborn, whose department this was, the pumping process would require at least three days. In spite of his statement that he'd no longer work under my direction, Osborn attended the meeting without hesitation. For the moment the common danger made us forget our personal differences to the point where, when I finally talked to Humphrey on the telephone, neither of us referred to our difficulties of the previous night in Tom's laboratory. Needless to say, I hadn't thought of the cave since leaving it and had all but forgotten about the Magellanium.

To list the entire equipage of the "Black Planet" would require the pages of a large book—did require one, in fact—but fortunately the greater part of this was built in as the ship was constructed. It had to be built in because of the two types of motion which the ship was to execute. During its ascent into space, the "Black Planet" would be a gigantic rocket with the gravitational pull directed downward in the opposite direction from its flight. The partitions between the tiers would serve as floors during this period. But once the orbit in outer space was reached and the ship started rotating on its own axis, the floors shifted to the inner surface of the outer circumference and the partitions between the tiers became walls. Everything aboard, therefore, had to be firmly fixed in place in the position it was to occupy after the free flight orbit was reached and all of it had to be in perfect balance. Furniture, tools, books, bombs, and the thousands of instruments each had a fixed place.

The meeting adjourned as soon as everyone had it clear what he was supposed to do. I left the building and accompanied Aaron down to the "Black Planet" itself where I immediately perceived that the difficulties were greater than I supposed. The place was like an anthill which has

been stirred with a stick and where all the ants were attempting to rescue our single huge egg. The elevator system and the hatchways had been designed with the thought in mind that they'd never be used except by people working slowly and with extreme care. But now Duval's crew and Cokely's crew were getting tangled up with each other in the interior while on the outside the men who were severing the "Black Planet's" earthly connections were running afoul of Osborn's crew which was attempting to bring the massive pressure equipment into place beneath the ship. While I was trying to establish some order of priority for the various groups, Osborn came to see me.

His face was pale and beads of perspiration sparkled across his forehead. "Ambert," he said, "I absolutely cannot start my operations while those god-damned electric saws are cutting bolts around the base of the ship! I can't take the risk."

He was telling the truth about this. "Then all you can do is get your work lined up and wait until they finish."

"But didn't you hear what Swanson said at the meeting? Another fourteen hours at least! And then three days more for the fuel. We haven't that much time!"

"We don't know how much time we have," I said, even though I once more felt he might be right. "In any case, there's no other choice. The connections have to be cut first."

He knew this with his mind but his emotions fought against it. He glanced wildly around the horizon as though expecting to see a formation of bombers approaching and then he turned and started back toward his group of associates. His concern did much to destroy the bitterness I felt toward him. I walked after him to tell him so. "No matter what happens," I said, "thanks for the co-operation."

He growled impatiently. "Co-operation, hell—when I can't move for another fourteen hours!"

"Cheer up," I said. "If we get this thing into the sky before the end of the week, it means you're going to be

the director of the Gledshaw Foundation and no questions asked."

The words had the opposite effect from the one I intended. He whirled on me in rage. "Damn you, Ambert!" he cried. "God damn your miserable soul!" And he left me again.

There was no time to waste in wondering what was wrong with him. I put it down to nerves and rejoined Matthews, who, throughout all the excitement, was maintaining a calm which in its way was even stranger than Osborn's rage. It wasn't a forced calm, it was natural, and for an instant the suspicion flickered through my mind that Aaron might actually be relieved if something happened to prevent the ascent of the "Black Planet."

I said to him, "I think it may have been a mistake for our planes to pursue those jets. I doubt if their observations could have been very conclusive, but by chasing them we've told them how important we think this area is."

There was a strange light in his eyes and a touch of amusement in his voice when he replied. "But we'd naturally pursue any foreign plane even if there were nothing at all it could have observed. Don't you see that? It's the nature of the thing." I admitted his opinion on such matters was probably more informed than mine. "And there's no mistake," he went on. "A mistake would imply that we had a choice of action when there isn't any choice."

"Don't be so damned fatalistic. We still have a good chance to pull through."

Again he gave me that peculiar blue-eyed stare. "Sure we do. But it's already in the cards, don't you see? Most battles are won or lost before the shooting ever starts. And I'm not being fatalistic. Just the opposite. It's in the preparation, and we do that for ourselves." He paused, his face saddening. "But we still have to wait for the outcome before we know. That's the biggest riddle there is—time. What is it? Where does it come from? Where does it go? It's the stuff that makes it impossible to answer the questions we'd never think to ask without it. It's the stuff that makes the past look straight and logical even when we

remember that it was crooked and deceptive. It's what makes it possible for us to believe in immutable law and a foreordained future, but I'm sure that's an illusion. Natural law may be only the free will of the gods."

I left him on that one. The tension was having an effect upon everyone.

The first planes appeared in the sky at three o'clock that afternoon and almost created bedlam because in his efforts to issue only essential information to project personnel, Humphrey neglected to tell us that Washington had ordered an air patrol established. We thought at first that the enemy was upon us, but the planes turned out to be ours. So after years of undisturbed skies, we now had dozens of formations droning overhead. They were to continue that way until the end, working in relays day and night so that there was never a moment when the roar of the engines wasn't audible. After the scare caused by their first appearance, we were informed that squadrons of other planes were patrolling land and sea for hundreds of miles around us and that every radar station from Alaska to Hawaii to the Virgin Islands, as well as stations on ships at sea, would be under continuous operation until the "Black Planet" was in space. Instead of being isolated from the world, we were now its hub. At least we were the hub of all military activity in the United States.

This information should have had a quieting influence upon the fears of those on the project who were beginning to feel themselves caught in a death trap. It did no such thing. The vast precautions only emphasized our danger and convinced the few remaining doubters of its reality. The continuous roar of the formations overhead, rising and falling as the planes approached and departed, was particularly nerve-racking after years of silent skies. Whenever planes banked or dived or performed some other maneuver resulting in a sudden increase in sound, everyone who heard it immediately paused in what he was doing to make sure the angry whine didn't presage the arrival of enemy bombers.

Humphrey's office issued several bulletins at close intervals telling everyone that the situation was in hand, that

the efficiency of the military could be trusted, and that our defenses were impregnable. Unfortunately, the personnel of the project, from the lowest-paid workman on up, had met certain standards of education and intelligence as a prerequisite to being there and were only too well aware of how often military efficiency and impregnable defenses had been proved fictitious by the events of history. They remembered what happened to our impregnable base at Pearl Harbor and what happened to Britain's impregnable fortress at Singapore where there wasn't even the excuse of a surprise attack. And as for the efficiency of security measures, doubt was cast on that by the very fact that such measures had failed to safeguard the secret of the project. Furthermore, the military still didn't know who or what was going to attack us, and you can't prepare a wise defense based on ignorance. We on the project, of course, had no means at all to repel an attack. That was in the hands of others. We were the sitting ducks right on the target area.

It was this feeling which prompted a call late in the afternoon from Howard O'Brien, who was chairman of the project welfare committee. He told me that a meeting had been held by representatives of the various social and trade groups and that he'd been requested to ask for the immediate evacuation from the project of all women and children, as well as the employees whose services weren't essential during the launching preparations. I agreed with him that there seemed no more need for strict secrecy and I also felt that the evacuation of all idle persons would lessen the confusion, but I told him it was a matter he'd have to take up with Humphrey. He said he'd already presented Humphrey with a petition. Humphrey had told him that because evacuation would require the use of the project's single rail line and trucks, which might be essential for other purposes, he couldn't consider the petition until it was cleared with my office. I thought it damned queer that Humphrey hadn't called me himself but blamed it on the other responsibilities which were pressing for his attention. I told O'Brien I could do nothing until I'd checked transportation facilities and that in

the meantime he'd better set up a system of priority for evacuees to speed things up when and if evacuation was possible.

Then I called Susan to tell her I wouldn't be home for dinner. Her voice sounded frightened over the telephone so I started giving her assurances concerning our safety which I didn't believe myself.

She said, "No, Philip, that isn't what worries me. It's something more personal. When we returned to the apartment today, Marjorie started talking about how frightened she was last night. I tried to find out what frightened her, and the best I can make out is that while we were gone in the cave, she woke up in her tent and started crying. Apparently Louis slept through it like a log, and poor little Majorie wandered out of her tent and into ours looking for us. When she couldn't find us, she kept on crying until Leo came to see why someone didn't wake up. He quieted her and put her back to bed."

"She's all right, then?"

"Marjorie? Of course. But what I can't understand is why didn't Leo mention this morning that she'd been crying? And if he was in our tent——"

"Yes," I said. "I see what you mean, but it's a small thing to worry about. If anyone asks, just tell them we discovered a cave and were exploring it. I'll see you sometime later tonight." Then as I hung up a crisp voice startled me.

"No, Dr. Ambert, I doubt if you will."

In the doorway stood Colonel Catwell, and advancing past him into my office were two military police.

"You're under arrest," Catwell said quietly.

It was the most absurd thing that had ever happened to me. "Under arrest? Are you nuts? Why am I under arrest?"

"You're charged with treason," said Catwell. "Don't resist." He gestured to the M.P.'s. They advanced upon me, took me firmly by the arms and led me off to the security office. I was sure I must be having a nightmare.

CHAPTER FIFTEEN

A NIGHTMARE IT MIGHT BE but I wasn't asleep. Reality was all around me, even to the reality of General Humphrey's ulcers which were stabbing his insides with such ferocity that he couldn't control the twitching of his face. He didn't enjoy what he was doing and this only increased my own misgivings because it was proof of his sincerity. He was convinced that I was guilty of treason. I sat across the room from him, still flanked by two military police. Near the door, rocking back and forth uneasily from head to foot, stood Elmer Curry. I tried to catch his eye and get some inkling of what I was faced with, but he refused to look at me. His face remained blank and his gaze wandered about the room, always a few feet above my head.

"I don't understand this at all," I said. "Obviously something has happened of which I'm ignorant, and I'd like to get it straightened out as soon as possible."

"Nothing has happened of which you're ignorant," said Humphrey wearily. From his desk he picked up a piece of paper and handed it to me. "Read this." The paper was a section from the teletype machine. The message came from Washington and read as follows: "In view of the seriousness of the present situation and the evidence you have cited, you are instructed to remove Dr. Ambert from his position at once and hold him for examination by Burrock who is leaving here by plane immediately and

will arrive at the project by morning. Pending further instructions, you are authorized and commanded to take full responsibility for the internal security of the project, such authority being hereby extended to cover all departments and personnel. You will take whatever action you deem necessary to safeguard the national interests and the lives of those within the project boundaries." The message was signed by a code name to insure its authenticity.

I read it through twice, still unable to believe what I was reading and still in the dark as to why I was under arrest. Surely my difficulty with Humphrey over the Magellanium couldn't lead to such a consequence as this. Humphrey took the message away from me, dropping it on the far corner of his desk as though my touch had contaminated it.

"Just so you'll know I'm not exceeding my authority," he said. "The project is under martial law."

"That much is clear. Am I to be told the nature of the charge?"

He glanced at me with quiet loathing. "I wouldn't even talk to you otherwise. A man in your position—a man we trusted." He swallowed hard and shook his head. "Just give me a full confession. It might even yet help to offset the effects of your treason."

"Just tell me the details of the charge."

Again the glance of contempt. "You'll be shot, Dr. Ambert. Or hanged or electrocuted. Your only hope for clemency lies in a complete confession—right now."

His sincerity frightened me. It was no time for anger or indignation or trying to bluster. I had to know. "I've done nothing treasonable but I'll answer any questions I can."

"I didn't think I'd have to ask any," he said sharply. "Maybe you want to hear the evidence against you in the hope that we don't have all the facts. Well, we have plenty. You're charged, Dr. Ambert, with being in contact with agents of a foreign nation, with disclosing to those agents the nature and location of the Magellan Project and with concealing from this office your knowledge of an impending attack upon the project!"

The charges were so monstrous that I couldn't grasp them. My breast went cold. His words rang like clanging bells against my ears. I asked him to repeat what he'd said.

"I'm sure I spoke clearly. Do you deny the charges or will you accept them and tell us the whole story?"

"I deny them, of course. There's not the slightest grounds for any of them."

He sighed and motioned Elmer Curry to step forward. "Sergeant Curry, here in Dr. Ambert's presence will you repeat what I told you this morning?"

"Yes, Sir," said Elmer. He still didn't look at me, and what he said was plainly painful to him. "I reported to you, Sir, that at some time between the hours of midnight and five o'clock this morning, Dr. Ambert and his wife were missing from the project."

"And how do you know this?" said Humphrey.

"As reported to you, Sir, I accompanied Dr. Ambert last night to a camp located about six miles from the project center where he and his family planned to spend the night. The camp was well within the project boundaries and approval for spending the night there had been given by your office. I understand that the request was made by Mrs. Ambert and that she explained it by saying the vicinity of the camp was rich in fossil shells which her son wanted to collect. I do know that the boy Louis does collect such things because I've helped him at it in the same location at other times."

"We're not accusing the boy of anything," said Humphrey. "Just tell Dr. Ambert what you told me."

"Yes, Sir. At four-thirty A.M. I heard the Amberts' daughter crying. As you know, the child is only four and was sleeping in the tent with her brother. I was awake at the time, it being my shift to stand guard, and naturally I expected the child's mother to wake up and take care of her daughter. When the child continued to cry for some fifteen minutes, I decided I'd better arouse Mrs. Ambert myself. I don't like to interfere in such matters, but in this case I felt Mrs. Ambert would expect me to. And so I went to the tent she and Dr. Ambert were occupying and found them gone."

I was feeling relieved. "This can be easily explained," I said, but Humphrey abruptly waved me to silence.

"You had a chance to talk a minute ago and refused. Proceed, Sergeant."

Elmer took a deep breath. "They weren't in their tent. The only person in the tent was the child, who had wandered in there in search of her mother. I called them by name and received no reply. Then I returned the child to her bed and woke up Sergeant Roach, The two of us searched the vicinity of the camp and examined the tent occupied by Dr. Ambert. The rear wall of the tent had been slit to form an exit. We could only imagine that they'd been kidnaped in some way and I was on the point of leaving for the project to report their disappearance when we heard and saw them returning. They came out of a crevice in the rocks at the rear of the tent. Mrs. Ambert approached the children's tent, apparently to look in at them, and finding them both asleep, joined her husband.

"Sergeant Roach and I considered asking Dr. Ambert for an explanation, which at the time I was sure he could give. I've been his companion for several years and it was hard to believe he'd do anything treasonable. But then I remembered that once before he'd disappeared for a brief period in this same vicinity, an incident which seemed so trivial at the time that I didn't report it at all. But in view of the second disappearance, the first one became more important. My duty was therefore clear. I must report Dr. Ambert's activities and hope he could supply a harmless explanation. I was still unable to believe it would be otherwise until we felt the shock wave of the alien jet plane. Dr. Ambert returned to the project center at once. I accompanied him and reported my observations to this office." Elmer stopped speaking and clamped his jaws stubbornly.

"Well, Ambert?" said Humphrey.

"His report is correct," I said. "I think I can clear this whole thing up at once. There's a cavern with an entrance in the crevice Elmer mentioned. I discovered this entrance a few days ago and last night took the opportunity of ex-

ploring it. It turned out to be much larger than I expected, and when the present crisis subsides, I'll show you where it is. Our expedition was purely a pleasure jaunt. In view of what's happened since, I'll admit I chose an unfortunate time and I'm sorry the incident has caused suspicion, but you merely have to examine the crevice in back of the tent to find out I'm telling the truth. I also want to thank Elmer for taking care of Marjorie while we were gone. With two men and our son nearby, we didn't anticipate any trouble. So if that's settled, I'll leave you and get back to work." I started to get up but the M.P.'s beside me put hands on my shoulders and shoved me back into my seat. Humphrey pressed a hand against his abdomen and winced.

"You needn't show us the cavern," he said. "A detachment of men has had all day to explore it."

"Well then?"

He brought the flat of his hand down on his desk, leaning toward me angrily. "You won't admit anything until you're confronted with the evidence! All right. This is what the detachment found: A rope ladder by which you reached the floor of the cave, lanterns at the base of the ladder, and a guiding line of cord, leading for almost a mile to an underground lake. Even if Sergeant Curry hadn't noted your prior disappearance in the vicinity, the extent of your preparations prove that you had previous knowledge of the cavern—a knowledge which you failed to disclose to anyone on the project!"

"I told you I found the cavern only a few days ago and entered it for the first time last night. I intended to tell Ralph Samson about it today. He makes a hobby of caves —but with all the excitement and other matters to worry about, I naturally didn't think of it and wouldn't have wasted time on so trivial a thing if I had."

"Trivial, Dr. Ambert? Is it trivial when the director of a top-secret project leaves that project without the knowledge of its security officer and in absolute violation of regulations? Is it trivial when his violation is followed by the observation flight of an alien plane over the project —followed so immediately that a causal connection be-

tween your act and the presence of the plane is an inevitable conclusion?"

"The conclusion isn't inevitable at all! I didn't leave the project; I explored a hole in the ground. If there'd been a thunderstorm afterwards, would you say my presence in the cave had caused that too?"

He spoke with quiet contempt. "I'm not arguing with you, Ambert. But I'm expecting you to tell the truth."

"I've told it. The entire truth. If your men followed the twine I laid down as a guide, they reached an underground lake. That's as far as I went, and if you're under the impression that I met with enemy agents down there, you're mistaken. I'm convinced that we were the first humans ever to enter that cave."

"You may well have been," he said dryly. "And you kept the secret well until today. That you needed a twine to guide you as far as the lake is certain, but from there on no guide is necessary. As you know, the stream running out of the lake has carved a level bed for itself and runs almost due west, emptying into the ocean at water level. The exit is a tidal cave which is completely concealed at high tide but which has four feet clearance at low tide. Low tide occurred at 3:27 A.M. which is about the time you were there. Some four hours later three jet planes passed over the project. Fortunately the pilot was so careless that he caused a sonic blast or the presence of the planes might never have been detected. We'd have been here helpless, unaware of the danger. That blast must have frightened you too, Ambert—coming when it did. No wonder you rushed back to the project and tried to look worried. Have I made myself clear? The cavern which you admit having discovered is a direct passage to the outside world. You and your wife are the only persons known to have traversed it. You are the only man who has left the project since the beginning. I have only your worthless word that says you haven't been in the cave many times. Only someone from within the project could have given information as to its location and purpose. How much evidence do you think I need? You discovered the

way, hid your secret, stole forth unobserved and betrayed us."

I was thunderstruck at his words. The cavern had an exit beyond the project boundaries! Ever since the beginning that exit had been there. All during the years of infinite precautions while we thought ourselves utterly isolated from the outside world, there'd been an open door leading straight to the heart of the place. I'd discovered the inside entrance. Wasn't it conceivable, then, that someone else might have found the other end—the tidal cave Humphrey mentioned where the underground lake emptied into the ocean? That end might have been much easier to find. The dust and guano on the floor of the bat chamber appeared undisturbed when Susan and I crossed it, but we hadn't made any real search for evidence of other passages. We had, however, left evidence of our own, and the hard fact was that in some way the location of the project had become known beyond its borders. My position was a grave one.

"You still won't tell the whole thing?" said Humphrey.

My lips were dry. "There's nothing to tell. I entered the cavern for the first time last night and went as far as the lake. My wife will confirm this. I had no knowledge of the direction we were travelling and absolutely no idea that the cave had another exit. This is the first I've heard of it, and now you've told me, I understand perfectly why my behavior looks suspicious. You'd be guilty of gross negligence if you didn't grill me thoroughly. But I've told you the truth."

"You're not telling the truth! I want the details—all of them! I want to know who the agents were, where they came from, how you contacted them and what information you gave them. I want the whole story!"

"There is no story! Why should I do such a thing? For what conceivable reason would I betray my country, myself, my family, all my friends?"

