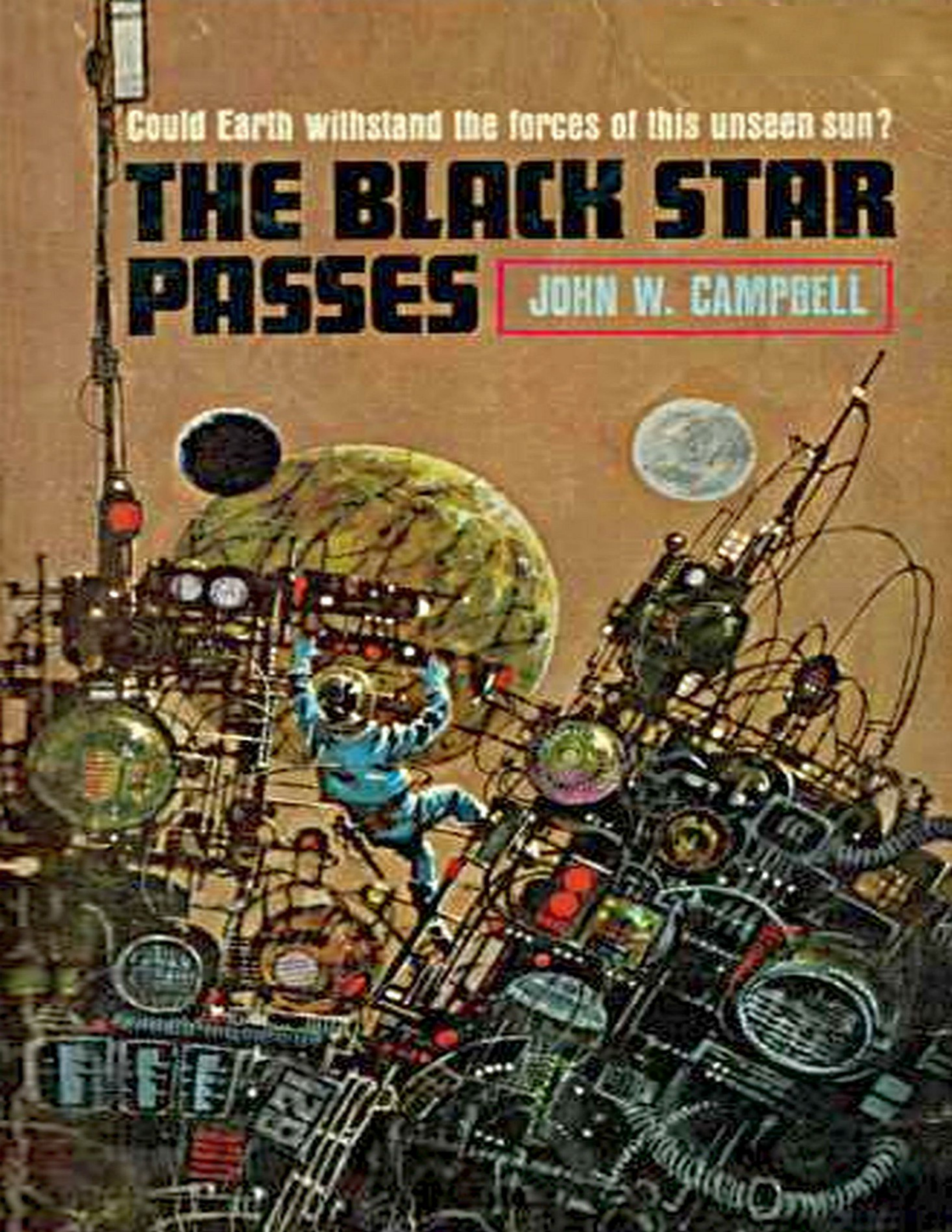
Could Earth withstand the forces of this unseen sun?

THE BLACK STAR PASSES

JOHN W. CAMPBELL



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By JOHN W. CAMPBELL

Cover art by Jerome Podwil

THREE AGAINST THE STARS

A sky pirate armed with superior weapons of his own invention....

First contact with an alien race dangerous enough to threaten the safety of two planets....

The arrival of an unseen dark sun whose attendant marauders aimed at the very end of civilization in this Solar System....

These were the three challenges that tested the skill and minds of the brilliant team of scientist-astronauts Arcot, Wade, and Morey. Their initial adventures are a classic of science-fiction which first brought the name of their author, John W. Campbell, into prominence as a master of the inventive imagination.

JOHN W. CAMPBELL first started writing in 1930 when his first short story, *When the Atoms Failed*, was accepted by a science-fiction magazine. At that time he was twenty years old and still a student at college. As the title of the story indicates, he was even at that time occupied with the significance of atomic energy and nuclear physics.

For the next seven years, Campbell, bolstered by a scientific background that ran from childhood experiments, to study at Duke University and the Massachusetts Institute of Technology, wrote and sold science-fiction, achieving for himself an enviable reputation in the field.

In 1937 he became the editor of *Astounding Stories* magazine and applied himself at once to the task of bettering the magazine and the field of s-f writing in general. His influence on science-fiction since then cannot be underestimated. Today he still remains as the editor of that magazine's evolved and redesigned successor, *Analog*.

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INTRODUCTION

These stories were written nearly a quarter of a century ago, for the old *Amazing Stories* magazine. The essence of any magazine is not its name, but its philosophy, its purpose. That old *Amazing Stories* is long since gone; the magazine of the same name today is as different as the times today are different from the world of 1930.

Science-fiction was new, in 1930; atomic energy was a dream we believed in, and space-travel was something we tried to understand better. Today, science-fiction has become a broad field, atomic energy—despite the feelings of many present adults!—is no dream. (Nor is it a nightmare; it is simply a fact, and calling it a nightmare is another form of effort to push it out of reality.)

In 1930, the only audience for science-fiction was among those who were still young enough in spirit to be willing to hope and speculate on a new and wider future—and in 1930 that meant almost nothing but teen-agers. It meant the brightest group of teen-agers, youngsters who were willing to *play* with ideas and understandings of physics and chemistry and astronomy that most of their contemporaries considered "too hard work."

I grew up with that group; the stories I wrote over the years, and, later, the stories I bought for *Astounding Science Fiction* changed and grew more mature too. *Astounding Science Fiction* today has many of the audience that read those early stories; they're not high school and college students any

more, of course, but professional engineers, technologists and researchers now. Naturally, for them we need a totally different kind of story. In growing with them, I and my work had to lose much of the enthusiastic scope that went with the earlier science fiction.

When a young man goes to college, he is apt to say, “I want to be a scientist,” or “I want to be an engineer,” but his concepts are broad and generalized. Most major technical schools, well knowing this, have the first year course for *all* students the same. Only in the second and subsequent years does specialization start.

By the sophomore year, a student may say, “I want to be a *chemical* engineer.”

At graduation, he may say, “I'm going into chemical engineering *construction*.”

Ten years later he may explain that he's a chemical engineer specializing in the construction of corrosion-resistant structures, such as electroplating baths and pickling tanks for stainless steel.

Year by year, his knowledge has become more specialized, and much deeper. He's better and better able to do the important work the world needs done, but in learning to do it, he's necessarily lost some of the broad and enthusiastic scope he once had.

These are early stories of the early days of science-fiction. Radar hadn't been invented; we missed that idea. But while these stories don't have the finesse of later work—they have a bounding enthusiasm that belongs with a young field, designed for and built by young men. Most of the writers of those early stories were, like myself, college students. (*Piracy Preferred* was written while I was a sophomore at M.I.T.)

For old-timers in science-fiction—these are typical of the days when the field was starting. They've got a fine flavor of our own younger enthusiasm.

For new readers of science-fiction—these have the stuff that laid the groundwork of today's work, they're the stories that were meant for young imaginations, for people who wanted to think about the world they had to build in the years to come.

Along about sixteen to nineteen, a young man has to decide what is, for him,

the Job That Needs Doing—and get ready to get in and pitch. If he selects well, selects with understanding and foresight, he'll pick a job that *does* need doing, one that will return rewards in satisfaction as well as money. No other man can pick that for him; he must choose the Job that *he* feels fitting.

Crystal balls can be bought fairly reasonably—but they don't work well. History books can be bought even more cheaply, and they're moderately reliable. (Though necessarily filtered through the cultural attitudes of the man who wrote them.) But they don't work well as predicting machines, because the world is changing too rapidly.

The world today, for instance, needs engineers desperately. There a lot of jobs that the Nation would like to get done that can't even be started; not enough engineers available.

Fifty years ago the engineering student was a sort of Second Class Citizen of the college campus. Today the Liberal Arts are fighting for a come-back, the pendulum having swung considerably too far in the other direction.