"When the evidence of your act itself is clear, it's not necessary to find your motive. What motivates any traitor? They all seem insane to me. But this all fits in with your behavior yesterday when you refused to come to my

office at my request, when you dismissed the charges brought against you by Dr. Osborn, and when you refused to let me examine that stuff you and Hernandez claim to have found. That was all a smoke screen. I'm of the opinion that Osborn is right—that you've wasted or embezzled project funds and want to conceal it. You're afraid of exposure and prefer betrayal of your country to personal disgrace."

A whirlpool of panic was churning my stomach. The behavior of most men is so ambiguous that the same circumstance which will exonerate a man believed to be innocent can hang him if he's considered guilty. And I was considered guilty. And Susan! Even so small a thing as leaving Marjorie under the care of a son and two stalwart men—adequate baby sitters by most standards—now seemed to point us out as unnatural parents as well as criminals.

I took a deep breath, wondering if even sufficient time would prove my innocence. But would there be time? If the "Black Planet" was launched before being destroyed on the ground, it would be claimed the success was in spite of my treason; if the launching failed, I would become the scapegoat for failure. And how maddeningly ridiculous was the cause of the situation! A pleasure jaunt! No wonder Humphrey's lips curled with contempt when I used that phrase. It must have sounded to him like the most brazen impudence and disregard for the public welfare. I turned to Elmer.

I said, "I haven't denied a word of your report but I think it would help if you'd tell General Humphrey a few more facts. Has there been any period since you were assigned to me as guard when you've been unaware of my whereabouts—other than the two periods already mentioned?"

"No, Sir," he said, using the "Sir" out of habit. "Not to my knowledge. But it's plain you knew where the cavern was before you went there. We used to ride out that way pretty often. You made your preparations in advance."

"That's correct. And do you remember a few days ago

when we went for an afternoon ride and my son Louis killed a bat?"

"I do. I was with him when he killed it."

"All right. It was that bat which led to discovery of the cavern. When I examined it I discovered particles of clay on its fur which made me think it might have come from a cave. It was evening. Do you remember that I delayed our return?"

"I remember it was after sundown when we got back."

"Fine. Bats come out of their resting places in the evening and I wanted to see where they were coming from. I succeeded, found the entrance to the cave and saw that I couldn't get into it without a ladder of some kind. I told my wife about it and we decided to explore it ourselves before mentioning it to anyone. Under the circumstances our reason for keeping it a secret sounds suspect in itself—the fact that we wanted to be alone for an hour or two—but that is the reason. Naturally, I wish I'd mentioned the place when I first found it."

"Naturally," said Humphrey bitterly. "Your bat doesn't change the circumstances a bit. It's nothing but a glib effort to prove you only discovered the cavern recently. It's just as likely that when you saw the bats fly out, you knew someone must be there waiting for you. You wouldn't have to go in the cave yourself; you could leave your messages in the crevice. So all I'm sure of is that you had the means to get outside the project, that you've availed yourself of the means and that the entire project is now in grave danger as a result. Your one chance of saving yourself is to tell me the source of the danger while there's still time to avert it. That's all I'm interested in."

I made one more try. "General Humphrey—suppose for a moment that your suspicions are correct and that I actually wanted to betray the project. Why would I use such complicated means when my position as director gives me all the opportunity necessary for sabotage? And why would I work night and day in an effort to bring the "Black Planet" to completion if I wanted to destroy it? It there anything treasonable in the work I've done since

morning trying to get the ship launched weeks ahead of time?"

"I don't know," he said shortly. "I certainly intend to find out. And if you want to know why you were permitted to continue with your work today, it was because I couldn't believe you a traitor any more than Sergeant Curry could. I was mistaken. I realized it two hours ago when the detachment returned from the cave with the evidence of your presence there. I called Washington and explained the circumstances, and you've seen their reply. They take the matter as seriously as I do. So you can talk to me or wait for Burrock, but you're only putting your head in a noose by delay."

"Since I have nothing to say, I'll have to wait for Burrock and tell him the same. May I ask how you intend to operate the project in the meantime?"

"You may not ask a damned thing."

"I haven't questioned your authority," I said, "but if you or anyone else changes the orders I've given for the completion of the 'Black Planet,' you'll be doing the country a far worse service than any you attribute to me."

"Your advice is unwanted and will be disregarded. Your plans will get a thorough examination to find out if they involve sabotage."

"Look, Humphrey, if you act upon the assumption that I'm already guilty of treason, then you can be certain someone will find something wrong with my plans too. No one can accept my work if he can't accept me, and I've made plenty of decisions which weren't approved by my entire staff."

"Are you confessing that your plans include procedures to delay the launching or wreck the ship?"

"No! I'm saying that if you change anything now, you'll be in a hell of a mess. For God's sake, at least believe that! Lock me up or anything else you think necessary but don't destroy five years of work when we're on the verge of success!"

"I wish your concern were real," he said. "Any other confessions to make?"

It looked hopeless. Everything I said only made matters

worse; any request only aroused suspicion in a new quarter.

"I have nothing to confess. I suppose you're locking me up. Will someone tell my wife, or is she to be locked up too?"

"Your wife will be advised. In the meantime she'll be confined to her apartment under guard. Anytime you change your mind and decide to talk, I'll listen." He got up and stalked out of the room, followed by Elmer Curry. The military police hauled me to my feet and marched me off to confinement.

CHAPTER SIXTEEN

THE PROJECT HAD TWO JAILS, one for civilians and one for military personnel. Neither had ever seen much use. Occasionally a man drank too much and disturbed the peace, and there'd been a few fights which necessitated locking someone up overnight, but in general the project had been free of crime. Because the project was now under martial law, I was placed in the military jail, a square box of a structure with concrete floors, plastered walls, and a stucco interior. The prisoners' wing contained eight cells, all of them empty until I arrived. The guards locked me up and departed, leaving me to brood over my predicament.

The most galling thing about the situation was the sensation of blindness it gave me. For years I'd been at the heart of the project, aware of every development. Now at the most critical moment, when work was progressing faster than ever before, I was cut off from all observation. I didn't know who was in charge or whether my own orders were being carried out. Almost certainly they wouldn't be. Suspicion of me would change to suspicion of my work so that changes would be made on the supposition that my plans were calculated to misguide the launching, even though no miscalculations could be found. I was likewise ignorant of national and international developments. I didn't know whether the identity of the

foreign nation had been determined or what further precautions were being taken. I knew nothing.

But I can't claim that my concern was entirely over the fate of the project. Now that I had time to think about it, I began to feel horribly mistreated. My mind was still capable of telling me that Humphrey had no choice but to lock me up, but my heart and emotions refused to accept this. I found myself thinking of him as a thick-skulled, bull-necked, stupid, blundering idiot—a creature with a mentality warped by military regulations until he was incapable of thinking for himself. My thoughts were singularly similar to ones expressed by Osborn on this same subject. This realization had a shaming effect and I tried to consider my position less bombastically.

Not only was the situation bad at the moment but it was becoming progressively more dangerous by the minute. From now on I was the logical scapegoat to blame for anything that went wrong with the launching, and I'm not being immodest when I say that the possibility of things going wrong was increased tenfold by my removal from the directorship and by the suspicion in which I was held. People had already been electrocuted for the crime of which I was accused, and the failure of the "Black Planet" would be sufficient proof of my guilt even if the evidence already against me wasn't enough. And what of Susan? Was she in the same danger? What of all my close friends? Would suspicion attach itself to them also?

No, my worries weren't of the noble type which should have placed the welfare of our enterprise above all other considerations. Now that the chips were down, I discovered that I valued my own life and the life of my loved ones above anything else in the world—at least I could see nothing worthy in losing my life as a result of false accusation. Without ever having been a traitor before, I might have become one now if by so doing I could have guaranteed the safety of Susan and my children. How quickly the prick of reality routs those idealistic maxims by which we live! Does the badge of purity embellish a virtue or merely conceal a dearth of temptation? Is the mask of evil a reflection of the heart or of the world? In my

present state of anxiety I was forced to confess that my untarnished record of honesty was a negative consequence of never having been given sufficient reason to be dishonest. Accusation of the innocent produces more enemies than it convicts. In short, I was angry, and I thank God that circumstances prevented my weakness from bringing injury to anyone else.

I spent a lonely two hours in my cell before the gate at the end of the corridor was unlocked and I saw Susan approaching in the company of a guard. She was left in front of my cell while the guard retired to let us talk. I know now what I suspected then—that I was allowed to talk so freely to those who called on me because every word of the conversation was being transmitted to the security office. To this I had no objection.

Susan was close to nervous exhaustion when she came in, and for several seconds did nothing except cling to my hands through the bars. Gradually she was able to speak and I learned that she'd been told nothing of why she was being confined to the apartment or what had happened to me. If it was a method used in the hope of making her talk, it was a cruel one, for she had nothing to say.

I explained to her what had occurred and recounted the entire episode of my interrogation by Humphrey.

"I knew it," she said when I finished. "I knew something was wrong this afternoon when I learned Marjorie had been crying and that no one had mentioned it to me."

"How are the children taking it?"

"All right. They know something is wrong but so far they don't know it's serious."

"You haven't mentioned to Louis about Marjorie crying last night?"

"No, and I won't. He'd feel guilty the rest of his life for something that's not his fault. I let him sit up too long by the campfire. And we did no harm. That's what's so terrible about it. We did no harm at all!"

"However, harm has been done. Have you talked to anyone at all—even by telephone?"

"No one. The connection is shut off. But I'm sure sev-

eral people must have tried to call me. They always do about this time of day."

"And people have undoubtedly tried to reach me too—by the dozens. Which means our imprisonment can't be a secret. I suppose this man Burrock will be here by morning and I can only hope he's reasonable. Until then you'd better get some rest. You need it."

"Rest!" she said. "I doubt if I ever sleep again."

But I felt better for having seen her, and she left in a calmer state than when she entered. Anyone listening in on our conversation would have heard nothing pointing to my guilt but neither did anything we said prove our innocence.

I was alone for another ten or fifteen minutes, pacing my cell, and listening to the motors of the planes above. Then I heard Aaron Matthews' voice coming from the office of the jail. He was talking to Humphrey by telephone and was throwing his weight around in a manner I'd never heard him use before. His tones were sharp and clear, perhaps in the hope that I'd hear him.

"I don't give a damn what the evidence is, Humphrey. I don't believe it! And what's more I've got to talk to him. I'm not going to take advice from Osborn while Ambert's still on the project and able to talk. What? Look, I know that ship from top to bottom and I'm quite capable of deciding for myself what to accept or reject. If I can't see Ambert, I'll be my own expert, and if you prevent my seeing him, I'll raise a stink from here to Jupiter! All right. Tell the guard that." He apparently gave the telephone to the officer in the jail. I heard a low mumbling and then a few seconds later the office door opened and Aaron walked down the corridor toward me, his face still flushed with anger, his jacket sagging oddly from his shoulders as though the pockets were full of lead.

"What the devil kind of a mess have you walked into, Ambert? Couldn't you keep your nose clean at a time like this?"

"Did I hear you say that Osborn has been made director?"

"Pro tem—and not full pro tem at that. As long as he's

responsible for the mechanical end of the launching. Humphrey made him chairman to keep things going, but actually we're trying to work things out in committees. Everything's snafu, not because we don't know what to do but because everyone's so upset about your being accused of treason. If it makes you feel better, ninety per cent of the people refuse to believe it. How in hell did you get into this jam?"

"I'm not going over it again. If ninety per cent think I'm innocent, that's enough."

"That still doesn't get you out of here. Duval was so mad he was threatening to call his crew off the ship unless you were released, but I persuaded him that you were the last man on earth to want a strike at this point, no matter what the reason." As Aaron talked, he moved close to the bars and from the sagging pockets of his uniform pulled several small flat steel boxes, five in all, which he passed through the bars to me, frowning to warn me not to mention them aloud. The moment my hand closed on the first one, I knew what it contained. The box weighed about ten times as much as any box that size ought to weigh. I almost dropped it. "The only person except your wife having trouble on your account is Hernandez," he said. "He isn't locked up but he's being watched every minute and is worried sick he'll have to close his experiment down."

"Close it down!" I glanced at the boxes.

"But he's already had partial success. At least that's what he told me." Aaron drew a folded sheet of paper from his pocket and thrust it through to me, still talking. "He believes that suspicion first fastened on you because of what happened in his laboratory last night, and he thinks that if you're able to prove to Humphrey that you were telling the truth then, it might convince him you're still telling the truth."

A glance at the paper showed it was a note from Hernandez. I put it in my pocket to read after Aaron was gone. "What else is happening?"

"As you can hear," said Matthews, "the project is still guarded by patrol planes. No sight of the enemy yet. A

request for evacuation of women and children has been made by the public welfare committee, and something may come of it. They argue that as long as the secret of the project is out, there's no sense in holding people here unless they're working. Humphrey has relayed the request to Washington and meanwhile he's trying to locate a few extra trains in case the request for evacuation is approved.

"Does anyone know yet where those observation planes came from?"

"No. And I'm beginning to think we never will know. It was cleverly done. I couldn't understand why any nation would send an observation plane in here at all. If they knew that much, why not send a bomber to begin with?"

"And what's the answer?"

"To get pictures for use at the United Nations. One nation might not be willing to risk war, but this can put the whole world in league against us."

"You mean it's been done? They're talking about it at United Nations headquarters?"

"Rumors, lot of them, and no way of knowing where they come from. I think that's the only reason we haven't been attacked, but it only means the attack will be worse when and if it comes."

"Hasn't anything pleasant happened?"

"Very little. What I want is a word from you to tell to hotheads like Duval and Basich."

"Tell them to shut up and keep working."

"I told them that."

"Then tell them again. If they slow down on my account it will really look like sabotage."

"Anything I can do for you personally?"

"No—yes—tell me again what you said when I last saw you—you were talking about time."

"I said that what seems like blind fate or immutable law to us may be only the free will of the gods."

"Thanks. That's all then."

He went away and I turned to examine the samples of Magellanium he'd brought me and which were his real reason for coming. I'd placed the five steel boxes on the

cot, where they clung curiously together. Pulling Tom's note from my pocket, I read: "Phil—I'm having Aaron smuggle you in five particles of Magellanium that just came out of the vault. They may help to clear you with Humphrey. But be careful with the stuff. The particles have an attraction for each other and when two of them touch, they merge into one like drops of water and there's no way of getting them separated again. Heads up. We'll have you out of there!"

My bitterness had vanished upon learning from Aaron that the faith of my friends was unshaken, and the possession of more Magellanium made me want to summon Humphrey at once and prove to him that at least a part of the charges against me were false. But I remembered how the Magellanium had betrayed us the previous night and decided to take no chances. This time I had to show Humphrey something really convincing.

The five little steel boxes were on the cot where I'd placed them, and when I tried to pick one of them up, I had difficulty pulling it loose from the others. It felt exactly as though each box were a magnet stuck to its neighbors. Carefully I opened one and looked in. Our original sample of Magellanium had been the size of a pea but these samples Tom sent me were no larger than buckshot and couldn't have weighed more than ten or twelve pounds each. I realized that Humphrey would think me insane if I requested his presence to look at such insignificant objects—particularly while he was in a mood to disbelieve anything I said anyway. I had to prepare a dramatic demonstration of some kind—a presentation that would not only arrest his attention but convince him that Tom had discovered something with remarkable potentialities. It wasn't going to be easy when my laboratory was a cell.

One thing was new, however. Previously we'd had only a single sample of Magellanium and now I had five; previously the single sample had appeared utterly inert in regard to its immediate surroundings but now it was evident that my samples were not inert in relationship *to each other*. They attracted each other. But to what degree?

I made certain that the steel boxes themselves weren't

magnetized, by testing them on the iron frame of my cot. This metal had no influence upon either the box or the grain of Magellanium inside it. I then placed two boxes on the concrete floor about six inches apart and watched. The result was uncanny. No sooner did I take my hands from the boxes, than they moved toward each other. Their speed was much faster than that of the lead casket in the laboratory. When they came together, they stopped. I lifted the lids carefully and looked in. The bits of Magellanium were as close to each other as the intervening sides of the boxes permitted, each sample pressed tightly against the side of the box as though they were striving to penetrate the steel and reach each other.

I tried the experiment again, starting the two boxes from a foot apart. Again they came together. I estimated a distance of two feet and tried again. The same result. The force of the attraction seemed to be unaffected by distance. I had dramatic proof of this when the other three boxes which I'd left on the cot suddenly fell to the floor where all five came together in a group. For a moment I was terror-stricken lest the fall had jarred the box lids loose, but all the samples were still safe. The grouping gave me another idea. Arranging four of the boxes in a row, I put my foot on them to hold them in place, then scooted the fifth box across the floor toward the opposite wall about twelve feet away. It was as though a strand of strong elastic were attached to the box. It slid away some six or eight feet, slowed, and then came snapping back. The distance was such that it gathered momentum on the return and struck the boxes beneath my foot forcibly. When I peered into it, I discovered that the grain of Magellanium had made a deep dent in the side of the box. When the box stopped upon striking the others, the momentum of the Magellanium had almost carried it through the steel wall. With a little greater momentum, it would do so. This showed me also that the speed wasn't constant; there was a definite rate of acceleration. How great, I couldn't determine in my cell.

I needed some kind of measuring rod, however, and proceeded to get one by breaking a round out of the chair,

which except for the cot, was the only item of furniture in the room. This gave me a stout stick some twenty inches long. Pulling a thread from the blanket, I used it to determine the center of the stick and from this I was able to mark off quarters, eighths and sixteenths, scoring the varnished wood with my thumb nail to mark the divisions. A crude instrument, I'll confess, but I had nothing better.

I then placed my stick on the floor with the mid-point against the iron leg of the cot. Four of the Magellanium samples I placed at the opposite end of the cell, piling the cot mattress on top of them to hold the boxes in place and keep them from joining the fifth box which I carried back to my measuring rod. This box tried very hard to join the others but I could prevent its doing so by laying it on the floor behind the measuring stick while I held on to the other end of the stick to keep the box from shoving it aside. Between my hand and the box, the leg of the cot acted as a fulcrum and gave me leverage to hold the box in place.

As you see, I had constructed a simple horizontal balance, and next it was necessary only to find a weight other than my hand to use in determining the strength of the attractive force. My poverty of instruments was such that I finally used my shoe. I took it off and set it on the floor against one end of the stick. The box containing the Magellanium was at the other end on the same side of the stick and the cot leg halfway between the two but on the opposite side of the stick. As the Magellanium pressed forward, the stick would pivot against the cot leg and force the shoe to move in the opposite direction.

My object was to discover just how strong the moving force of the Magellanium was. This I could do by applying the simple rules of the lever. When my cot leg—the fulcrum—was placed midway along my lever—the chair round—the Magellanium moved the shoe easily. So I continued to shift the lever along the fulcrum, giving the shoe greater and greater leverage until the shoe finally balanced the force of the Magellanium at a point where three-fourths of the lever was on the side of the shoe. The force with which this particular bit of Magellanium was attract-

ed toward the others was, therefore, three times the inertial weight of the shoe.

With this much achieved I verified what Tom told me in his note, even though it reduced my number of samples. I opened two of the boxes and dumped the contents of one into the other. The tiny spheres of Magellanium merged with a speed that almost cost me the observation. They met—and then there was one! Just as two drops of water or two drops of mercury will meet and merge, so had these two bits of Magellanium. What remained was a single sphere larger than the others. It had doubled in weight as well as in size.

The other box was empty now and I could more accurately judge its weight as something under a pound. I learned later that the boxes weighed fourteen ounces. They originally contained prisms and came from the Belfast Optical Company in Milwaukee.

With the doubled sphere of Magellanium I returned to my lever to find out if the force of attraction had also doubled—as it should if Magellanium obeyed a law similar to those governing gravitation and magnetism. I expected its force to be now six times the inertial force of the shoe. I was wrong. The force of the Magellanium was now *nine* times the weight of the shoe. In short, by doubling its mass I had squared the force of attraction. Crude as my measurements were, I had to believe this because it explained why our original sample of Magellanium, larger than any now in my possession, had been able to move a lead casket five times its weight, whereas these tiny specimens balked at moving a weight equal to themselves. But if I should increase their mass a hundredfold, the attractive force between them would be increased by ten thousand!