So science-fiction has a very real function to the teen-agers; it presents varying ideas of what the world in which he will live his adult life will be interested in.

This is 1953. My son will graduate in 1955. The period of his peak earning power should be when he's about forty to sixty—about 1970, say, to 1990. With the progress being made in understanding of health and physical vigor, it's apt to run beyond 2000 A.D., however.

Anyone want to bet that people will be living in the same general circumstances then? That the same general social and cultural and material standards will apply?

I have a hunch that the history books are a poor way of planning a life today—and that science-fiction comes a lot closer.

There's another thing about science-fiction yarns that is quite conspicuous; it's so difficult to pick out the villains. It might have made quite a change in history if the ballads and tales of the old days had been a little less sure of who the villains were. Read the standard boy's literature of forty years ago; tales of Crusaders who were always right, and Saracens who were always wrong. (The same Saracens who taught the Christians to respect the

philosophy of the Greeks, and introduced them to the basic ideas of straight, self-disciplined thinking!)

Life's much simpler in a thatched cottage than in a dome on the airless Moon, easier to understand when the Villains are all pure black-hearted villains, and the Heroes are all pure White Souled Heroes. Just look how simple history is compared with science-fiction! It's simple—but is it good?

These early science-fiction tales explored the Universe; they were probings, speculations, as to where we *could* go. What we *could* do.

They had a sweep and reach and exuberance that belonged.

They *were* fun, too....

John W. Campbell, Jr.
Mountainside,N.J.
April, 1953

BOOK ONE

PIRACY PREFERRED

PROLOGUE

High in the deep blue of the afternoon sky rode a tiny speck of glistening metal, scarcely visible in the glare of the sun. The workers on the machines below glanced up for a moment, then back to their work, though little enough it was on these automatic cultivators. Even this minor diversion was of interest in the dull monotony of green. These endless fields of castor bean plants had to be cultivated, but with the great machines that did the work it required but a few dozen men to cultivate an entire county.

The passengers in the huge plane high above them gave little thought to what passed below, engrossed with their papers or books, or engaged in casual conversation. This monotonous trip was boring to most of them. It seemed a waste of time to spend six good hours in a short 3,500 mile trip. There was nothing to do, nothing to see, except a slowly passing landscape ten miles below. No details could be distinguished, and the steady low throb of the engines, the whirring of the giant propellers, the muffled roar of the air, as it rushed by, combined to form a soothing lullaby of power. It was all right for pleasure seekers and vacationists, but business men were in a hurry.

The pilot of the machine glanced briefly at the instruments, wondered vaguely why he had to be there at all, then turned, and leaving the pilot room in charge of his assistant, went down to talk with the chief engineer.

His vacation began the first of July, and as this was the last of June, he wondered what would have happened if he had done as he had been half inclined to do—quit the trip and let the assistant take her through. It would have been simple—just a few levers to manipulate, a few controls to set, and the instruments would have taken her up to ten or eleven miles, swung her

into the great westward air current, and leveled her off at five hundred and sixty or so an hour toward 'Frisco'. They would hold her on the radio beam better than he ever could. Even the landing would have been easy. The assistant had never landed a big plane, but he knew the routine, and the instruments would have done the work. Even if he hadn't been there, ten minutes after they had reached destination, it would land automatically—if an emergency pilot didn't come up by that time in answer to an automatic signal.

He yawned and sauntered down the hall. He yawned again, wondering what made him so sleepy.

He slumped limply to the floor and lay there breathing ever more and more slowly.

The officials of the San Francisco terminus of The Transcontinental Airways company were worried. The great Transcontinental express had come to the field, following the radio beam, and now it was circling the field with its instruments set on the automatic signal for an emergency pilot. They were worried and with good reason, for this flight carried over 900,000 dollars worth of negotiable securities. But what could attack one of those giant ships? It would take a small army to overcome the crew of seventy and the three thousand passengers!

The great ship was landing gently now, brought in by the emergency pilot. The small field car sped over to the plane rapidly. Already the elevator was in place beside it, and as the officials in the car drew up under the giant wing, they could see the tiny figure of the emergency pilot beckoning to them. Swiftly the portable elevator carried them up to the fourth level of the ship.