I called for a guard and told him I wanted to see Humphrey. To talk? he wanted to know. Yes, damn it, to talk. But I didn't tell him what I wanted to talk about. So absorbed had I been in my observations that I'd failed to notice the passage of time but now I saw that it was night. The bare pane beyond the bars of the window was black. I stood on the broken chair and tried to look out but from this angle all I could see was a part of the security

section and the outline of broken hills beyond. According to my watch it was nine-thirty. I'd been locked up five hours. Meanwhile the drone of planes overhead filled the night with such a monotony of sound that my ears did tricks with it, refusing at times to hear it at all and then hearing it with redoubled sensitivity so that the sound seemed to fall like thunder and threaten to crush the project buildings beneath it.

I waited impatiently even though it couldn't have been more than five minutes after my request when Humphrey appeared. With him were Colonel Catwell and Major Griffin, his aides of the night before. Even in the five hours since I'd last seen him, Humphrey seemed to have aged. The sacks beneath his eyes were deeper, his shoulders drooped unnaturally and his lips twitched nervously when he spoke. The three men stopped outside the door of the cell.

"I understand you have something to tell me," said Humphrey. "Let's have it."

"You'll have to come into the cell. I don't like talking through bars." At this request the three men glanced at each other. Then Humphrey shrugged and motioned the guard to unlock the cell so they could enter. They came in and the guard locked the door again.

"Now," said Humphrey. He and the Colonel stood stolidly waiting while Griffin pulled a pad and pencil from his pocket and prepared to take down a confession. It was better for the moment to let them think I had something to confess. At least they'd listen. Otherwise they might walk off in disgust before I had time to make my point. So I said, "As I understand it, General, you first became suspicious of me last night when I refused to come to your office and when I was unable to show you the Magellanium which I'd asked you to examine."

"When you refused to show it to me to avoid exposure," he corrected sourly.

"Have it that way. I want to give you a full explanation about the Magellanium first. I'll talk about the other charges later."

"I'm listening. Go ahead."

My four little steel boxes were under the mattress on the floor. I crossed the cell and lifted the mattress aside so that the three men could see them. "This time I'm going to show you." Without explaining what I intended to do—hoping that the sight of those moving boxes would be sufficient in itself to arrest their attention—I knelt to pull the boxes apart, intending to release them and let Humphrey watch them move together again of their own accord. I'd forgotten that I was an accused criminal whose every movement could arouse suspicion. Scarcely had I reached out my hands when Catwell and the Major were beside me gripping my arms. They dragged me back.

"What's he got here?" snapped Catwell. "Something's been smuggled in to him. I wouldn't touch them, General. They may be bombs."

My plans were completely shattered. Angrily I tried to shake off their arms, more exasperated by their suspicion than by the physical restraint. "Would I stick my face over a nest of bombs? I'm trying to show you something!"

"I can see that," said Humphrey. "What is it?"

"If you'll only let me demonstrate—"

"Demonstrate what? If you have something to say, say it! And stop trying to get your hands on those boxes. What's in them?"

"Magellanium," I said wearily. "I'm trying to show you some samples of Magellanium from the laboratory. Will you let me prove to you that the stuff exists?"

"Why hide it?"

"I wasn't hiding anything! It's there to look at."

The Colonel and the Major still held me while Humphrey studied the situation quietly. The guard in the hall outside unlocked the cell door again. Humphrey's sad eyes turned from me to the boxes and back again and I could almost read the questions in his mind. Was I tricking him in some way? Why were the boxes under the mattress? Did they contain explosives? Would they explode if anyone moved them? Was I such a fanatic that I'd give my own life to end his?

I could have told him that the boxes were under the

mattress to keep them from moving about, but unless he saw them move, such an explanation was worse than nothing. He took his time thinking things over and then turned to the guard in the corridor. "We'll move him into another cell, and then I'll get a detonation man in here to examine those things on the floor before anyone touches them. Just leave them where they are for the time being."

Nothing is so infuriating as the inability to make yourself understood. I don't recall precisely what I said but it was the strongest language I'd used on anyone since the project started. I ended up by accusing him of refusing to examine the evidence.

Humphrey's expression didn't change during my tirade. He said, "Don't worry, we'll examine the evidence all right—when I know it's safe to do so." The cell door opened and the two men started leading me out—away from the Magellanium. And God only knows what a detonation man would do with it. Then, as though to make up for its betrayal of the night before, the stuff came to my rescue. The four boxes were lying quietly on the floor, pressed tightly together by the attractive force of the Magellanium inside. As a group it was inert, but now all four boxes began moving in a unit. They started sliding across the floor in a southeasterly direction toward the blank wall of the cell.

At this sight Humphrey, his aides and the guard all stopped in astonishment and in what I suppose was considerable alarm. For an instant they stared, and then Humphrey barked, "Get out of here! He's already set them off!"

It's incredible how a single idea can so dominate the mind that every incident, no matter how remote the association, can feed it. The men actually believed that the motion was the signal for some sort of explosion even though none of them had ever seen a bomb which exhibited similar characteristics. In their hurry to leave the cell, Catwell and Griffin loosened their grip on my arms and I was able to wrench myself free in the corridor. I immediately leaped back into the cell and slammed the door behind me. In a near panic the four men continued several paces

down the corridor before Humphrey took stern control of himself and stopped.

"There's no danger," I said. "None at all."

My presence in the cell with the boxes gave weight to my words. The others paused also and Catwell took out his service revolver. He looked at Humphrey for orders.

"Put it away," said Humphrey brusquely. He was looking a little sheepish as he walked back to the cell and peered through the bars at the boxes. "All right. Tell me about it. What are they?"

As I crossed the cell to retrieve the Magellanium, I noticed that the direction of its path was the same as that originally taken by the lead casket in Tom's laboratory. The steel boxes moved much faster than the casket, however, and it was only my imagination that made me think they had travelled in a curve. All four of them had stopped against the wall and were hugging it tightly. And I remembered also that it was at approximately this same time the night before that our sample of Magellanium had disappeared. I got a box in each hand and with an effort carried them back to the cell door.

"Sorry I invited you in," I told Humphrey. "If you stay out there, you'll interfere less with what I want to show you. Take this in your hand." Gingerly he let me place one of the boxes in the hand he thrust through the bars. Just as I feared, the unexpected weight made him drop it, but the box didn't fall straight to the floor. Instead it slid through the air at a long angle as though it had been thrown, striking the wall near where the others were lying.

After that there was no further need to ask the men to watch and listen. When a steel box breaks the law of falling bodies in so spectacular a way, a request for attention is unnecessary.

I brought the box back again, conscious, that the pull toward the southeast was getting stronger. Close beside the cell door I lowered the two boxes to the floor and asked the men to bend close so they could see what I was doing. They did so. I opened the lids and let them peer in, explaining that the important things to see were the

tiny beads of matter in the otherwise empty boxes. Then I tilted the open boxes toward each other, keeping one of them against the direction of the Magellanium's pull to prevent its contents from escaping. The men watched silently as the little ball of Magellanium seemed to move of its own accord up the side of the tilted box, over the lip and into the other box, where the two beads flew at each other and merged into one. No one spoke but for the first time Humphrey's eyes were thoughtful instead of hostile.

I had reduced my samples to three and now I determined to reduce them still more. What was evident to me, if not to the others, was that some external force was now acting upon the Magellanium, a force which had come into play after Humphrey arrived. I stood up with the box containing the enlarged sphere of Magellanium in my hand.

"Watch closely," I said to Humphrey. "This is something I've never seen myself, and I can't guarantee the result, but I believe I'm going to show you what happened to the sample of Magellanium we wanted to show you last night." The pull of the Magellanium was powerful as I tilted the box toward the southeast wall. The weight was still there but the weight was no longer directed downward. It didn't take much of a tilt. The little sphere started rolling up the side of the box as soon as the angle became less than ninety degrees to the direction of its attraction. Then in the instant that it cleared the edge of the box, it was gone. For an inch, perhaps, it was visible, and then the speed was too great to see it. We heard only the *snick* as it struck the wall and saw only a flake of plaster fall to the floor to indicate where it had vanished. But in that instant I had leaped across the room and placed my eye against the hole in the wall, cupping my hands around it to shut out the light of the cell. It was a true direction this time—east by southeast. And I saw it —the destination!

You have seen it too. Virtually every man and woman on earth has seen it. Any clear winter night will do.

For only an instant the object in the sky was visible

and then I could see it no more. The earth turns, and the hole through which I was peering was a foot long and no more than a sixteenth of an inch in diameter. Of the heavens it let me see no more than a second of arc at a time and the second had passed. I saw in this the means of proof for the theory that had leaped to my mind. I still possessed my original enlarged sphere of Magellanium and now, despite the fact that I was exhausting my supply, I opened the lid of this box, tilted it, and let the second sphere go. Again the bulletlike departure at the low upward inclination, then the faint *snick* as it passed through the wall and a second hole near the first. I was there sooner this time and once more peered through the thin aperture into the night. And again for an instant it was there. Then I was sure. Then I knew. Regardless of the turning earth, the released Magellanium always headed for a certain star in the sky. That star had risen above the eastern horizon not more than fifteen minutes earlier and still hung low in the southeast, but there was no mistaking the cold brilliance of Sirius, the Dog Star. I knew then how Archimedes felt when he leaped from his bath crying "Eureka!"

CHAPTER SEVENTEEN

I SAID THAT the Magellanium was moving toward Sirius, drifting at an unknown speed across those billions of miles toward a star close to nine light years distant. The implications of this statement are misleading unless you're familiar with the peculiarities of the Dog Star, which is not the single blazing point of light it appears to be, but is actually a double star, of which thousands are known to exist in the universe. But the duality of Sirius is unique. It is composed of the star we see with our eyes and of another star so faint in comparison with the visible giant that only the most powerful telescopes can reveal its presence and then only when its position is most favorable. It was not the telescope, however, which first discovered this companion star; its presence was deduced because of certain perturbations in the orbit of the visible star—perturbations which could be explained only by the existence in the near proximity of some unseen mass with a high gravitational attraction. A search for such a mass was then instituted by astronomers and resulted in the discovery by Alvan Clark in 1862 of the faint companion.

For years this companion star was the riddle of the heavens. The visible Sirius has some two and one-half times the mass of our sun and gives out twenty-eight times as much light. But calculations based upon the luminosity of the companion indicated that its size couldn't be much greater than that of the earth. For such a relatively small body to affect the orbit of Sirius to the degree known from observation seemed impossible, and it was

assumed the calculations regarding the size of the companion were erroneous until spectroscopic studies made by Adams in 1914 and again ten years later confirmed original results. The almost unbelievable conclusion resulting from these studies was that a mass almost equivalent to that of the sun was squeezed into a volume only slightly larger than the earth. If you increased the mass of the earth 200,000 times without increasing its size, you'd have a body similar to this faint companion of Sirius. It's known as a white dwarf star. Its density is some 61,000 times that of water and a sample of it upon earth would weigh close to a ton per cubic inch. For years men have speculated upon the characteristics of matter at such enormous density. Now abruptly many of these characteristics were revealed to me by the realization that Magellanium was nothing more nor less than ordinary matter, stripped of its electrons by positron bombardment and compressed into the same state as the matter which composes the white dwarf of Sirius.

It was the white dwarf, not the visible component, toward which the Magellanium was being drawn, and the fact of this affinity of Magellanium for that distant star was proof enough of the direct relationship between the two. Magellanium was attracted only by Magellanium. There was more evidence if any was needed. The movement of the casket—how logically that fell into place! During that part of the day when Sirius was below the horizon, the force of attraction pulled the casket downward against the earth and so the casket couldn't move. But as the turning world brought Sirius above the horizon, the bulk of the earth no longer stood between the Magellanium and its distant archetype; then the Magellanium began moving toward the point on the horizon where Sirius was rising. Because the Magellanium had to drag the heavy casket with it, the movement was slow, and meanwhile the earth continued to turn. Sirius continued to rise high in the sky and as the Magellanium attempted to follow the star, its direction gradually shifted from an easterly one to a southeasterly one, then to south, to southwest, and to west as Sirius set. Then the casket

was immobile once more. This was the explanation for the changing weight of the Magellanium. What we had weighed wasn't the strength of the earth's gravitational attraction but the strength of the attraction toward Sirius. As long as the attraction was downward, the weight seemed great. But when Sirius was in the sky and the attraction was correspondingly upward, there was no gravitational weight at all. There was only the inertial mass of the stuff itself trying to reach its master in the sky.

But why hadn't the sample of Magellanium penetrated the side of the lead casket as it did the wall? Because while it was inside the casket, it had no momentum. If you place the point of an arrow against a pasteboard box and shove, you'll find that you move the box. But stand back ten paces and fire the arrow at the box with a bow, and the arrow will go right through it.

I forgot the presence of Humphrey and the other officers, forgot the present danger to the project, forgot even that I was still in jail charged with treason. I realized only that with Magellanium the classic law of gravitation didn't work, that to describe the nature of its force I would have to paraphrase the law of gravitation thus: Every particle of Magellanium in the universe attracts every other particle of Magellanium in the universe with a force unaffected by the distance between them and directly proportionate to the square of the mass.

But except for the samples produced in Tom's laboratory and the white dwarf itself, was there actually any other Magellanium in the universe? There had to be. There were other white dwarf stars in our galaxy and in the far-flung island universes. Were they all rushing toward each other across those incomprehensible interstellar distances? Upon what distant day would they meet? Would the impact of their meeting be sufficient to shatter the stability of their condensed matter and release the atoms from constriction? In such a cosmic explosion whole new universes might be born—perhaps had been, perhaps would be born again.

I set these thoughts down with far more coherence than they occurred to me at the time. They came in a deluge,

emotional rather than rational, suggestions rather than complete ideas, misty forms without precise outlines after which my mind stumbled blindly, filled with the terrifying hope that at any moment the mist would clear and that then—then, in that instant—the ultimate secret of the universe would lie exposed before me.

No such revelation occurred. I was still an imprisoned man, figuratively more than literally, whose view of the universe must always be through the clouded windows of the senses. Yet I sometimes think that our wildest fantasies, being products of minds nurtured by the universe, cannot help but reflect some fragment of universal truth.

Humphrey recalled me to the present. He, the Colonel, and the Major had none of my prior experience with Magellanium and so couldn't be expected to grasp the significance of what they'd seen. But they'd seen enough to understand how the Magellanium might have vanished on the evening before. They were impressed by phenomena which they couldn't comprehend, and they showed in their hesitancy the beginnings of self-doubt. I stepped close to the bars.

"Will you release me now so that I can resume my duties?"

Humphrey rubbed his cheek thoughtfully and didn't answer for several seconds. Then he said, "I can't. You saw my orders. I have to hold you for Burrock."

"How long will that be?"

"He's on his way. Sometime before morning, I think." His eyes widened as though he'd caught himself about to fall into grave error. "But this Magellanium has nothing to do with the other charges!"

"Perhaps not. But you'll admit there was no fraud in Tom's experiment, no deliberate waste of funds and therefore no reason for attempting to hide anything or betray the project to save myself from exposure."

He didn't want to admit anything right then and yet I could see he was of a disposition to believe. His experience in Tom's laboratory on the previous night had prejudiced him against me but the cause of that prejudice was now completely removed. It was bound to change

his attitude toward subsequent events. All the factors of his own self-interest urged him to believe me. He too was a man who wanted to think that his job was well done, and treason from within the project was a black mark on his record, regardless of how efficiently he handled things after discovery of the treason. He shook his head. "You'll stay here until Burrock arrives." Then he added, as though to relieve my worries, "There's been very little change in the schedule you worked out for launching the 'Black Planet.' It's past the point where change is possible. Things are moving along."

"I heard it was a mess."

"Yes, I know you heard that. I listened to your conversation with Matthews. But the difficulties are personal rather than mechanical. You'll stay here until Burrock arrives." He turned and started away, then faced me again with a burst of anger. "If you're lying to me, Ambert, I think I'll kill you!"

He hoped I was telling the truth then. "Wait," I said. "Do one thing for me. There's one bit of Magellanium left. Take it to Dr. Osborn for me and insist that he examine it in the presence of witnesses—preferably in your presence."

"Yes," said Humphrey. "I think I'd like to see that done."

I lifted the box containing the remaining sample of Magellanium. It was a tiny sample, still of buckshot size. Even so it was with difficulty that I tugged it away from that southeast wall and handed it through the bars to Humphrey. He held onto the box this time, even though his expression was apprehensive as he handled it. He put it in the side pocket of his uniform, buttoned the pocket and then clutched the bulge with his hand as he walked off.

I was alone once more but despair had left me. Humphrey was of a disposition to believe, which meant that arguments he'd have rejected before would now carry weight with him. It's little enough men are swayed by facts; the fear or desire comes first and thereafter such facts as appear necessary can be selected to explain and justify the course taken.

I put the cot mattress back in place, stretched out on the hard bed, and in spite of the planes with their message of danger, passed into the most restful sleep I'd had in many a night.

At four o'clock in the morning I was awakened by Burrock who came to my cell accompanied by Humphrey. Burrock had arrived only thirty minutes before and Humphrey, whose worries and ulcers wouldn't let him sleep, insisted that they talk to me at once. The conversation lasted about an hour. Burrock was a short dark man with a flat impersonal face that gave the impression of having been pounded until the skin and lips were abnormally thickened. He was the civilian head of a special branch of the secret service concerned only with the security of federal projects similar to ours. I knew him by reputation but this was the first time I'd met him. As we talked, Humphrey almost played the role of witness in my behalf and so encouraging was this that whereas previously my indignation had made my mind a blank, I was now able to think of dozens of factors in my favor.

The twine, the rope ladder, and the lanterns left in the cave, for example, had been purchased openly at the PX by Susan just the day before. This could be confirmed. Would she have made such careless preparations if our plans were treasonable? And since it was impossible to get into the cave without a ladder of some kind, didn't this likewise show that we hadn't been in it before? And why would the two of us have gone to carry a message to the enemy, thereby multiplying the chances of being apprehended? We'd made no attempt to conceal our wet and muddy clothes after our return. Wouldn't a guilty person have hidden them? I'd even brought small stalactite specimens out of the cave to give to Ralph Samson. Did that look as though I planned to keep the cave a secret? And finally, wasn't the entire supposition of my guilt based upon a single coincidence—the presence of an enemy plane above the project shortly after my emergence from the cave? Was there really time for a plane to arrive if my message went out only a few hours earlier?

And why would an observation plane come at all? Would the enemy need to check the location and purpose of the project if an agent had direct contact with me?

Burrock listened quietly to all this and then spent a long time questioning me about the project itself, the way the different departments functioned, the personnel responsible for these functions, and even about the technological aspects of the space station. It gradually dawned upon me that he'd already decided I was innocent and was concerned now with learning whether or not there was any other way information could have leaked out of the place. A body of men had been continuing the exploration of the cavern and their findings were pointing more and more strongly to what had been my own original belief—that Susan and I were the first people ever to enter it. This was the strongest argument possible in my favor.

Burrock remained impassive throughout the interview and at the end shook my hand and said simply, "You understand, of course, why we had to hold you for questioning. As long as you're innocent, you'd better get back on the job."

"You'll send in a report clearing me of all suspicion?"

"I will. As long as I'm here I'll make a full investigation, but I'm more and more of the belief that the leak in information took place on the outside. That observation plane—it came to verify a report of which the enemy wasn't yet sure. And as you say, why would that be done if the enemy was in direct touch with someone on the project?"

That was the end of the interview. I asked Humphrey if he'd given the Magellanium to Osborn and he said he had. He'd been present when Osborn examined it but Osborn expressed no opinion beyond the request to keep the specimen for further study. But from Osborn this was an admission of intense interest.

So I was free again after having been in custody only twelve hours. They were the most significant twelve hours of my life. Matthews might also have said, "The accidents which befall men are of the free will of the gods."

CHAPTER EIGHTEEN

FROM THE MOMENT OF MY RELEASE from jail to the final hours in the darkness of the night there wasn't an interval when I wasn't talking to someone, listening to someone, or moving from place to place around the project attempting to keep the work flowing smoothly. But all this activity seemed curiously disassociated from its manifest purpose. When an individual is suffering from a high fever, all the unconscious functions of his body are striving to restore him to health even though his lips may be babbling all the while about subjects as remote as the weather in Abyssinia or a sweetheart of his childhood. It was like that with the project except that the disassociation was more a realization of something which had always existed rather than an awareness of anything new. It was as though the "Black Planet" had grown of itself like a plant and that our conscious efforts to create it were effective in the same way that the rain dance of the Hopi Indians is effective in creating rain. As Aaron had remarked, most battles are won or lost before the shooting starts. The outcome is already there but the participants aren't able to see what it is.

My release was without ceremony. I simply walked out of the jail with Humphrey, who said he'd put out a bulletin immediately announcing my restoration as director. He sighed with relief when he said it, seeming to think that by this act he was establishing a state of calm and order once

more. It could do no such thing. The cause of disorder was now beyond the control of anyone on the project. The danger was of an elemental type like an earthquake or a hurricane which couldn't be propitiated by the elevation or sacrifice of a few individuals. Among such elemental forces it's necessary to include man's own intelligence, which has done more than volcanoes and whirlwinds to lay waste regions once fertile and to extinguish other species of life. Awareness of behavior isn't the same as the ability to control it. I'm sure that if given a consciousness, a fire would castigate its own greed while devouring the forest in its path.

Within five minutes after I left the jail I was at the apartment where I was my own herald to announce deliverance. Unlike myself, Susan had spent a sleepless night but her energy revived upon hearing what had happened and we celebrated by lacing our coffee with bourbon instead of cream.

We had hardly finished when Gail arrived, already aware of the news. It was no scene of merriment, however. She was concerned over Susan and the children and wanted them to get places on the first train leaving the project. This was the first I'd heard that plans for evacuation had been approved, and the possibility of Susan's removing herself and the children to safety filled me with a panic urge to send them on their way. But Susan refused even to discuss it after learning that the first train could take only a part of those eligible to leave.

"Philip has to stay until the end and so Louis and Marjorie will have to pay something for being his children. Don't talk about it."

Gail went on talking, of course, and like so many other things said that day, her words bore no relationship to what was happening or going to happen. She herself had no intention of leaving the project even though Tom had given her a release. She was going to stay near Aaron until the whole thing was finished.

"Although I might as well be a million miles away for all the good it does me," she said. "I can't even get a chance

to see him, let alone speak to him. I keep wondering if maybe I haven't already spoken to him for the last time and don't know it. That's why women are such lousy scientists and inventors; they know that wheels and wings and rockets will only take men farther away from them than ever. But how I hate to feel so unimportant! Will you really get the 'Black Planet' launched in time?"

"How can I possibly tell, Gail?"

"But Aaron is so sure! At least he was when I last saw him ages and ages ago. Right now I don't care a fig if something does happen to the ship. It wouldn't be his fault, so he'd have no reason to blame himself. We'd be together —where there's life. But he's full of certainty like a —— well, if he weren't so sane, I'd say like a fanatic. Is there some ace in the hole I don't know about?"

"None I can think of. Work and good luck."

"Aaron isn't counting on luck. It's like a faith, only I'm damned if I'll think of that space ship as a god or idol. And neither does he—but he believes in something—almost as though he's waiting for orders."

I couldn't stand there and discuss Aaron Matthews, particularly since Gail's picture of him was one drawn by a woman in love, who already saw him as a departed hero. It wasn't Aaron who was making a god of the "Black Planet"; it was Gail who was making a god of Aaron. I left for the office.

Have you ever dreamed you were headed for a destination which seemed easy to attain but which somehow eluded you as you advanced? It was like that as I stepped from the apartment onto the familiar project street with Elmer at my side. Overhead the formations of planes still wheeled like noisy birds through the dawn of a November morning. The air was magnificently clear so that the project buildings and the surrounding hills all seemed to be drawn with knifelike precision, and in the valley the "Black Planet" so dwarfed the men and machines moving about its base that it gave the appearance of a lonely monolith. If it should remain there, that's all it would ever be —a monument to man's imagination, a derisive reminder of his failure.

At the intersection where High Street crossed the principal residential thoroughfare I paused to watch a large group of people walk past. They were women with children in tow for the most part although there were a few men among them carrying luggage and babies. They were all headed for the project port of entry where the first evacuation train awaited them. They were refugees but were unlike any refugees usually pictured. All of them were well-dressed and healthy-looking, with many of the children laughing and jeering as they trudged along. Many of the women gave the impression that they were starting off on a holiday, their faces eager as they imagined seeing big cities and new faces again after five years on the project. They'd never have it so good again, I thought. Nor would any of us. We had lived off the fat of the land, secure of our homes and work in an oasis of mental luxury paid for by the millions who were ignorant of whom and what they supported. One well-directed bomb of moderate size could turn it all to nothing. No—it wouldn't be a total loss either. Tom Hernandez had discovered Magellanium.

The thought of this turned me aside at Q Building where I found Tom and Hank Kuka in the laboratory. Tom's eyes were sleepy and his beard was in need of a trim but he smiled cheerfully when he saw me. He was still producing Magellanium. The muffled drone of the planes outside made a curious discord with the hum of his atom smasher.

"I heard you were free," he said. "I was sure you would be. So our Magellanium at least accomplished that." He gestured wearily toward the control panel. "I feel useless, so what else am I to do? My work on the 'Black Planet' is finished. I've checked and rechecked it a dozen times. I could go examine it again but to what purpose? Only to create the impression that I'm busy. So I do this instead. An act of defiance. The scientist at work undisturbed by the sound and the fury. On the other hand, if the place is bombed and the laboratory destroyed, I hope at least to save some samples of Magellanium. Bombs won't hurt that. Did you know that the entire membership of the United

Nations is putting the heat on the U.S.A. to let them in on the nature of the 'Black Planet'?"

"I've been locked up for twelve hours."

"It's the truth. Extraordinary session. How did they find out so quickly? If you ask me, it's a very canny move on the part of our original enemy. The rumor started from nowhere with just enough evidence to give it credence. Then we've confirmed the rumor by all our measures for defense. Instead of this place being secret, it's now the most advertised spot in America. Planes patrolling for hundreds of miles around. Every defense organization alerted from the Coast Guard to the Centerville Fire Department. Nations which yesterday were our most beloved friends are now among our worst enemies, and if an attack comes, God knows how we'll decide who the attacker is. The United Nations wants to take our gun away. Then we can all be friendly again afterwards."

"Where did you get this information?"

"Various people—chiefly Osborn who got it from Humphrey. I suppose you know—he's been acting director all night."

"I heard that."

"Very little for him to direct. Everything's in the works but the beans can fall out of the spout only one at a time. He was here, remarkably docile. Brought with him the sample of Magellanium which you gave Humphrey and which Humphrey gave him. Wanted me to confirm what he was experiencing. I think he was afraid he was going mad but I convinced him he wasn't. So we worked together for a couple of hours—like brothers. And I must tell you—something new."

"I'm first," I said. And I told him about my discovery in the jail. How inadequate were words to describe the event. Perhaps it's a function of words to turn the magical to the commonplace, to obscure the bright face of truth so that we can look upon it without going blind. But even so, Tom was excited by my conclusion. The white dwarf of the Dog Star. Then he began to look dubious and gave his head a sharp negative shake.

"That can't be," he said. "But wait—it might be partly. Yes—no—let me show you."

So he showed me. And all the time the planes were roaring overhead, the delegates to the United Nations were thumping the table, and the radio stations of the world were fanning the apprehension that all was far from well. Tom hadn't wasted any of his particles of Magellanium and now had hundreds of specimens of buckshot size, each carefully separated from the others by its own container.

"If each particle of Magellanium is attracted by the white dwarf," he said, "why do certain particles repel each other?"

"But they don't! None of those you sent me did."

"Ah, but later I began to produce other specimens with a different result. Certain particles attract each other and others repel. On that basis I've been able to place them into different groups. On this side of the room are specimens of the kind I sent you—all mutually attracted to one another. I now call this type Magellanium A. But over here on the other side of the room are more specimens exactly the same in every respect except one—they are repelled by Magellanium A and are attracted only to each other. This group is Magellanium B. And so with the third group, Magellanium C—particles attracted to each other but repelled by either of the other two groups. If Magellanium A belongs to the white dwarf of Sirius, to what do the other groups belong?

"It should be simple to find out," I said. "Release a few particles, if they're in the moving state, and calculate their direction. I was lucky in that Sirius is visible at this time of year. But there are stars in the daytime as well."

"I'll do that," he said, his eyes brightening, and suddenly he threw his arms about me in true Latin style and burst into an odd laugh. "Philip, Philip!" he said. "No matter what happens, I've been happy here." An ominous statement, I thought, as I left him.

As Tom had said, the beans can run out of the spout only one at a time. I added to that the thought that you can't even guarantee the order in which the beans would appear. One thing at a time. The test wasn't by what we

did now; the test lay in the work already done—the organization already achieved. Would it carry us through?

I realized I had to find Osborn and learn from him everything of importance that had occurred during the night so that I could resume my duties with some semblance of continuity. To save time I stopped at the main switchboard in the Administration Building and asked one of the girls to find him for me. She tried his office first, where his secretary said he'd gone down to the "Black Planet." The girl gave me the operator there and when I asked for Osborn, the operator recognized my voice. "I don't know if Dr. Osborn is here or not," she said, "but Dr. Duval has been trying very hard to reach you."

"All right. Put him on."

Duval's voice was as excited as ever when he came on the line. "Ambert!" he said. "Thank God, I've reached you!"

"Yes," I said. "What's the trouble?"

"The ventilation system is finished!"

I broke out in cold sweat. "Finished? You mean done for? Ruined?"

"No, no, no! Finished! Completed! It works perfectly."

"Is that what you wanted to tell me?"

"Isn't that what you wanted to hear?"

"Yes, of course. Thanks for telling me. Have you seen Osborn?"

"He was here a short while ago but he's gone out to the reservoir tanks where he's starting to move the propellant. Or maybe he's gone back to his office."

I tried the reservoir but he wasn't there either although the foreman told me he'd talked to him by telephone a few minutes before. The ship's connections with the ground had all been severed and the crew at the storage tanks was preparing to start moving the propellant down into the valley in tank trucks. I put the telephone down again and looked at the half-dozen call slips the operator had accumulated for me. Only one of them was marked urgent—one from Humphrey's office, so I had her call Humphrey.

"Ambert?" he said. "I forgot to tell you. Washington

approved the evacuation petition. The first train leaves in twenty minutes."

"Is that what was urgent that you wanted to tell me?"

"Of course. Don't you want to know?"

"Yes. Thanks very much."

"And Duval is trying to reach you."

"Fine. Do you know where Osborn is?"

"I'm sorry," he said. "I don't. But I can put out a call."

"I can do that myself. Don't bother."

I went outside again and walked over to F Building where Osborn had his office. His quarters here were small because the major part of his work was conducted several miles from the project center at the rocket range, where he also had his laboratory. There was no reason for him to be at the rocket range, however. That phase of the work was long past. His secretary told me she'd heard from him and that he would be back soon, so I went into his private office and sat down. It was a neat place with framed pictures of Osborn in the company of other notables on the walls and desk. His many degrees, honorary and otherwise, were also framed and mounted. The wall behind the desk was covered by projectile charts, and on a pedestal in the corner was a chunk of warped metal which I recognized as the nosepiece of the first controlled rocket he'd sent into the free-flight zone. It had gone twice around the world before he guided it back to the project again. Its warp was a result of the heat generated by the air on its return journey, a distortion highly suggestive of the terrific speed at which it travelled. No sculptor could have carved the feeling into it better.

Then I noticed that on the left-hand corner of the desk was the small steel box containing the specimen of Magellanium I'd sent to him by Humphrey. I knew the Magellanium must still be in it because the box was fixed to the top of the desk with a clamp—to keep it from roving. In front of me were several pages of paper covered with mathematical symbols in Osborn's small precise hand. I examined the pages and saw that he was attempting to solve an equation dealing with the attractive power of the three types of Magellanium in Tom's laboratory. Then I

heard Osborn coming through his secretary's office and got up to meet him.

He motioned at me to keep my seat and found a chair for himself beside the pedestal, where he sat looking at me with fierce concentration. "I heard you were cleared of the treason charge. What is it you want?"

"Just to be brought up to date on what's been happening."

He thought a moment. "The evacuation has been approved."

"I know that."

"And Duval is trying to find you. Something about the ventilating system."

"I've already talked to him."

He spread his hands and shrugged. "Well, then. That's about it. Everything else is as you left it—or rather, it's as it would be even if you hadn't been gone." He put his hand on the nosepiece of the rocket and rubbed the distorted cone, glancing at me nervously. "What else can I tell you?"

"Was Matthews at the 'Black Planet' when you left there?"

"I suppose so, but I haven't spoken to him. There's something wrong with him."

"What do you mean?"

"His infuriating calm! He won't act human. Goes about his work as though he had all winter and gets more done than anyone. Only an unfeeling ox could be so mindless of what's going on. Ambert, I detest that man!" He pulled out his handkerchief and wiped his forehead.

"So you've said before. The food is being loaded aboard?"

"Why ask me these things? Of course it is! Do questions make you feel more like a director? They didn't me."

"But there are questions I have to ask you," I said. "I've been wondering ——"

He cut me off. "I've been thinking and wondering too. Damned queer what I thought of. Odd it would occur to me for the first time after five years here."

"What?"

"Remember the newspapers after Hiroshima? It was the first the public knew about the atom bomb and it was all you read about for days. I remember an edition of the *San Francisco Examiner* that had nothing except a big picture of Saturn all over the front page. Saturn with the rings, the symbol of outer space. Atomic power, the papers said, finally put the means of space travel within man's grasp. Atomic fission provided the perfect power—no oxygen needed, no water. It was a self-contained fuel of unlimited potential. So after that everyone started talking about space travel and dreaming about space travel until here we are not many years later with a space ship on our hands."

"I can't see what's so odd about it."

"Why, damn it, Ambert, don't you see? Atomic fission hasn't a thing to do with the 'Black Planet.' It's to be lifted off the ground and powered into space by rocket fuel, and the rocket principle has been known for ages. The Chinese used it against the Tartars eight hundred years ago. Don't you find that strange? All the atom bomb did was to get people thinking about space travel. It's all a state of mind. With enough interest this ship could have been built thirty years ago. Why in hell did humanity have to wait until now?" He mopped his forehead again and answered his own question. "They had to think about it first, get used to the idea, create it in their minds before they could create it with their hands. We didn't build the thing; we *thought* it into existence!"

"Yes?" He wasn't finished yet. His hand nervously rubbed the warped metal on the pedestal. Then he came suddenly to his feet.

"It can be thought out of existence in the same way!" His eyes stared agonizingly at mine. "By the proper mind —with the power of concentration!" He stood there waiting, his mouth half open. Then I realized he wasn't waiting for my reply. He'd heard something else, and now I heard it too and knew that this was what everyone had been waiting for. The project was being attacked.

CHAPTER NINETEEN

DURING A PERIOD IN HISTORY when millions have been witnesses to sudden and violent death, my own life had been singularly free from such experience. I'd seen the aftermath of carnage but never the act itself and this despite the fact that my work had taken me over large sections of the globe. The result was to give me a certain blindness concerning the degree to which humans will go in their efforts to slaughter other humans. It always seemed impossible to me that the shattered cities and suffering inhabitants were reduced to their state of misery through the calculated energies of men.

It was still with this feeling of impossibility that I rushed from Osborn's office and out of the building to see what was taking place. The sound which aroused us first was the distant crackling of anti-aircraft fire, but by the time we were in the open, the air raid sirens were bleating all over the project and in the skies the consistent intonation of the planes had given way to a discordant mixture of explosions and strident wails as formation after formation wheeled to do battle.

The battle itself couldn't be seen but from the direction of our planes, the attack appeared to be coming from the ocean. I stood there stupidly a moment, feeling I ought to be doing something about the situation and aware that as far as the battle was concerned there was nothing

anyone on the project could do except take measures to protect himself. Very few people seemed inclined to do this. The volunteer air raid wardens, identified by white bands around the upper arm, were attempting to herd their fellows toward the spots designated as shelters, but they themselves kept pausing in their work to scan the sky and see what was going on. It wasn't that people were either foolhardy or ignorant of the danger; they simply couldn't grasp the reality of what they heard and saw. It was also true that our shelters consisted of the basements of several buildings and didn't inspire much trust. The project was designed as a place to work and was never intended to be a fortress. It was several minutes before some of the people began to heed the persuasion of the wardens, while others in the crowd started running for the railway station at the port of entry, hoping, I suppose, to find room on the first evacuation train. The train, however, had already left.

It occurred to me that the point of greatest danger was at the site of the "Black Planet" and that it was therefore my duty to be there, not because my presence would ward off any bombs but simply because I felt compelled to go. I told myself I could keep the work going. Osborn insisted upon coming with me even though he gave the appearance of a man on the point of nervous collapse. We caught a tram car and rolled down the long grade into the valley and it wasn't until we were started and I had the sharp sensation of having left something important behind me that I realized Elmer wasn't along. In the confusion I'd finally lost my shadow.

The trip took about four minutes and from the open seat of the tram car we saw the first real evidence of battle. Far to the west a feather of smoke in the sky slowly blossomed into a plume as a burning plane plunged seaward. Whether it belonged to the enemy or was one of our own there was no way of knowing.

At my side Osborn pointed a finger at the falling plane. "Look at it!" he said hoarsely. "It's got a man in it! Can you imagine such an idiot? Can you conceive of anyone getting himself into such a position?"

"I'm not sure our own position is much better," I said.

Before we reached the "Black Planet" we saw other falling planes still farther west but there was no particular solace in the distance. At present speeds, any aircraft that can be seen is only a few seconds away. But still no bombs fell on the project, and formations of our own planes still patrolled the sky in the opposite direction from the battle, refusing to be drawn from their positions of defense by a combat which might be only a feint.

I went immediately to the office of the "Black Planet" and called Security to let them know where I was. I was told that Humphrey wanted to speak to me and waited until he came on the line.

"An unfortunate incident has occurred," he said calmly.

"Yes?" I said, wondering if by any possible stretch of lunacy he was going to tell me the project was being attacked.

But he said, "The evacuation train left about fifteen minutes ago and there's been some confusion. When I asked Washington for permission to evacuate, I told them we were very short of rolling stock and would need additional cars. I naturally supposed I'd be informed of whatever measures they took, but apparently they had trouble digging up another train for us."

"Yes? So what's happened?"

"They must have put out a general call to the railroads for help, with instructions to get a train here as soon as possible. As it turned out, the Southern Pacific had a string of empty box cars at King City, so the railroad sent them right out on the spur to the project. Trouble is, our train had already started, so the two trains met about twelve miles out."

"Good God—a wreck?"

"No, no. They stopped in time. But there were the two engines facing each other on a single track. Couldn't get past each other, don't you see? And us needing the empties and the people on our train wanting to get away. So finally they moved all the people onto a few cars at the rear of the train from King City and are backing another

engine out from town to haul it in. The other two engines and all the empty cars will come back to the project for another load."

"You mean everything is all right?"

"Yes, it is now. I just wanted to explain the confusion and let you know another train will be leaving as soon as it's loaded."

"Thank you." I hung up. It might have sounded like lunacy had he told me we were being attacked, but it sounded no less that way when he failed to mention it at all. Then I decided there was a certain grim sanity in his continuing attention to details. The same state existed in the interior and in the vicinity of the "Black Planet." If anything, the endeavor to ready the space ship for launching was stimulated rather than retarded by the attack. Everyone was still at work. Refrigerator trucks continued to arrive and now that the ship's storage lockers were below freezing point, the food was rolling up a long conveyor belt into the "Black Planet's" belly where a crew of men with ballast balances were distributing it according to weight so that when the "Black Planet" went into rotation it wouldn't start wobbling like an off-center wheel.