What a sight met their eyes as they entered the main salon! At first glance it appeared that all the passengers lay sleeping in their chairs. On closer examination it became evident that they were not breathing! The ear could detect no heartbeat. The members of the crew lay at their posts, as inert as the passengers! The assistant pilot sprawled on the floor beside the instrument panel—apparently he had been watching the record of the flight. There was no one conscious—or apparently living—on board!

“Dead! Over three thousand people!” The field manager's voice was hoarse, incredulous. “It's impossible—how could they have done it? Gas, maybe,

drawn in through the ventilator pumps and circulated through the ship. But I can't conceive of any man being willing to kill three thousand people for a mere million! Did you call a doctor by radio, Pilot?”

“Yes, sir. He is on his way. There's his car now.”

“Of course they will have opened the safe—but let's check anyway. I can only think some madman has done this—no sane man would be willing to take so many lives for so little.” Wearily the men descended the stairs to the mail room in the hold.

The door was closed, but the lock of the door was gone, the magnesium-beryllium alloy burned away. They opened the door and entered. The room seemed in perfect order. The guard lay motionless in the steel guard chamber at one side; the thick, bullet-proof glass made his outlines a little blurred, and the color of his face was green—but they knew there too must be that same pallor they had seen on the other faces. The delicate instruments had brought in the great ship perfectly, but it was freighted with a cargo of dead!

They entered the room and proceeded to the safe, but it was opened as they had expected. The six-inch tungsto-iridium wall had been melted through. Even this unbelievable fact no longer surprised them. They only glanced at the metal, still too hot to touch, and looked about the room. The bonds had been taken. But now they noticed that over the mail-clerk's desk there had been fastened a small envelope. On it was printed:

To the Officials of the San Francisco Airport

Inside was a short message, printed in the same sharp, black letters:

Gentlemen:

This plane should land safely. If it doesn't, it is your fault, not mine, for the instruments that it carries should permit it. The passengers are NOT dead! They have been put in a temporary state of suspended animation. Any doctor can readily revive them by the injection of seven c.c. of decinormal potassium iodide solution for every 100 pounds of weight. Do NOT use higher concentrations. Lower concentrations will act more slowly.

You will find that any tendency toward leprosy or cancer will have been destroyed. It will kill any existing cancer, and cure it in about one week. I have not experimented with leprosy beyond knowing that it is cured very

quickly.

This is an outside job. Don't annoy the passengers with questions.

The gas used cannot be stopped by any material I know of. You can try it with any mask—but don't use the C-32L. It will react with the gas to kill. I would advise that you try it on an animal to convince yourselves.

I have left stock in my new company to replace the bonds I have taken.

Piracy Incorporated is incorporated under my own laws.

The Pirate

On the desk beneath the note was a small package which contained a number of stock certificates. They totalled $900,000 face value of “Piracy Preferred”, the preferred stock of a corporation, “Piracy, Inc.”

“Piracy! Pirates in the air!” The field manager forced an unnatural laugh. “In 2126 we have pirates attacking our air lines. *Piracy Preferred!* I think I'd prefer the bonds myself. But thank God he did not kill all those people. Doctor, you look worried! Cheer up. If what this pirate says is true, we can resuscitate them, and they'll be better off for the experience!”

The doctor shook his head. “I've been examining your passengers. I'm afraid that you'll never be able to bring these people back to life again, sir. I can't detect any heart action even with the amplifier. Ordinary heart action sounds like a cataract through this instrument. I can see nothing wrong with the blood; it has not coagulated as I expected, nor is there any pronounced hydrolysis as yet. But I'm afraid I'll have to write out the death warrants for all these men and women. One of the people on that ship was coming to see me. That's how I happened to be on the field. For her, at least, it may be better so. The poor woman was suffering from an incurable cancer.”

“In this case, Doctor, I hope and believe you are wrong. Read this note!”

It was two hours before the work of reviving the passengers could be started. Despite all the laws of physics, their body temperature had remained constant after it had reached seventy-four, showing that some form of very slow metabolism was going on. One by one they were put into large electric blankets, and each was given the correct dose of the salt. The men waited anxiously for results—and within ten minutes of the injection the first had

regained consciousness!

The work went forward steadily and successfully. Every one of the passengers and crew was revived. And the Pirate had spoken the truth. The woman who had been suffering from cancer was free from pain for the first time in many months. Later, careful examination proved she was cured!

The papers were issuing extras within five minutes of the time the great plane had landed, and the radio news service was broadcasting the first “break” in a particularly dead month. During all of June the news had been dead, and now July had begun with a bang!

With time to think and investigate, the airport officials went over the ship with the Air Guard, using a fine-tooth comb. It was soon evident that the job had been done from the outside, as the Pirate had said. The emergency pilot testified that when he entered the ship, he found a small piece of wire securing the air lock from the outside. This had certainly been put on while the ship was in flight, and that meant that whoever had done this, had landed on the great ship with a small plane, had somehow anchored it, then had entered the plane through the air lock at the ten mile height. He had probably flown across the path of the plane, leaving a trail of gas in its way to be drawn in through the ventilator pumps. It had been washed out by the incoming good air later, for the emergency pilot had not been affected.

Now the investigation led them to the mail-room. Despite the refractory nature of the metal, the door had been opened by melting or burning out the lock. And an opening had been burned into the safe itself! Opened by melting it through!

A bond shipment was due the next day, and the airline officials planned to be on the watch for it. It would get through safely, they were sure, for men were put on board in steel chambers hermetically welded behind them, with oxygen tanks and automatic apparatus sealed within to supply them with clean air. The front of the tanks were equipped with bullet-proof glass windows, and by means of electrically operated controls the men inside could fire machine guns. Thus they were protected from the Pirate's gas and able to use their weapons.

The ship was accompanied by a patrol of Air Guardsmen. Yet, despite, this, cancer cases were aboard with the hope of being gassed.

When the plane reached the neighborhood of San Francisco, there had been no sign of an attack. The Pirate might well retire permanently on a million, if he were alone, as the singular signature indicated; but it seemed much more probable that he would attempt another attack in any case. Well, that just meant watching all the planes from now on, a tremendous job for the Air Guard to handle.

The leader of the patrol turned in an easy bank to descend the ten miles to Earth, and his planes followed him. Then suddenly through the communicator came an unmistakable sound. *The plane automatically signaling for an emergency pilot!* That could only mean that the plane had been gassed under the very eyes of his men!

The bonds were gone and the passengers gassed, and incredibly, the men in the steel tanks were as thoroughly gassed as the rest.

The note was brief, and as much to the point as was the absence of the bonds.

To the Officials of the Airport:

Restore as usual. The men in the tanks are asleep also—I said the gas would penetrate *any* material. It does. A mask obviously won't do any good. Don't try that C-32L mask. I warn you it will be fatal. My gas reacts to produce a virulent poison when in contact with the chemicals in the C-32L.

The Pirate

I

On the thirty-ninth floor of a large New York apartment two young men were lounging about after a strenuous game of tennis. The blue tendrils of smoke from their pipes rose slowly, to be drawn away by the efficient ventilating system. The taller of the two seemed to be doing most of the talking. In the positions they had assumed it would have been rather difficult to be sure of which was the taller, but Robert Morey was a good four inches taller than Richard Arcot. Arcot had to suffer under the stigma of “runt” with Morey around—he was only six feet tall.

The chosen occupation of each was physical research, and in that field Arcot could well have called Morey “runt”, for Arcot had only one competitor—his father. In this case it had been “like father, like son”. For many years Robert Arcot had been known as the greatest American physicist, and probably the world's greatest. More recently he had been known as the father of the world's greatest physicist. Arcot junior was probably one of the most brilliant men the world had ever seen, and he was aided in all his work by two men who could help him in a way that amplified his powers a thousand fold. His father and his best friend, Morey, were the complimentary and balancing minds to his great intelligence. His father had learned through years of work the easiest and best ways of performing the many difficult feats of laboratory experimentation. Morey could develop the mathematical theory of a hypothesis far more readily than Arcot could. Morey's mind was more methodical and exact than Arcot's, but Arcot could grasp the broad details of a problem and get the general method of solution developed with a speed that made it utterly impossible for his friend even to follow the steps he suggested.

Since Arcot junior's invention of the multiple calculus, many new ramifications of old theories had been attained, and many developments had become possible.

But the factor that made Arcot so amazingly successful in his line of work

was his ability to see practical uses for things, an ability that is unfortunately lacking in so many great physicists. Had he collected the royalties his inventions merited, he would have been a billionaire twice or thrice over. Instead he had made contracts on the basis that the laboratories he owned be kept in condition, and that he be paid a salary that should be whatever he happened to need. Since he had sold all his inventions to Transcontinental Airways, he had been able to devote all his time to science, leaving them to manage his finances. Perhaps it was the fact that he did sell these inventions to Transcontinental that made these lines so successful; but at any rate, President Arthur Morey was duly grateful, and when his son was able to enter the laboratories he was as delighted as Arcot.