Osborn took the elevator up to the hatchway leading into the cone where the fuel tanks were beginning to receive the propellant being pumped into them from below. This was in two parts—the fuel proper and the oxidizing agent which would permit the fuel to continue exploding when the ship was beyond atmospheric limits. It was the liquid fuel going in now, and everyone in the vicinity knew that if an incendiary bomb or even an explosive shell should pierce the cone at any time from now on, the whole ship would be blown apart. This didn't cause the work to slacken. The men labored on, their faces set with sardonic humor.

I left the interior and went in search of Matthews. I found him standing on the concrete beneath the outer perimeter of the space ship where he could see both the air battle and the trucks bringing supplies to the "Black Planet." He was watching the sky through a pair of

binoculars when I joined him, and for several seconds he didn't notice my presence. Never have I seen so many planes at one time nor do I think so many were ever before assembled. That they were our planes was evident by their behavior. They flew in a series of majestic circles around the object they were guarding. The inner circle could hardly have been a mile from the space ship itself, but the others could be discerned at regular intervals as far as eyes could see, and even beyond that the imagination placed floating motes in the sky. Only along the western and southwestern circumference was the regularity disturbed. In that section the sky had become hazy with smoke and it was now possible to make out the attacking planes driving straight forward like a swarm of insects, their ranks thinning as they attempted to penetrate the wheeling lines of defense. They were attacked from below, from above, and from all sides so that the advance units of the attackers seemed to continually melt away. The human element was invisible. All that could be seen were machines battling with machines; machines striving to destroy the monstrous machine which rested on its supports above our heads. Matthews lowered his binoculars and saw that I was beside him.

"What do you think?" I said.

"Can anyone think right now?" he said. "It's a matter of time and habit. They can't come on forever and they're vastly outnumbered. Those we see must have been under attack for at least five hundred miles getting this far. It does things to the pilots." He watched the planes thoughtfully. "Afterwards you always forget. Or maybe it's just that during the excitement your memory refuses to function. During sea battles it's like that—you know when the fight starts, and then gradually you become aware that it's ended—maybe three days later. In the meantime you act like a part of the machine you're using. Habit. Training. Strikes me as a bit odd that when I start navigating the 'Black Planet,' I won't have any habits to begin with. I'll have to form them as I go along." He left my side and ran out into the bright sunshine toward the conveyor belt which was carrying packs of frozen food from the

loading platform up into the body of the ship. Its speed was irritatingly slow, geared to the speed with which ordinary men could load it. When Matthews got there, all he did was shove one of the food packs a few inches closer to the middle of the belt. I doubt if it would have fallen off, but he seemed to think its position was precarious. Then he walked back to my side and picked up an extension telephone, saying into the mouthpiece that all was well.

"I'm connected to the security office," he said when he put the telephone down. He pulled out his binoculars and looked at the air battle again. "How they must hate and fear the 'Black Planet' to keep coming on like that. Dying. It shouldn't be like that. Shouldn't be that way at all."

For another fifteen or twenty minutes we stood there, sometimes watching the battle, sometimes talking to the various foremen who were at work around us. Osborn reappeared. He came down out of the ship and started toward me, then saw Aaron and changed his mind. He took up a position near the pump that was transferring the fuel from the tank trucks into the cone of the ship. His face was still a pasty white but his manner with the men around him was controlled.

"See," said Aaron, "they're going to be driven off." He was using binoculars, but even with my unaided eye I could see that the attacking planes were in retreat. The fight was more distant and the curtain of smoke was no longer being augmented by fresh supplies from burning planes. Where the enemy would retreat to, I didn't know, but it was certain their time in the air was limited. I asked Aaron about this.

"I suppose the pilots will have to ask permission to give themselves up and come in at one of our airfields. Either that or die in the ocean." We were still talking as though victory was won when the sound of an explosion made us turn to the north.

It was no new enemy. Two of our own planes had collided in air and one of them, with a wing shorn off, was rolling helplessly downward a mile or more north

of where we stood. The other plane at first seemed intact. It veered after the crash, righted itself for a few moments, and then headed earthward at a long slant in our direction. It was one of the propeller-driven patrol planes from the inner ring, and as it came closer we could see that both motors had ceased to function. So, apparently, had the controls, because the pilot was unable to pull it out of its long dive.

The sight of this plane descending toward us at several hundred miles per hour stopped the activity of everyone who was in the open where he could see it. We all stood there holding our breath, no one, I think, concerned about himself so much as about the "Black Planet" which at first seemed directly in the plane's path. It was so close that we could see the pilot bail out not two seconds before the speeding plane passed over our heads. There was something deadly in the plane's silence as it swept by, clearing the space ship by a good margin of safety. I turned, weak with relief, to watch the crash as it hit the ground. But as it neared the earth, something—perhaps an ascending air current, lifted its nose slightly so that it leveled off across the valley and glided directly toward the rising ground of the hills. From behind me I heard Osborn cry out in rage and terror and a moment later I knew why. The plane skimmed the roadway where the fuel trucks were moving the propellant from the storage tanks and struck directly into one of the big reservoirs. The explosion was instantaneous. A vast blossom of black smoke unfolded in the air and then in quick succession there were others as adjacent tanks exploded also. The sound and shock waves hit us a few seconds later, a rumbling staccato that shook the concrete beneath me and made the columns supporting the "Black Planet" shudder like taut strings. But nothing collapsed. The sound passed. On the hillside across the valley blood-red flames began licking through the black wall of smoke.

I stepped past Matthews and seized the telephone. It was a direct connection with the security office, and I got Humphrey at once. He couldn't yet have seen what happened; he could only have heard the sound. "It was

the 'Black Planet'," I said. "It's gone. Blown to bits! Put that on the line to Washington at once. Don't wait a second." I heard him groan and start to utter those meaningless expressions which enable a man to prepare himself for bad news which has reached his ears but isn't permitted yet to enter his mind. "Don't wait!" I said. "If the space ship is gone, the attack will stop. The 'Black Planet' was the objective. There's no sense in wasting more lives. Get out the news and you can still stop a war!" This apparently registered because instead of answering me, he slapped down the receiver. I hoped it was so he could put through the message to Washington.

I felt Aaron grip my shoulder. "If they'll only believe it! Wait—I'll make sure!" He picked up the telephone, broke the connection with the security office and called the station, where he asked if the second evacuation train had left yet. It hadn't. Then he put a genuine tone of tragic despair in his voice. "Tell all the people on the train that the war's over. Tell them there's nothing to come back to. The 'Black Planet' is destroyed. Yes, that's the smoke you see from the station." He lowered the receiver and gave me a glance of triumph. "That should do it. Washington can't throttle the news now even if they're fools enough to try. That column of smoke will certainly convince everyone within a hundred miles that something big has blown up. Why not the 'Black Planet'? We'll be left alone. We'll have time to get it launched!"

Osborn's harsh voice cut in behind us. "Get it launched! And what will you launch it with? We haven't pumped in enough fuel to lift it ten feet off the ground, and there goes the whole supply! It will be months. Months! And that means never!" He staggered off, his face ashen. At first I thought the shock of seeing the fuel tanks explode had unsettled him completely, and then I saw that he knew where he was going. While the tanks were exploding and the earth trembling from the shock, the pilot of the ill-starred plane had parachuted peacefully toward earth and was now untangling himself from his lines not seventy-five yards from where we stood. He shook off his harness and stepped away from the billow-

ing silk as a crowd of men ran forward to give him assistance. Osborn was among the crowd. He fought his way through them until he was the first to meet the pilot, and then without pause he fell upon the pilot with both fists, beating him with uncontrolled rage. I ran forward to intervene but by the time I got there, several men had already seized Osborn and dragged him away.

"The fool!" he shouted. "The blind, blundering imbecile! He should be hanged! Shot! He's destroyed everything!" He kept on ranting. There was no use trying to reason with him in his present state so I delegated the men who held him to take him off to the tram line. Then I told Matthews to hold all the workmen at the "Black Planet" for at least another hour in order to give the rumor of the ship's destruction the widest possible circulation before anyone had the chance to tell the truth. I left him and joined Osborn in the tram car.

He was slumped down in exhaustion, dull-eyed and silent. The silence continued until we had nearly reached the end of the line near the laboratories, and then I could no longer contain what I had to say. "As one who's recently been unjustly accused of treason," I said, "I hate to level the charge at someone else. But when a man goes to irrational lengths to fix the blame for a catastrophe upon someone who couldn't possibly be responsible—as you did with that unfortunate pilot—it can only be because he's filled with an unbearable sense of guilt."

He didn't move and he didn't reply. From Osborn, silence was all the reply I needed.

"I think I know why you did it," I said. "Perhaps I even know how. You used a controlled rocket to betray the project, didn't you?"

He closed his eyes wearily. "Yes, it was a rocket. A map of the project was in the head—a map and a warning. Apparently those who found it refused to believe it until they sent in an observation plane to verify the message. They had a reason to doubt—" The bitterness in his voice contained an echo of pride. "Because I sent that rocket a good seven thousand miles before I brought it down."

CHAPTER TWENTY

A GENTLE SOUTH WIND spread the black smoke from the burning tanks across the face of the project like a thick veil. The sun was a round red ball approaching the noon meridian. You could look it full in the eye without the slightest discomfort. Through the unnatural dusk the buildings loomed like enclosing walls as you approached them. The planes overhead were invisible and even the sound of the motors was muted. Or perhaps their ranks had thinned as the danger appeared to depart. When we got off the tram car at High Street, the smoke was so thick that we couldn't have determined its source if we hadn't known it already.

"What are you going to do with me?" said Osborn.

"I don't know yet. Let's go to my office."

Laggard units of the project fire department swept along the street as we entered the Administration Building. There'd be no way to extinguish the fire but neither should there be any danger of its spreading. The storage tanks were isolated from other structures. When I entered my office, I had to turn on the lights, so dark had the day become outside. The telephone was ringing. I picked it up and told the switchboard to hold all my calls. Osborn sank into the leather armchair, his chin on his chest, his eyes wide and wondering, looking here and there at nothing, waiting for me to speak.

What was I going to say? The man would be executed once his act of treason was known. I didn't want to question him on the particulars of the crime. It wasn't my job and I knew that such a discussion would make me ill. Besides, I knew fairly well already what he had done. Had the project been able to launch the "Black Planet" according to plan, our future work would have been to keep it supplied with food and material from earth, transported by controlled rocket carriers. Obviously, since you can't send supplies to a ship that isn't there, perfection of procedure had to await the success of the launching, but in the meanwhile Osborn had been conducting preliminary experiments with models. These models were all controlled from his laboratory at the rocket range and all of them were equipped with a device which caused them to explode and destroy themselves high above the earth in the event they lost contact with the guiding beam from his laboratory. This was a precaution to keep them from being discovered outside the project. Most of them returned safely, however, and the few that didn't gave rise to flying saucer stories—mysterious objects travelling at supersonic speeds and suddenly vanishing in a flash of light. He had evidently tampered with the mechanism of one of them, perhaps several, to prevent it from exploding, and had then launched it toward the nation whose government he thought would be most alarmed by what we were doing.

"When did you do this thing?" I asked him.

"When?" He rubbed his forehead as though trying to recall. "So much has happened it's hard to remember. Not long ago. The night after my fight with Matthews—after you and Humphrey refused to co-operate in getting me a release. Blind stupidity. On your and Humphrey's part, I mean. Acting as though I might betray the project if I were released. The military mind. Never able to see its dependency upon the imagination of others. As though holding me here was a guarantee of safety! Won't the fools ever learn that force won't work? I could have betrayed the project at any time I pleased during the last five years and so could a dozen others. Men with a knife at

their throats should be less insulting to the hand that holds the knife!"

His anger mounted again. "I should have been released! Then this wouldn't have happened! I'd have had no cause."

"That's the only reason? Your pride?" The enormity of the consequences seemed out of all proportion to the cause.

"Pride?" he said. "And is it so little? I've given years of my life to my country. My work. My genius. Who else could have done what I've done? The launching principle was mine and without it you had nothing. And in return what has my country done for me? She has robbed me of my wife and made me an object of ridicule, refused me the honors that were mine, transferred the credit for my work to others. All this I took without complaint out of the love I bore her, but when she tries to make me a prisoner, distrusts me, curtails my physical liberty, denies me a reward I've won in my own right—then I tell you I can't—" He broke off, so choked with emotion he couldn't continue.

It was a repetition of what I'd heard before but by the new facility with which he enumerated his supposed injustices, it was evident that he'd been turning them over in his mind until he'd memorized them. It was useless to tell him that "she," as he insisted upon calling that amorphous mass of individuals who make up the nation, had supported him for years in the pursuit of his own interests, which in my mind is the greatest privilege any man can receive. He controlled himself at last and a trace of his old sardonic smile appeared on his lips.

"Why not pride? At least it has the flavor of individuality. Would you find my behavior more understandable if I told you I'd developed religious scruples against the purpose of the space ship? I'm no such fool. Too many martyrs have thrown themselves over cliffs for the glory of gods who aren't even remembered. Or would you prefer that I was the victim of some political creed which made me betray our secret through some warped devotion to a cause? What cause? After experiencing the ingratitude of my own country, do you think I'd become the dupe of another? No; I simply exerted my rights. My genius made

the 'Black Planet' possible. Therefore the ship was mine to destroy. Now let's see you build one without me."

I looked at him a moment, trying to grasp what was going on in his mind. I was afraid my reminder of what he seemed to have forgotten might produce another outburst. "But, Warren, the 'Black Planet' *isn't* destroyed. It's only the propellant that's gone, and given time we'll soon have more of that. And if I can trust my memory at all, you were the most agonized man on the project when you saw those tanks explode."

The haughty expression left his face. The skin seemed to crumple and I thought he was going to cry. He put his fists to his eyes like a child suffering some spiritual anguish beyond his understanding. "I couldn't see it happen," he whispered. "It had been so easy to do—Matthews humiliated me so—all it took was the push of a button and the rocket was gone! A move of the finger. But the 'Black Planet' was mine and I couldn't let it be destroyed. If only we could have launched it! What did I care about the welfare of the men aboard? Let them die! Let them rot in space. As long as the ship was in space too, my work was justified. You'd have seen it happen. When the ship was ready to go, there was another button to push!"

The man would be executed. He had acted in full cognizance of what he was doing and why he was doing it. And if the betrayal itself wasn't enough to see him condemned, its consequences were. How many men had lost their lives in the air battle, we didn't know yet, nor how many had been killed by the explosion of the fuel reservoir. Those deaths would all be laid at Osborn's door. And it occurred to me also that all during the time I was locked in jail with the charge of treason lodged against me, Osborn had been content to let me remain there while he assumed my duties. He'd have seen me die without remorse. It was only his pride which kept him from using his opportunity for outright sabotage of the space ship. He wanted to see it launched because the method of launching was of his invention and he wanted his work vindicated. But he'd have launched it with no one aboard if possible.

In spite of these considerations I still didn't know what to do with him. He was harmless now and the deed itself was done. Just as his reason for betraying us seemed ridiculously out of proportion to the results, so also did any punishment seem inadequate to compensate for the crime. A flick of the finger—the pressing of a button. That's all he'd done. An impetuous instant while his pride was smarting from his interview with Humphrey and his jaw smarting from his encounter with Matthews. He had planned it earlier, of course, thinking perhaps he'd never perform the deed but at the same time enjoying the sense of power gained from the knowledge that he held the key to destruction. Still, I had to dispose of the problem. Other matters were more pressing and Osborn's fate was no longer my responsibility. I must turn him over to Humphrey.

But just as I was reaching for the telephone to do this, Humphrey himself charged into the office, his face suffused with anger as he ignored Osborn and started beating on my desk with his fist.

"Why won't you answer my phone calls?" he shouted. "You lied to me, Ambert! God damn you, you lied! The 'Black Planet' is *not* destroyed. I drove down there. I saw it. You lied to me and made me send out a false report to Washington. This time I'll skin you alive!"

The desk shuddered with the force of his blows, and I had to lean forward and seize his wrist to make him listen. "Certainly I lied. You haven't corrected your report, have you? You haven't told Washington the truth?"

"Tell 'em the truth? They'll court-martial me when they find out! All because I believed you!"

"Will you listen to me! I had to lie to you. You're incapable of lying for yourself, and it's the only opportunity we'll ever have. Let them think the ship is destroyed. Let the whole world think it!"

He finally saw what I was getting at just as he was gathering breath for another tirade. Instead the wind came out of him in a series of little growls. He stared at me with narrowed eyes, then clamped his hands behind his back and started pacing back and forth across the office, step-

ping over Osborn's feet at each passage and never giving Osborn a glance. Twice he opened his mouth to speak and twice closed it again. But finally he said, "They'll still court-martial me for the false report."

"I doubt it. Had you told them the 'Black Planet' was safe when it was actually lost—then they'd court-martial you. But when you finally let them know the ship's safe after telling them it was wrecked, they'll be so happy you'll get a medal."

He stopped pacing and sat down on the corner of my desk. "You say when I 'finally let them know.' Just how long d'ya think I can keep it a secret?"

"The longer the better."

He shook his head. "Won't work. Won't give us even twenty-four hours."

"Why not? You'll close the project boundaries again. No more evacuees. Those already gone think the ship was destroyed and will spread the rumor. Every newspaper in the country will carry the entire story of the project and the destruction of the 'Black Planet.' It will be repeated until everyone believes it."

He still shook his head. "Won't work. Best we'll get is a short breather. Other countries are too concerned. I've reported to Washington, and I'll be surprised if they haven't already announced in the United Nations that the ship is gone."

"That's exactly what we want."

"Sure. But do you think those delegates are going to sit there and accept what anyone says? Not after what's happened. They're going to want the evidence of their eyes. They'll have a committee out here by nightfall to examine the whole place."

"The committee won't be allowed on the grounds."

"And why not? If Washington thinks the ship is destroyed, they'll *want* the committee to see."

Humphrey was by no means stupid and I began to understand what worried him. "We have to tell Washington the truth then. Right away."

"And what then? Then Washington won't permit a committee investigation, and we're still in the soup. The

other nations will know damned well the space ship must still be intact and on the ground."

It was bad either way. The only hope was in a delaying action at the Washington end. Humphrey would have to put the true story through and urge them to maintain the fiction that the "Black Planet" was gone. They could use whatever means they had for stalling a United Nations committee.

"That's what diplomats are for," said Humphrey. "And by God, even if the truth comes out, let's remember that we've beaten off one air attack and can do it again." He suddenly whirled and looked at Osborn, who hadn't said a word. "What do you think?"

"Yes," said Osborn. "It might give you twenty-four hours. You need at least a month. More. It takes time to manufacture that propellant—time to get it here."

Humphrey listened and nodded, then got up and squared his shoulders. "Twenty-four hours," he said, and marched out.

"You didn't turn me in," said Osborn.

"No, I didn't. There's something you have to do first. On your desk I noticed an equation you were trying to solve. Go back there and sit until you solve it. If you so much as stir from your office, I'll know about it and turn you in."

"And what happens after I solve the equation?"

"Then I'll turn you in anyway."

"And in spite of that, you expect me to do it in the shortest time possible?"

"Yes, I do."

The idea seemed to amuse him. "The time of life accelerates by a logarithmic progression," he said. "Out of a sluggish youth we gather speed and rush to meet our end. Very well, I'll solve your problem for you. I know what you're thinking, and it might even work. At least the theory is fascinating. So I'll do it. Then I'll have solved everything as far as my personal life is concerned." He arose and strode out the door.

I picked up the telephone and told the switchboard to start putting my calls through.

CHAPTER TWENTY-ONE

WHEN I LEFT MY OFFICE twenty minutes later I knew that thirty-eight persons were killed and twice that many injured by the explosion of the fuel reservoir. I'd told Matthews he need no longer hold workmen at the "Black Planet" unless their presence there was necessary. I'd talked again to Humphrey, who told me all the security controls were now re-established, that no one else was leaving the project, and that he'd explained the entire situation to Washington. Our delegates at the United Nations had done a pretty good job in reporting on the destruction of the space ship, since they believed it themselves at the time, and Humphrey wasn't going to get court-martialed. I'd talked to Susan, who had feared I'd been killed by the explosion. She was going to meet me for lunch at the laboratory commissary and so were a number of others.

The pall of smoke still lay over the project. The sun couldn't be seen at all now, and with the wind coming up from the south, I realized that clouds had added their turbidity to the smoke to deepen the unnatural noonday dusk. My eyes smarted and there was a stinging in my nostrils. The hum of the patrol planes was more muted than ever, emphasizing the silence of the project, a silence which I first attributed to the deadening effect of the smoke until I became conscious of the absence of chil-

dren's voices and the scarcity of people on the street. We were much reduced in number. The two evacuation trains had been crowded with children, many of them leaving without their parents, and even many men who were no longer essential at the project had departed on the second train.

This reduction in ranks infected the group which met for luncheon with a peculiar mood—half desperate, half social. There were some twenty of us, most of whom you know. A few wives other than Susan were present, hoping to get accurate information about what had happened. It was a grim-faced lot, and yet I felt that never before in the history of the project had a group been so drawn together by the ties of companionship and understanding. There was no criticism and no passing of judgment. Without anyone putting it into words, everyone knew that our five years of work had all but come to nothing and that we were assembled on borrowed time, time based on a falsehood which we intended to perpetuate as long as possible.

When I entered, Aaron, Paul Basich, and Duval were seated on a lounge talking, and I remember Gail being there too. She was close to the man she loved, listening quietly, her gaze on his face. Humphrey asked me if Osborn wasn't coming to the meeting.

"He's working," I said, and then I drew Humphrey aside and told him the entire story about Osborn. He was for notifying Burrock, who was still on the project, and putting Osborn under arrest at once, but I restrained him. "Just put a guard around his office and take him when he finishes what he's doing. There's no way he can escape, and he knows what's coming."

We assembled around one of the long tables, where Humphrey made what was for him a philosophic speech. "We have our lives," he said. "At the moment our lives aren't even in danger." The reminder was necessary because the sense of doom and misfortune pervading the atmosphere seemed directed at individuals. In the disaster to our work there was a sense of personal disaster as well. I felt somewhat like a corpse who has been permitted to

continue with the use of his senses a little while but who no longer needs the food he eats or the water he drinks. "We may soon be separated," Humphrey continued, "but I've been assured by Washington that the story of the 'Black Planet's' destruction will be maintained as long as possible. It's a breathing spell that can't last very long, and its chief value will be to give the military time to increase its defenses. We'll need plenty of defense because under no circumstances will Washington actually permit any committee of delegates from other nations to set foot on the project. The moment this refusal is recognized for what it is—an admission that the 'Black Planet' still exists —you may expect another and more serious attack. The other nations of the world are preparing for such an attack now, and there's no doubt in my mind but what it will be accompanied by a formal declaration of war which will place this nation against all others. We can be assured that the total destruction of the project will be the main objective of the enemy, and its safety the entire concern of our own forces. That places us in a quite helpless position, but to those who had hoped to leave, I hold out this promise—when it's evident that the falsehood we're trying to sell the world has been exposed, then further evacuation will be permitted. Until then no one can go." He then told us all he knew about international developments and then turned the meeting over to me.

I had little to say. The "Black Planet" was finished in every respect except one; we had no way to make it go. The absence of this essential ingredient gave the entire enterprise an aspect which would have been ridiculous if it hadn't been so heartbreaking. Our task was to maintain everything in a state of readiness while we waited for a new supply of propellant, praying meanwhile that we were still alive to receive it when it came. Washington was already acquainted with our situation and would certainly do everything possible to expedite delivery. However, I could make no promise for anything immediate. We were going to have to use our respite to prepare our courage for what was to come. That was the total

import of my words and they were accepted without question.

Then Aaron spoke. "I have one suggestion. In spite of the 'Black Planet's' being the object marked for destruction, its interior is still the safest place on the project. It's bullet-proof, proof against atomic radiation, and virtually bombproof. A bomb can ruin it as a space ship but won't destroy it as a shelter. So I think a great many people would rest easier if we opened the first two tiers for the protection of the children who are still on the project. There aren't many of them and there's no damage they can do in the living quarters. If it's to be a matter of weeks, that's the best place for them."

I started to give him an absolute No on his suggestion but it was approved of so spontaneously by the women present and seconded so enthusiastically by the men that I paused to think the matter over. It wasn't that there was anything impractical in the idea. The children would have no access to any of the ship's delicate controls. Nor was it the strangeness of permitting children on the "Black Planet" which made me hesitate. It was the other possibility—one I'd mentioned to no one because its thin hope carried such potentialities of disappointment. Given another twelve hours—but then why not try to insure the children's safety for those twelve hours? My own two children were concerned also, and it would give the women something to do besides huddle in their apartments anticipating destruction. Besides, it was apparent I was going to be overruled anyway, so like a good general I approved of what I was unable to prevent and appointed all the women present members of a committee to supervise the children. Then, more to keep people busy than for any other reason, I asked each of the staff members to pack up all his important records, particularly those dealing with procedures and discoveries which had originated in the project. Even if our work was destroyed, what we had learned might still survive.

At the end of the meeting I spoke briefly to Tom, explaining part of what I had in mind. He listened without comment and returned to his laboratory. Gail spoke to

me as she left. There was a curious light in her eyes when she said, "You see, I'm going to live with him after all on the 'Black Planet.' For a few days at least. Do you mind?"

"God bless you," I said.

When I left the commissary, rain was falling, a light drizzle coming down through the smoke and carrying the oily soot with it. The project seemed more silent and deserted than ever. The fire had been contained and was gradually burning itself out while the rain promised to wash out the sky even though it would have little effect upon the blaze. Whether or not continued rain would add to the safety of the project I didn't know, but I rather doubted if those who saw their own doom in the success of the "Black Planet" would be stayed in their destructive endeavors by cloudy skies. They'd be more likely to use the clouds as cover for an attack. Our years had been reduced to hours and the hours were being reduced to minutes.

When I returned to my desk, I called Osborn's office and spoke with his secretary. She told me Osborn had asked not to be disturbed, and that he'd got in touch with me as soon as he'd completed his task. It was the last period of freedom he was going to have on earth so I heeded his request while I sketched out on several sheets of drafting paper the details of a mechanism I was going to need. Then I called Walker Hedgerow, the superintendent of the machine shop, and told him to come to my office.

He arrived shortly and I showed him my rough drawings, explaining to him what I wanted and how it had to function. I needed a circular metal plate of a size that would fit the base of the "Black Planet's" cone. The plate had to contain several thousand individual cells—something like the plate of a waffle iron on a magnificent scale—each cell about a cubic centimeter in volume. These had to be divided into three groups with some sort of lid arrangement which would make it possible to open all the cells in any given group simultaneously.

Hedgerow looked my drawings over and after finding out how the mechanism was supposed to work, made a

number of corrections which simplified it a great deal. He wanted to know how soon I had to have it.

"The sooner the better. Three hours?"

He whistled and shook his head discouragingly. Then he said, "How strong do the walls of these cells have to be?"

"Strong enough to contain a pressure of about fifteen pounds each. Even thin metal will do that. The plate will have to be stronger."

"The plate is no trouble. We can cut it out of sheet steel. But the cells —" He thought a moment. "There's some honeycomb grating in the shop. If I put a layer of that across the plate and welded it down, you'd have about —" He paused to calculate the number of perforations per square foot in the grating and multiply it by the area of the plate. "About one hundred and fifty thousand cells. Is that enough?"

"More than we need, but if that's the simplest, use the honeycomb grating. And do it fast." Hedgerow departed with the plans and I called Tom. "Are you still in production?"

"Still going. I'm getting a good-sized inventory. And I think I've located the source of attraction for B and C. B is near Antares in Scorpio, very active right now. If I live so long I'll train a telescope on that spot some warm summer night and see if I can become the discoverer of a hitherto undiscovered white dwarf. The origin of the C attraction is in the north so close to the nebula of Andromeda that I'm wondering if that isn't where it comes from. Seems incredible. Half a million light years away."

"How much of the stuff have you?"

"I've been too busy to count but I know we've had to use everything in the place for containers to keep it separated. Clark and Kuka are both working with me."

"I'll be with you soon, then."

I telephoned Aaron at the space ship and told him to drain the cone of the "Black Planet" of what little propellant it contained. "But why?" he said. "It represents several hours time."

"Drain it. Pour it out on the ground, but make sure the

pipes carry it far enough from the ship that it can't hurt anything if it explodes."

"That's right," he said. "I'd forgotten about how dangerous the stuff is. And I was talking about how safe the 'Black Planet' is. I'll drain it right away."

"I'm not thinking about safety. Just get that cone cleaned out. I'll be down as soon as I have time." He said he'd put a crew to work immediately.

Then Osborn telephoned. "I've finished," he said. "It's all down on paper. What do you want me to do with it?"

"Leave it on your desk and I'll come by for it. How did it work out?"

"You'll have to see for yourself but I think you'll be satisfied. What am I supposed to do now? Give myself up?"

"You won't need to. I've told Humphrey and he's ready to take you into custody."

He laughed sharply. "That's what I thought when I discovered two guards standing outside the door. But I'm not going through with it, Ambert."

"You haven't any choice."

"Oh, yes, there's always a choice." He paused a moment as though expecting me to ask him what he meant. I had nothing to say. The moment had come for him to start the long ordeal which could only end in his execution, and I was willing to let him have the last word. "I don't think it matters anyway," he said. "Ever since that plane crash this morning, I've had the feeling we're all finished. What does it matter to a dead man how he died? I was going to ask you a last favor but I realize I'm too late."

"What were you going to ask?"

"A man hates to think of himself being maligned after he's gone. I was hoping you might keep my crime a secret. Not because I'm ashamed of it but because no one else will see it the way I do. But that's impossible if you've already told Humphrey. He'll have to include the story in his interminable reports."

"Yes, I'm afraid he will."

"So I ask you for nothing. I don't believe in survival

after death, Ambert. This life is all. I'm sorry I won't know what finally happens to the 'Black Planet.' Goodbye." As he spoke the last words, I heard the report of a gun over the telephone. He'd shot himself.

That's what I'd thought he might do. I hoped the calculations he left on his desk were accurate.

CHAPTER TWENTY-TWO

OSBORN WAS DEAD by the time I reached his office. On his desk, held neatly together by a clip, were the equations and their application to the specific problem. I took these and left the dispositon of Osborn's body to the two guards.

Outside, the rain had settled down to a steady drizzle and the day was colder. Most of the smoke had been washed from the sky and the oily scent of the fumes was replaced by the fresher one of wet earth. An army bus loaded with women and children came out of the residential district ahead of me and rolled toward me along the street. As it passed, the children leaned out the window, laughing and shouting and calling my name. I walked on across the way to Q Building.

Through trial, error, and growing understanding Tom had evolved a production system so that his laboratory looked less like a place for experimentation than a factory. The consumption of uranium concentrate was immense. It was being hauled up from the reduction plant in carload lots and fed into the vault for positron treatment. Hank Kuka had taken over supervision of this end of the work while Fred Clark was engaged in removing the Magellanium from the vault at regular intervals. By periodically stopping the process before the Magellanium had time to coalesce into a single sphere, Clark was able to remove it in buckshot-size beads which were comparatively

easy to handle, because their attractive force was seldom over fifteen pounds.

Tom was now getting Magellanium B again and had reached the conclusion that the type of Magellanium produced was determined by the position of the earth relative to the various white dwarf stars. Although the attractive force of the stars didn't seem to be changed by any barrier he could interpose in his laboratory, he believed that the bulk of the earth itself was sufficient to interrupt, partially at least, the strength of the attraction. As a result, the Magellanium produced at any given time corresponded in type to the white dwarf then in the sky. This was only theory and failed to account for a number of peculiarities which it was impossible to investigate now. We were like doctors in possession of a serum whose effectiveness was still unproved but which we must use anyway in the hope that its use would bear out the promise of the laboratory.

The three types of Magellanium were separated from each other by as great a distance as the laboratory permitted. The problem of differentiating the three types was the easiest to solve of any problem yet presented by the stuff. As he brought each fresh batch from the vault, Clark had only to test it against the supplies already stored in the laboratory. C would attract only C; B would attract only B; A would attract only A, and each would repel the other two types.

I stopped Tom in his work long enough to help me check the set of equations which had been Osborn's last task on earth. Briefly, Osborn's problem was this: Was it possible to treat the three different directions of force operating on the three different types of Magellanium as vectors forming three sides of a triangle? What then would be the directional force of the triangle as a whole? As stated, the problem is purely one of mathematical convention, but it enabled him to arrive at a general formula whereby he could predetermine the single resultant from any given juxtaposition of the three forces. This was possible because of the dual nature of the force—that is, each type of Magellanium was not only attracted toward its

white dwarf prototype but was repelled by the other types of Magellanium. Osborn had been uninformed of the relationship between the Magellanium and the white dwarf stars. He was aware only of the opposing forces in the Magellanium itself. His equations were generalizations from which the solutions to specific problems could be deduced. The answer to our specific problem, based on the equation that the force of the attraction was proportionate to the square of the mass, showed that we needed a sphere of Magellanium A eleven inches in diameter to generate the power necessary for our purpose.

Tom didn't have that much Magellanium A yet. He had hundreds of tiny specimens but their total volume was so far inadequate. He was producing more constantly, however, so I arranged for trucks to start carting what was already on hand down to the "Black Planet." Then I went down to the space ship myself.

Humphrey was trying to locate me from his office and had a call waiting for me when I reached the ship. He told me that our time was much shorter than we'd hoped. Washington had found itself faced by an adamant world which refused to accept any delay in sending a committee to the project to determine whether or not the "Black Planet" still existed. Tactics used in an attempt to prevent such an investigation had only increased suspicion. Our delegates explained to the United Nations that when the "Black Planet" exploded, it contaminated the surrounding area with radioactive fragments which would make investigation dangerous if not fatal to the investigators; the committee members said they could determine the truth of that upon arrival at the project. Our delegates then said that a full report would be issued as soon as information was available; the opposition said to hell with reports—they wanted to see with their own eyes. Our delegates said such an investigation was a violation of national sovereignty; the opposition said that a space ship would be a greater violation of everyone's sovereignty and that if their committee wasn't permitted to go to the project immediately, war would be declared on the instant. Washington told them there was no excuse for war, that as long

as the "Black Planet" had been destroyed in the initial attack, peace could be restored and maintained, and that in any case the "Black Planet" wasn't a military weapon but was designed purely for scientific and peaceful purposes. The opposition said that if that were true, there should be no objection to the investigation. The United Nations committee then gave our delegates five minutes in which to decide whether to permit the investigation or to face immediate hostilities from a combination of all the other nations. The United States delegate took his full five minutes and then agreed to arrange a train for the committee, since the other nations insisted. The opposition said to hell with that—they were going to send their committee by the fastest plane possible. Our delegate politely offered to supply the plane. The opposition refused. It would supply its own planes and pilots. Not only that, but if through any accident—by act of God or otherwise—their planes failed to arrive at their destination, war would be the immediate result and the Magellan Project would be the first target.

"And so," said Humphrey in conclusion, "the committee of investigators is on its way. They'll arrive in four or five hours."

"Then what?"

"Then I'm under instructions to refuse admittance to the project."

"And then we'll be attacked again."

"Exactly. I'll delay things all I can. Could we seed the ground with radioactive dust in some way so they'll really believe the place is contaminated?"

"You couldn't be very convincing when they see for themselves that you're still alive and healthy. Anyhow they'll have their own experts with them, and the only way we could convince an expert would be to make things so radioactive we couldn't stay here ourselves. Even that won't stop a bomber."

"Then I'll do the best I can. And when the attack comes, we'll hope for another victory."

Four or five hours. But rain continued to fall, clouds lay in a thick blanket over the land, and another night was coming. Night and rain might aid an enemy in getting

through our defenses, but clouds and darkness wouldn't increase the accuracy of their bombers. Still, only one bomb was necessary and it didn't have to be a direct hit. A close miss would be enough to put the delicate mechanisms of the space ship out of commission. We could wipe out all of their planes except one and still lose the fight.

Fortunately there was little time to dwell on such unpleasant thoughts. The cone of the ship had been drained, and now I set a gang of men to work rearranging the partitions between the fuel tanks. This cone, as I've explained, rested on top of the ship directly above the hollow core—like the hole in a spool of thread—through which the rocket thrust was intended to go. There no longer being any rocket fuel, the core and cone were cleaned completely, a task assisted by the fact that everything in these sections, including the cone itself, was designed to be released once the "Black Planet" reached the free-flight orbit.

Walker Hedgerow meanwhile arrived with the plate I'd ordered. It looked like nothing so much as a great circular piece of honeycomb with the honey removed from the cells. We moved it beneath the ship and then up through the core to the base of the cone, where it sealed the cavity completely. Here it was fixed in place. While the gangs of men worked, I joined Aaron in the office inside the ship, gave him a copy of Osborn's equations and explained my entire plan. It was so hypothetical in nature and so completely unconfirmed by any prior tests that I found myself getting argumentative while I talked, as though I still had to convince myself. He listened attentatively—even absorbedly—to what I was saying, and then made me stay with him while the two of us went over Osborn's equations.

"My hope is this," I told him. "The ship itself isn't dependent upon the launching power once it gets into space. It has its own engines to put it into rotation and is entirely self-contained. If there were a way to catapult it beyond the reach of gravity, that would be just as satisfactory as pushing it up there with rocket fuel. The important thing

is to get it there—the right altitude and the right speed. Then you release the cone just as in the original plans."

He looked at me curiously for several seconds, then turned back to the equations which lay on the desk before him. "But don't you understand?" he said quietly. "With these you can actually navigate. It's so simple you can calculate a course with a slide rule. And Magellanium isn't like rocket fuel; it doesn't burn up. What would happen if I don't release the cone?"

The possibility startled me. "God only knows. It'll be loaded with three types of Magellanium trying to go in three different directions. As you say, those equations show you how to control it; that's why I had Osborn do the work. But you'll do better to watch your speed indicator and altimeter and release the cone just as though you were using rocket fuel. After that your operations will be familiar."

The words made him laugh. "Familiar operations. How easily we get blinded! Because you've introduced a principle never thought of before, you call it new, and yet you speak of operations never put into actual practice as being familiar. Only because they're familiar to our thoughts. Pragmatically, the whole thing is still as novel as on the day the first line was put on drafting paper." Then he became serious again and the odd light returned to his eyes. "You'll have the entire world's supply of Magellanium in the cone, and yet you want me to release it."

"We know how to make more."

"But no one knows outside the project."

"Not yet."

"And if the laboratories are destroyed, maybe never."

"What does it matter—if it works?"

He looked at the equations again, folded the pages carefully and slid them into his pocket. "We can only try," he said. "When shall my crew be ready?"

"Have them standing by at nine. We'll have to take off the women and children then. There's only one chance in a thousand, Aaron. I'm not sure of anything."

"Of course you're sure," he said. "At nine." He looked at his watch. "It's nearly eight now."

"But I'm giving us over an hour's leeway. We can't make the attempt until after ten."

"I see," he said. "Very well, I'll call the barracks and give orders to the crew." I left him and went to inspect the preparations.

The Magellanium had continued to arrive from the laboratory in trucks, was carted up through the body of the ship by elevator and through the hatchway into the cone, where men were putting it into the cells. Magellanium A went in first because it was heavy and inert at this hour. One third of the cells received a grain of it and then this section was covered tightly. Magellanium C went in next, and then Magellanium B, which by this hour had become inert again. All were sealed into the cells in three different sections.

Tom arrived to supervise the rest of the work and told me the vault was producing Magellanium A again, influenced perhaps by the nearness of Sirius to the horizon. Men from the engineering staff were inside the ship, making additions to the mechanism by which the cone was to be released so that the same mechanism could control the lids to the three cell sections containing the Magellanium. I paused in the living quarters of the ship long enough to have a cup of coffee and tell the women they'd have to decamp themselves and the children at nine o'clock. They look startled at the news because they were under the impression they were to remain in the "Black Planet" several days—or until released from the project. I told them I was sure they'd be evacuated from the project by morning.

The scene in the living quarters was a sharp contrast with the activity going on outside. About fifty children were left on the project and all of them were here, varying in age from infants to boys and girls in adolescence. The older ones even after several hours were still curiously examining the interior of the "Black Planet" which they'd heard about and looked at for years but which they'd never before been permitted to enter. Some fifteen of the younger women had volunteered to keep order and were doing a good job of it. The meteor-proof walls gave them

a sense of safety which increased their dismay when I told them they'd have to leave.

Then to add to the difficulty of sending them out, I received a phone call from Humphrey who informed me that the committee from the United Nations had arrived and was now at the port of entry. It seemed impossible that the afternoon had flown so swiftly, and yet when I glanced at my watch I saw they'd had ample time. Within a matter of minutes the committee members would understand from Humphrey's refusal to let them enter the project that the "Black Planet" or something equally dangerous to their national welfare was still in existence, and then the attack would be on once more. A harsh moment to turn the women and children out of their place of safety.

From Humphrey's manner of speaking I knew that everything he said to me was being overheard by the committee members themselves. He was at the port of entry, talking to kill time, asking me meaningless questions such as where should he start the tour of inspection and if the committee could approach the burning space ship in safety. We were down to seconds now, squeezing them out while we waited for the world to turn.

"Can they communicate with their own headquarters?" I asked him.

"Oh, yes," he said guardedly. "It won't be necessary for us to assist them in that. They're in direct touch by radio with their various consulates, and so the quicker we dispel their apprehensions, the better."

"Will they wait until I get there?"

I heard Humphrey speak to someone standing near him. "Will you wait until the project director arrives to conduct you?" There was a mumble of voices in the background and then Humphrey's voice again. "They say they will not."

"I see," I said. "How are your ulcers?"

He chuckled. "Funny thing, they don't bother me a bit."

"Fine," I said. "Conduct your guests to the end of the tram line and I'll meet you there."

Humphrey garbled for a moment, having no intention of letting them past the port of entry. If they had direct radio stations with their consulates, they must also have direct connection with their military establishments and could send out an absolute location on the space ship. He said, "But you know my orders. I must take them immediately to the site where the ship was destroyed."

This couldn't go on. With every second additional beads of Magellanium were being transfered into the cells in the ship's cone and so every second was important, but Humphrey and I were not good enough actors to maintain the pretense that we were about to admit the committee to the project when in fact we were going to do no such thing. I was trying to think of where he might lead them without revealing that the project was pretty much intact when there was a scuffling at the other end of the line and a heavy foreign voice spoke into my ear.

"Dr. Ambert, you need pretend no longer. War is already declared!" The telephone went dead for a moment and then Humphrey came back on. He sounded resigned.

"That's it, Ambert. I'll take these boys into custody, but that won't stop the fireworks. We're in for it."

That was that, then. Our respite was over and the "Black Planet" was still on the ground. It was going to be the target for another attack and there wasn't a thing to be done about it for another two hours. Even had our preparations been complete, we still had to wait upon the turning world, and our preparations weren't yet completed. The trigger wasn't cocked. So rather than send the women and children out into a rain of bombs, I told them to stay where they were until further orders. Then I collected Tom and Hank Kuka and we returned to Tom's laboratory for the last time.

What we had to have was one sphere of Magellanium A larger than the others, a sphere large enough to attract and absorb all the other A particles. By absorbing them, this sphere would grow, and as it grew, the attraction between it and the White Dwarf of Sirius would increase according to the square of the mass. It had to be type A because that type belonged to the White Dwarf of Sirius, and this

would be the next of the dense stars to clear the eastern horizon. It was due, in fact, at 10:01 P.M. but had to be given time to climb into the sky or else all our Magellanium would move off at a tangent to the curve of the earth's surface, and if the "Black Planet" were attached to it, the ship literally would be dragged across the surface of the ground for a long distance before it could be pulled into space. To achieve an angle of inclination which would carry the ship upward and clear the hills bordering the valley, we would have to wait until 10:27.

The making of the sphere was a simple process and one I've already described. Small particles of Magellanium A were permitted to come together. They joined just as drops of liquid join, and so the sphere grew. The pull was still downward and we were able to check the weight on the balance as we made it. Tom's original specimen of Magellanium had tipped the balance at two hundred pounds at the peak of its downward attraction. We built this one up to twelve hundred pounds and still it was little larger than a child's marble. But that was enough. Our entire apparatus was already upon a dolly which we moved out of the laboratory and onto a waiting truck. We climbed into the rear of the truck with it and started off.

During the five minutes it took the truck to drive down the hill to the "Black Planet" I had time to wonder why we hadn't seen evidence of an attack yet. The falling rain muted all sounds and my ears had grown so accustomed during the last twenty-four hours to the noises of airplanes that it was only by concentration I could hear them at all. They were still there, above the clouds or in them, but I was certain the number had been greatly reduced. It was probable also that after the disaster to the fuel reservoir, the planes were patrolling at a greater distance from the "Black Planet," so that a similar accident couldn't destroy the ship itself. But of one thing I was sure—there could be no surprise attack. If war was declared, everyone knew about it.

The project, never a highly illuminated place, had been blacked out completely. The gray day had darkened into evening and then into night—a starless, somber night

filled with the whisper of rain. The driver of the truck felt his way along the road by habit rather than by sight, and from all we could see of our surroundings we might have been a thousand miles from the project. I was startled when a killdeer, winging low through the rain, passed so close to my head that I felt the brush of wings and heard its shrill cry as it veered off in fright. The incident prompted Tom to say, "Perhaps the earth will soon be safe again for birds."

"I don't love them so much that I'll vacate without a dispute," I said. We reached the "Black Planet" and drove under the protection of its body where red bulbs glowed through the darkness to mark the locations of entrances and elevators. A waiting crew moved the Magellanium into an elevator. Tom and I followed, and we ascended quickly through the entire body of the ship to the cone, where block and tackle were waiting to lift the last of the Magellanium through the hatchway. The honeycomb plate with its myriads of particles was below us, its lid firmly in place, but I could hear the rustling movement of the A particles as we moved our marble-sized sphere into place beneath the apex of the cone. Here it was once more hoisted upward and secured in a cell at the very peak of the cone. I left Tom to complete the work and descended into the body of the ship once more where I found Matthews in his office. He had just put down the telephone when I entered.

"We're under attack," he said without emotion. "How much longer do we have to wait?"

I listened but could hear nothing through the soundproof walls of the ship. The idea that bombs were falling outside and that at any moment the "Black Planet" might be jarred from its pedestals seemed impossible. "Is that what you were just told?"

Aaron nodded. The calm with which he'd faced the long ordeal was still with him, but another quality had been added which was best described as a reverence. He mentioned the attack with sorrow rather than anger, as though he sympathized with the brave men of both sides who would die in useless combat. Then he answered his

own question. "We wait for the turning world. It's the wheel of a giant clock that was wound a million years ago and the alarm set. It can't be hurried or slowed down. There's the precise instant toward which all our endeavors and hopes and villainies converge. Even the accidents were necessary. Soon the instant will come."

I had wondered before if his serenity wasn't the result of an obsession with the dream of space flight, and now I was certain of it. He had done all that was possible for a man to do in the physical sense, had co-operated readily with my plans and had given thought to the safety of those around him. But these gestures now seemed incidental to his purpose. I had the sharp but totally illogical impression that our survival up until now was the result of nothing except an act of will on the part of Aaron.

"Twenty minutes," he said. The words recalled me to the situation.

"We'll have to unload the women and children."

"Of course," he said, but he made no move to leave his office. He sat gazing at me with an expression I couldn't read until, in a panic at the passage of time, I turned and left him to give the orders for disembarkation myself. Then he arose and followed me to the ship's living quarters where the women and children awaited. I gave the instructions and then descended the long stairway to the ground outside to see for myself what was going on.

The night was filled with a deadly beauty. From high above the clouds phosphorus and magnesium flares had been dropped, how many I couldn't say, because the clouds obscured the single points of light. Instead the light was suffused throughout the entire area of the overhanging mist. The lowered sky glowed as though illuminated by a steady barrage of sheet lightning and shed on the earth below a ghostly radiance so nebulous that it couldn't cast a shadow. The distant structures of the project appeared like flat scenes cut out and pasted against a flat background of rolling hills and mountains. The rain was silvered and fell like tiny dots of snow.

I looked toward the barracks on the opposite rim of the valley, expecting to see trucks bringing the crew down

the winding road. There were no trucks. In the phosphorescent night the hillside was singularly bare. I turned and ran up the long stairway into the first tier, shouting for Aaron. He was in the corridor near the door of the control room where the engineers had finished their alterations on the controls. The occupants of the ship, the women and the children, many of the men who had been working in the cone, were still aboard.

"Your crew, Aaron!" I shouted. "Where in hell are they?"

"I talked to the barracks," he said. "I gave them intsructions."

"They aren't coming! Call them again!"

"Very well," he said, but made no move to approach the telephone. He stood staring at the controls. I ran past him to see if the women and children were leaving.

They were lined up in the living quarters. The scene reminded me of how we used to line up before dismissal from school when I was a boy—the children in two lines flanked by teachers, everyone standing straight and waiting for someone to put the martial music on the phonograph. I saw my son Louis there, his eyes wide with apprehension as he clutched his sister by the hand. Susan was there, and Gail, and all the others—all watching me, but it was only Susan's eyes that drew mine. She looked at me with a love so remote that it sent a chill of terror through my body. There they all stood and I must order them out. I did so, and then I turned back toward the exit myself, hearing behind me the tramp of feet as they followed. But when I passed the door of the control room, I was stopped by Aaron, who drew me to a halt and gestured toward the new mechanism. It consisted principally of three levers labelled A, B, and C. I stepped forward and touched the one labelled A, then moved into the corridor again. The earth was a clock and it was turning. In the control room the telephone rang and Aaron stopped me again. The call was for me from Humphrey.

"Submarines," he said. "Forty or fifty of them just off the coast preparing to launch rockets. It's close range and some will get through."

"I can't help it," I said, and hung up. "Submarines," I said to Aaron. "Don't stand there. Help me get everyone off this ship!" I stepped out into the corridor.

"Wait," he called. "Philip, wait! The force of life is the only one that compels us."

"There's no time to wait!" His words were odd but I couldn't pause to ask him what he meant. I had to get the people off and the crew aboard, so I continued toward the exit. Behind me the slow pace of feet again. Why do so many myths tell of men forbidden to look back when leading their loved ones from the realms of the dead or into paradise? To look back is fatal. But where was I leading them? Into hell or away from it? I descended the steps leading down from the underbelly of the "Black Planet." The nebulous light still rained down from the sky, sirens wailed through the night and there was an angry roar as the first of the rocket bombs screamed past high above its mark. I stared toward the barracks on the valley rim. There were no trucks—no crew! *What in the name of God had Aaron told them*? I looked back.

Blocking the exit of the space ship were Gail and Aaron, locked in each other's arms. Behind them I saw Susan's face staring down into mine. Suddenly I was overwhelmed by the memory of my dream. It had been like this—staring across eternity at another world. I shouted at the top of my lungs but my voice was drowned out by the whining of shells and distant explosions. I saw Aaron release Gail. I saw him glance again at his watch and then listen to the discordant uproar of the world outside. As in a dream I saw him push Gail back into the interior so that only he stood in the exit. The faces behind him faded into the interior dusk. His eyes were bright with a strange fire and he lifted a hand as though commanding the night to silence.

For a few seconds the night obeyed, and I heard him call down to me, "The answer to everything lies in the event that happens. The instant won't wait, Ambert. I give you this world!"

The door closed. *It closed!* I rushed up the flight of steps to pound upon it and perhaps saved my life in so doing, for

an incendiary bomb exploded not a hundred yards away and sent a sheet of flame across the ground beneath me. I beat vainly with my fists, no longer aware of the inferno that raged across the project. I knew only what I'd seen in Aaron's eyes, knew that Susan and my children were in there with him.

I was aware also of the moment when he moved the lever labelled A. Knowledge came with a sound like a giant swarm of bees as the particles of Magellanium A were released from their honeycomb cells and swarmed upward to join the larger sphere of Magellanium at the apex of the ship's cone. A second—two seconds—the angry hum lasted while the sphere must have grown from the size of a marble to the size of a large crystal ball. It determined its own future. The square of the mass. The weight of the "Black Planet" was no longer enough to stay it in its blind impulse to drive through space toward the White Dwarf of Sirius.

The ship moved! How colossal is the vanity of man! For in that instant I forgot my loved ones in the sense of triumph that overwhelmed me. Above my head the door upon which I pounded receded. Around me the pedestals quivered and groaned as the weight they had borne so long lifted upward. Several pillars fell, pulled sideways by the oblique course the ship was taking toward the bright star near the horizon. Then I was alone, kneeling at the top of a stairway that led to nowhere. Drifting away from me through the pallid night on its silent course toward infinity was the majestic bulk of the "Black Planet," drawn like a moth toward the light by the power of Magellanium.

Swifter and swifter it flew through the explosive air. From above it out of the clouds three planes appeared, power-diving to prevent the "Planet's" escape. The planes were like gnats compared to the size of their prey. Their guns spouted and my ears followed the course of tracer bullets that never reached their mark. The "Black Planet" was drifting too fast, and its speed was doubling by the second. It cleared the valley hills by a scant hundred feet, still sliding up that invisible slope of force, faster and faster

as its bulk diminished in the distance and then it was swallowed up by the clouds. I strained my eyes but could see it no more. It was gone.

By a miracle I still lived. The guided missiles and planes had changed their course in vain pursuit of the "Black Planet," and I took advantage of the lull to descend the stairway and run. Project buildings were in flames but I no longer cared. The project was finished. I ran on, thinking only that I must live to learn if the "Black Planet" came safely to outer space. If it did, there was hope again —for myself, for all on board.

On the roadway leading from the valley I came upon several horses which had bolted from the blazing stables. Flinging my arms about the neck of one, I vaulted to its back, and as the "Black Planet" soared starward on power derived from the farthermost reach of human ingenuity, I galloped bareback, transported by the same power that carried the Scythian savage who rode in the ranks of Attila. I rode over the wet hills through the rain, heading for the safest place I knew—the cavern.

CHAPTER TWENTY-THREE

Now I AM UTTERLY ALONE. What ages have passed in the few days since I first discovered this cave! A boy and a dead bat. But it was not as a refuge that the cavern proved providential. I see now that its value in the order of things lay in the fact that through exploring it, I found myself in jail. And those hours in jail were the leisure hours permitting the discovery of the principle controlling the Magellanium. The path of life seems crooked only because we fail to heed the indirection by which we are led. But then, I don't think we'd follow if the way were obvious.

I am in the cavern. I found it unmolested even to the presence near its entrance of the supplies Susan brought here two days before the end. She'd had to leave them, and they had remained untouched, by Humphrey's orders, when he still believed the entire matter would be investigated by the secret service. A small military detachment was posted near the sinkhole as a precaution against use of the cavern as an entrance to the project. The men in this detachment were all dead when I arrived. A rocket bomb, falling far short of the mark for which it was intended, had struck in the midst of the small encampment. I spent no time lingering over the miserable scene but set to work at once lowering food and supplies into the cavern and then I entered it myself. I was there when the attack re-

turned, as I knew it must if the "Black Planet" escaped. Having failed to destroy the space ship, the enemy was next determined to destroy every means by which it could be controlled or supplied. For hours the earth trembled around me. Sections of stone fell from the roof of the bat chamber and from far below came the tinkling of stalactites jarred loose by the reverberations. I sat in darkness, not wanting to use the remaining lantern fuel nor even caring a great deal should the cavern collapse and crush me. The earth was a clock still turning. The answer to everything lies in the event that happens.

Hour upon hour and then finally the bombing stopped. Even after that I remained a long time in the cavern until a glance at my watch by matchlight showed that it was morning. Then I crept up the rope ladder and through the crevice to the outside world. The rain had stopped but clouds still filled the sky, low clouds being driven to eastward now, which meant that the storm was passing. I was afoot in a pock-marked world and started walking back toward the project center. I saw no one, and when I topped the last ridge after an hour's walk, I realized that I was going to see no one. Not a familiar building remained. Laboratories and apartments, offices, shops, and warehouses had all been leveled with the earth and were now nothing but heaps of smoking debris. There was no sign of life anywhere on the ground, but while I stood there, three low-flying planes swept across the sky, circled back for a turn across the project and then flew on. They were our planes, which meant that we had finally been victorious in the battle even though the project itself was demolished. I wondered if the area were contaminated by atomic radiation and if I might already have gone too far. My mind was too exhausted to worry about my physical well-being but because I wanted to see another night, I turned away from the scene of death and destruction and returned to the cave, where I forced down some food and then slept.

When I awoke it was evening and the skies had cleared. With a pair of binoculars in my hand I climbed to the rim of the sinkhole and sat down to await darkness. Mean-

while I scanned the skies, wondering if an object as large as the "Black Planet" might not be visible with the naked eye. The thought was purely speculative because even if the "Black Planet" were now in free flight around the earth, I wasn't yet situated upon the plane of its orbit. I must wait for the earth to turn to bring the orbit overhead. Those on the ship knew that too—at least those in charge of the ship knew it. What a queer crew! Well over half of them women and children. I tried to remember what men were there besides Aaron. Tom Hernandez, certainly. He'd been in the cone when I last saw him and must have completed his work or else the ship couldn't have been launched. Kuka was with him. Was Duval there? I couldn't remember seeing him but I couldn't think of where else he might have been. Gail, of course, and Susan and Louis and Marjorie. I stopped trying to remember. As long as Hernandez was aboard, I could expect a signal if all was well.

Night deepened and I waited the rise of Sirius, which would give me the plane of the ship's orbit. The star appeared a few minutes earlier than the night before, and I watched as it moved through the haze along the horizon until it gleamed brightly through the clear air above. The pattern of stars was the same as always, but I looked in vain for a new light moving among them. In a two-hour orbit, the ship couldn't take long to pass if it was there at all. But those hours passed and still I saw nothing to give me hope. They had atomic flares aboard. One of them was enough—at orbit distance—to shed a noonday glare over half a continent. But still I saw nothing until in the sky to the west of Sirius I discerned a faint fuzz of light, a thin nebulosity rather than a point. I adjusted the binoculars and looked.

Through the glasses the vague luminescence in the sky separated into four tiny points of light, pin pricks in the darkness, arranged in a straight row. There certainly was no such arrangement of stars at that point in the heavens. I held the glasses steady and kept watching, trying to tell whether or not the points of light were moving against the background of stars. There was no discern-

ible movement, but as I watched, a fifth point of light appeared—a continuation of the row but much dimmer than the one next to it, as though its source was at a greater distance.

I had no reason to doubt now. The lights were flares shot by the "Black Planet." But at what a distance! It wasn't only the faintness of the light that told me that; it was also the absence of apparent motion. The earth too was moving some fifty thousand miles a minute in its own orbit around the sun. Just as a person in a motor car sees objects in the foreground move across background objects as he watches from the speeding car, so should I have been able to see those pin pricks of light appear to move across the stars behind them. The motion was too small to detect. The answer was that they weren't in the foreground. The "Black Planet" was already at planetary distance, as far away perhaps as the orbit of Mars.

Aaron hadn't released the cone then. The Magellanium gave him the power to navigate and he'd refused to let it go. It was what I had feared—or was it what I'd hoped? I knew now what he meant when he called out those last words, "I give you the world!" Gail had been victorious. That was no sterile machine coursing through space; it was a fertile seed, a result of man's flowering and capable of producing further blossoms.

I still kept my glasses trained on the points of light and thought I detected a sixth flare, but even though the binoculars it was so faint that I couldn't be sure. But if the sixth flare was there, then the "Black Planet" was travelling at a truly astronomical speed.

I put my glasses away and returned to the cavern, content with the assurance that my loved ones still lived. They had sent me a message and my eyes had found it. I thought of the land in my dream—the other world beyond the horizon which I wasn't permitted to reach. Then I descended once more into the little world I'd discovered for myself. I made several trips carrying all my equipment down through the cavern to the shores of the warm lake where I'd spent my last hour alone with

Susan. Here in the dim solitude I've spent a number of days compiling this record which now draws to an end. My supply of food is about exhausted, and so presently —when I've written the last word—I'll wrap my manuscript in a flap of canvas, deposit it in a safe place and venture once more into the world to see what's happened.

I doubt if we can be at war, since the cause of the conflict has departed from earthly influence. It may be, even, that mankind has now finished with his task on earth and understands this well enough to try no more. But that's a melancholy note on which to end. Let us think rather that Aaron was wise, and that by lifting men's eyes to the stars he will lead them to forget their differences here on earth. Let us believe that in the vastness of space man will once more recognize the divinity of his origin which upon other worlds will permit him to grow until his soul is a proper temple for the god that fills him.

ABOUT DAVID DUNCAN

Science fiction, which can boast an honorable ancestry extending at least as far back as the Renaissance, has a happy attraction for writers as a medium for both stimulating entertainment and challenging ideas. As such it has a particular relevance in our world of rapid technological and social change; and contemporary authors from H. G. Wells to Arthur C. Clarke, from C. S. Lewis to Ray Bradbury, have found in it a means of expression for ideas which could not be embodied with the same force and clarity in any other form.

David Duncan's previous novels have included a psychological suspense story (THE BRAMBLE BUSH), a penetrating examination of an artists' colony (WIVES AND HUSBANDS), and THE SERPENT'S EGG, a powerful and illuminating novel of American labor which *The New York Times* praised as "sharp, literate, crystalline. Its theme demands the virtuoso touch, and it is a tribute to the author that he brings it off without special pleading."

"I've tried very hard," he writes, "never to write the same book twice. I have a horror of being categorized as one who writes a particular type of fiction even though such categories have their financial rewards.

"In spite of this feeling, DARK DOMINION isn't my first excursion into science fiction. A small dose of it occurred in an earlier book THE SHADE OF TIME, which had to do with atomic displacement. I had a lot of trouble with that book. It was rejected half a dozen times and returned to me as unpublishable because of the science content. It lay in my desk for about a year after that until the first bomb fell on Hiroshima. I've always felt guilty for being the recipient of good from such a notoriously evil wind, but it was apparent that atomic displacement would no longer seem so mysterious to readers. So I gave the manuscript to

Anthony Boucher, who read it on a train trip to New York. When he returned, he presented me with a publisher's contract.

"Since then I've earned my livelihood by writing—doing screenplays, teleplays, a few short stories, articles, and some verse, in addition to novels. The greatest critical reward (and least money) was won by THE SERPENT'S EGG."

With DARK DOMINION, Mr. Duncan has achieved the kind of success which may be a portent of the fast-growing popularity of this fascinating genre: shortly after signing his contract for book publication he learned that the novel had been selected by *Collier's* for serialization. It was the first science-fiction serial to be published by *Collier's* since John Wyndham's THE DAY OF THE TRIFFIDS appeared more than three years ago.

Concerning the attraction of science fiction as a form for the serious novelist, Mr. Duncan writes:

"To me the great virtue of the science-fiction story doesn't reside in its elaborate gadgets and twistings of time and space—although these can be majestically entertaining—but in its possibilities for analysis of man and the social order. From the vantage point of a hundred years hence, the writer is free to speak his mind on what he thinks of present-day developments, or—by laying his story on another planet—he can parody our worldly strengths and weaknesses without fear of being stoned by his neighbors. He can damn or praise governments, wipe out offending religious faiths, expose hypocrisies, create Utopias, and bring on the Millennium simply by means of an unfettered imagination."

Mr. Duncan lives with his wife and three daughters in Los Angeles. A writer by instinct and by occupation, he is at work once again exploring the world through fiction.

If you enjoyed this book as much as we hope you did, you will want copies of the permanently bound edition for your library and as gifts for your friends. This permanent edition is printed on better-grade paper with wider margins, is bound attractively in boards, and is jacketed. The price is $2.50 per copy. You can order this book at your local bookstore or directly from the publisher. Please send your remittance by check or money order—not cash or stamps, please—to DEPT. H, BALLANTINE Books, 404 Fifth Avenue, New York 18, N. Y.

"The whole Ballantine science-fiction line has certainly struck, by a wide margin, the highest average of literary quality and the best understanding of modern science fiction that any book publisher has yet reached."

—ANTHONY BOUCHER, *Fantasy and Science Fiction*

How to Join the
Science-Fiction Preview Club

Through the SCIENCE-FICTION PREVIEW CLUB you can be among the first to receive—*in advance of publication*—exciting new books by such famous authors as:

JOHN WYNDHAM
THEODORE STURGEON
ARTHUR C. CLARKE
WARD MOORE
HENRY KUTTNER
FREDERIK POHL and C. M. KORNBLUTH

AND the new STAR SCIENCE FICTION STORIES No. 3

For the best in *adult* science fiction, fill out the coupon below and mail it today. Send only $4.00 in check or money order payable to Ballantine Books, Inc., 404 Fifth Avenue, New York 18, N. Y. *(Sorry, no cash or stamps.)*

NOTE: Your opinions can guide us in selecting the books and authors you want. Please check box if you would like to give us comments on the books you receive.

[DD]

Science-Fiction Preview Club

Please send me your 12 upcoming books of science fiction.

NAME: Miss / Mr. / Mrs. _____

ADDRESS _____
Number Street

_____
City Zone State

Enclosed please find $4.00 in check or money order.

☐ I would like to give you my opinion on club selections.

Ballantine Books, Inc., Dept. A, 404 Fifth Ave., N. Y. 18, N. Y.

22. *THE BIG RANGE by Jack Schaefer (35c)

Ten magnificent stories of the western frontier by the author of *First Blood*. "All ten stories are good... earns a Double-A rating." —*The New York Times*

23. *PATROL by Fred Majdalany (35c)

"This story of one day in the long war is memorable. The author knows his subject well, adding authority to an interesting story." —*Cleveland Plain Dealer*

24. DESERT PASSAGE by Richard Poole (35c)

Arizona—the fight for the stage-coach lines. "An exciting, entertaining, well-written Western." —*Montgomery (Ala.) Advertiser*

25. THE UNDYING FIRE by Fletcher Pratt (35c)

The story of a dramatic quest in outer space, by a master of science fiction. "Perhaps the best of Mr. Pratt's longer science-fiction stories." —*New York Herald Tribune*

26. THE CITY OF ANGER by William Manchester (50c)

A towering and intense novel of the warring worlds within an American city. "A tremendous and terrifying novel, and truth rings across its pages." —Willard Motley
author of *Knock On Any Door*

27. SUMMER STREET by Hal Ellson (35c)

The penetrating account of an adolescent's sudden maturing, by the author of *The Golden Spike*. "With honesty, compassion, and understanding... Mr. Ellson explores the critical period when an adolescent emerges into manhood." —*Literary Journal*

28. THE SECRET MASTERS by Gerald Kersh (35c)

This famous author tells a fine suspense story—of a few men who wanted the world for themselves. "First-class entertainment." —*The New York Times*

---

*A HOUGHTON MIFFLIN book, co-published with BALLANTINE BOOKS

Any title which is unobtainable from your dealer may be ordered directly from BALLANTINE BOOKS by sending the list price, plus 5c postage for each title, by check or money order. Address Dept. B.

BALLANTINE BOOKS • 404 Fifth Ave., New York 18, N.Y.

29. INDIAN COUNTRY by Dorothy M. Johnson (35c)

Outstanding stories of character and courage in the American West. "The writings of Dorothy Johnson are the type that is building a body of true literature about the American West."

—The Peoria Journal

30. AHEAD OF TIME by Henry Kuttner (35c)

A fascinating collection of superb science-fiction and fantasy tales. "A book to be bought not only by the enthusiast, but by the short-story reader who thinks he doesn't like science fiction."

—New York Herald Tribune

31. *A GRADUAL JOY by Alma Routsong (35c)

"A beguiling love story, with the beautiful simplicity of true craftsmanship." *—Chicago Sunday Tribune*

32. THE FAR COMMAND by Elinor Chamberlain (35c)

"...not only tells an exciting story of the 1902 period but through readable fiction brings out the devotion of Americans who sought to prepare the Filipinos for self-government."*—Denver Post*

33. CHILDHOOD'S END by Arthur C. Clarke (35c)

A highly exceptional science-fiction novel by the author of the Book-of-the-Month Club selection, *The Exploration of Space.* "There is wisdom... frightful suspense and surprising revelation, always stern logic and the use of human beings, not figures to move about the plotboard, in the story of earthlings; and there is a mourning beauty." *—Los Angeles Times*

34. *THE BEST AMERICAN SHORT STORIES 1953 edited by Marth Foley (50c)

This annual literary event presents thirty first-rank short stories by such authors as Mark Van Doren, Tennessee Williams, and Christine Weston. "Miss Foley has achieved a remarkable success with her eleven volumes... she has steadfastly refused to admit any restriction but that of quality, and her choices display an extraordinary catholicity of taste." *—Saturday Review*

---

*A HOUGHTON MIFFLIN book, co-published with BALLANTINE BOOKS

Any title which is unobtainable from your dealer may be ordered directly from BALLANTINE BOOKS by sending the list price, plus 5c postage for each title, by check or money order. Address Dept. B.

BALLANTINE BOOKS • 404 Fifth Ave., New York 18, N.Y.

35. GUN HAND by Frank O'Rourke (35c)

"In *Gun Hand,* Frank O'Rourke, with dexterity, weaves historical facts in with plausible fiction to bring you one of his better Western action thrillers." —*Augusta, Georgia, Chronicle*

36. †EARTHLY CREATURES by Charles Jackson (35c)

"The stature of American short-story writing . . . is significantly reaffirmed with the appearance of this giftedly readable and provocative collection."

—*Budd Schulberg, The New York Times Book Review*

37. **SILENT ARMY by Chin Kee Onn (35c)

A truthful novel about an amazing underground war against the Japanese in Malaya. "... built-in excitement."

—*The New York Times Book Review*

38. †BRING THE JUBILEE by Ward Moore (35c)

An imaginative and vivid novel about an America in which the South won the Civil War. "It is good science fiction from every standpoint." —*The Houston Chronicle*

39. NEW POEMS *by American Poets* edited by Rolfe Humphries (35c)

A magnificent collection of more than two hundred poems by more than fifty poets. "I have read it with great pleasure. . . . The bigger anthologies, which try to cover our entire period . . . never give us the sense of the great vitality of the moment. This is what Mr. Humphries has done, and it is a service of great value."

—*Allen Tate*

---

†A Farrar, Straus & Young book, co-published with Ballantine Books

**A Longmans Green book, co-published with Ballantine Books

Any title which is unobtainable from your dealer may be ordered directly from Ballantine Books by sending the list price, plus 5c postage for each title, by check or money order. Address Dept. B.

BALLANTINE BOOKS • 404 Fifth Ave., New York 18, N.Y.

40. *YELLOW HAIR by Clay Fisher (35c)

A stirring novel of the young Custer—firebrand of the Western plains. "Well-told tale. Recommended reading!"—*Hoofs and Horns*

41. FAHRENHEIT 451 by Ray Bradbury (35c)

"Here again in evidence are Bradbury's brilliant imagination, his clipped, swiftly paced prose style, his mastery of suspense, the acme of fantasy rooted firmly in reality, so that one is persuaded to believe quite readily that today's fantasy may be tomorrow's reality ... a compelling book."

—*August Derleth, The Chicago Tribune*

42. *RATOONS by Daphne Rooke (35c)

A novel of South African conflict—man against woman, race against race.

43. *SILVER ROCK by Luke Short (35c)

A granite-hard story of the West today by the author of *Saddle by Starlight.*

44. THE VALIANT VIRGINIANS by James Warner Bellah (35c)

James Warner Bellah, known to millions for his stories of military life, re-creates in memorable fiction the most stirring days of the Civil War. "There's a bugle note to the telling that calls out again the brave, sad days and the brave, young men."

—*Virginia Kirkus*

45. *THE CANYON by Jack Schaefer (35c)

A story of a young Cheyenne in the days before the white man. "As readers who enjoyed *Shane* will testify, Jack Schaefer is a born writer." —*The New York Times Book Review*

---

*A HOUGHTON MIFFLIN book, co-published with BALLANTINE BOOKS

Any title which is unobtainable from your dealer may be ordered directly from BALLANTINE BOOKS by sending the list price, plus 5c postage for each title, by check or money order. Address Dept. B.

BALLANTINE BOOKS • 404 Fifth Ave., New York 18, N.Y.

46. †MORE THAN HUMAN by Theodore Sturgeon (35c)

The provocative story of six people who became—together—a new kind of humanity.

47. KING OF ABILENE by Thomas Thompson (35c)

The rawhide story of a Texan who won back his name in a wide-open Kansas town.

48. THE BURL IVES SONG BOOK (50c)

115 American songs with complete piano arrangements and guitar chords. With many drawings. "Burl Ives's choices could not be bettered, it is wonderful that the music of each of them is presented in a simple arrangement, and I congratulate you all on the successful accomplishment of a job of great importance to the country." *—Carl Carmer*

49. RIDE WEST by Frank O'Rourke (35c)

The author of *Concannon* and *Gun Hand* presents a first-rate selection of his first-rate Western stories, the best by one of the kingpins in the field.

50. OUT OF THE DEEPS by John Wyndham (35c)

A realistic science-fiction novel about an invasion of earth—that turned the seas into the terrible enemy of mankind. By the author of *The Day of the Triffids,* this book has also been published in Great Britain, where *The London Star* said: "A quite extraordinary novel of imagination... a tale which H. G. Wells would have read with delight."

---

†A FARRAR, STRAUS & YOUNG book, co-published with BALLANTINE BOOKS

Any title which is unobtainable from your dealer may be ordered directly from BALLANTINE BOOKS by sending the list price, plus 5c postage for each title, by check or money order. Address Dept. B.

BALLANTINE BOOKS • 404 Fifth Ave., New York 18, N.Y.

51. LAW MAN by Lee Leighton (35c)

The story of twenty-four hours in a sheriff's life . . . a blood-mad town and a condemned man.

52. EXPEDITION TO EARTH by Arthur C. Clarke (35c)

Eleven distinguished science-fiction stories by the author of *Childhood's End.*

53. EDGE OF THE WORLD by Vincent McHugh (35c)

The adventures of the men of a wartime cargo ship—afloat and ashore—as their ship made its way through the dangerous waters of the Pacific during the early years of the war.

54. *THE BOUNTY HUNTERS by Elmore Leonard (35c)

A novel of the last days of the Apache—when ruthless men sought the Mexican bounty on Indian scalps.

55. STAR SCIENCE FICTION STORIES NO. 2 edited by Frederik Pohl (35c)

The second volume of *Star Science Fiction Stories,* fourteen excellent stories by some of the best-known writers and the best newcomers in the field. A feast of imagination and first-rate writing.

56. DARK DOMINION by David Duncan (35c)

The story of a tremendous race for supremacy above the earth, and of the assault on the last great frontier—the conquest of space.

57. BRANDON'S EMPIRE by Dave Hardin (35c)

The compelling story of a bitter legacy and a man's fierce pride, by a new and important name in Western fiction.

---

*A HOUGHTON MIFFLIN book, co-published with BALLANTINE BOOKS

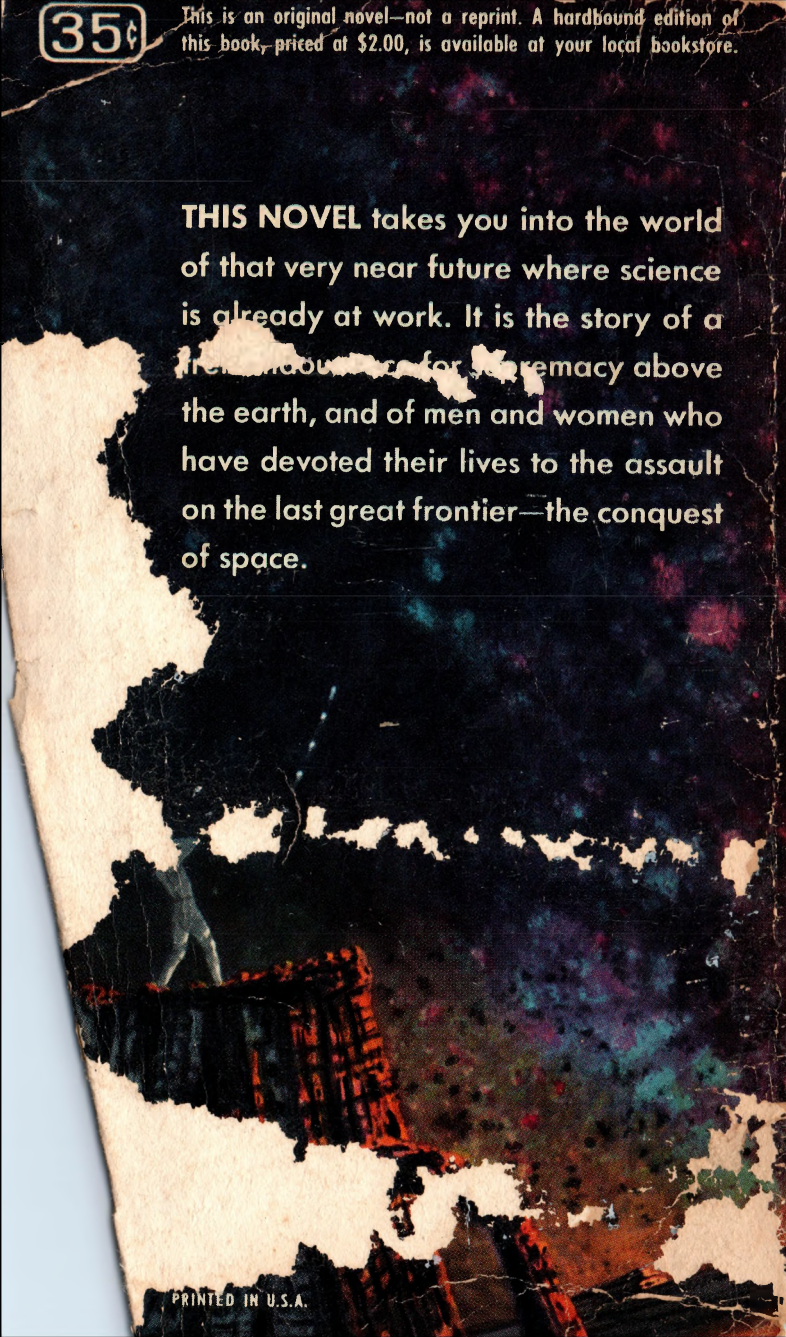
Any title which is unobtainable from your dealer may be ordered directly from BALLANTINE BOOKS by sending the list price, plus 5c postage for each title, by check or money order. Address Dept. B.

BALLANTINE BOOKS • 404 Fifth Ave., New York 18, N.Y.

35¢

This is an original novel—not a reprint. A hardbound edition of this book, priced at $2.00, is available at your local bookstore.

THIS NOVEL takes you into the world of that very near future where science is already at work. It is the story of a [illegible] for supremacy above the earth, and of men and women who have devoted their lives to the assault on the last great frontier—the conquest of space.



PRINTED IN U.S.A.