The two had become boon companions. They worked, played, lived, and thought together.

Just now they were talking about the Pirate. This was the seventh day of his discovery, and he had been growing steadily more menacing. It was the great Transcontinental Airways that had suffered most repeatedly. Sometimes it was the San Francisco Flyer that went on without a pilot, sometimes the New York-St. Louis expresses that would come over the field broadcasting the emergency signal. But always the people were revived with little difficulty, and each time more of the stock of “Piracy, Inc.” was accumulated. The Air Guard seemed helpless. Time and time again the Pirate slipped in undetected. Each time he convinced them that it was an outside job, for the door was always sealed from the outside.

“Dick, how do you suppose he gets away with the things he does right under the eyes of those Air Guardsmen? He must have some system; he does it every time.”

“I have a vague idea,” Arcot answered. “I was going to ask you today, if your father would let us take passage on the next liner carrying any money. I understand the insurance rates have been boosted so high that they don't dare to send any cash by air any more. They've resorted to the slow land routes. Is there any money shipment in sight?”

Morey shook his head. “No, but I have something that's just as good, if not better, for our purpose. The other day several men came into Dad's office, to charter a plane to San Francisco, and Dad naturally wondered why they had

been referred to the president of the company. It seems the difficulty was that they wanted to hire the ship so they could be robbed! A large group of medical men and cancer victims were going for the 'treatment'. Each one of the twenty-five hundred going was to bring along one hundred dollars. That meant a total of a quarter of a million dollars, which is to be left on the table. They hoped the Pirate would gas them and thus cure them! Dad couldn't officially do this, but told them that if there were too many people for the San Francisco express, two sections would be necessary. I believe they are going on that second section. Only one hundred dollars! A low price for cancer cure!

“Another thing: Dad asked me to tell you that he'd appreciate your help in stopping this ultra-modern pirate. If you go down to see him in the morning, you'll doubtless be able to make the necessary arrangements.”

“I'll do so gladly. I wonder, though, if you know more about this than I do. Did they try that C-32L mask on an animal?”

“The Pirate was telling the truth. They tried it on a dog and he went to sleep forever. But do you have any idea how that gas does all it does?”

Now Arcot shook his head. “I don't know what the gas is, but have a lead on how it works. You may know that carbon monoxide will seep through a solid plate of red-hot steel. That has been known for some three hundred years now, and I have to hand it to this Pirate for making use of it. Even in the war of 2075 they didn't find any practical application for the principle. He has just found some gas that induces sleep in very low concentrations, and at the same time is able to penetrate to an even greater extent than carbon monoxide.”

“I was wondering how he stores that stuff,” Morey commented. “But I suppose he makes it as fast as he uses it, by allowing two or more constituents to react. It might well be simple enough to store them separately, and the air-stream blowing past him would carry the gas behind him, permitting him to lay a stream of it in front of the big plane. Is that about it?”

“That was about what I had figured. One of the things I want to do when I go with that Invalid Special tomorrow is to get some samples for analysis.”

“That's a pretty big order, isn't it, Dick? How are you going to handle it, or

even get it into your apparatus?”

“Easily enough as far as getting the sample goes. I have already had some sample bottles made. I have one of them in the lab—excuse me a moment.” Arcot left the room, to return a few minutes later with a large aluminum bottle, tightly closed. “This bottle has been pumped out to a very good vacuum. I then swept it out with helium gas. Then it was pumped out again. I hope to take this into some gas-filled region, where the gas will be able to leak in, but the air won't. When it comes to going out again, the gas will have to fight air pressure, and will probably stay in.”

“Hope it works. It would help if we knew what we were bucking.”

The next morning Arcot had a long conference with President Morey. At the end of it, he left the office, ascended to the roof, and climbed into his small helicopter. He rose to the local traffic level, and waiting his chance, broke into the stream of planes bound for the great airfields over in the Jersey district. A few minutes later he landed on the roof of the Transcontinental Airways shops, entered them, and went to the office of the Designing Engineer, John Fuller, an old schoolmate. They had been able to help each other before, for Fuller had not paid as much attention to theoretical physics as he might have, and though he was probably one of the outstanding aeronautical designers, he often consulted Arcot on the few theoretical details that he needed. Probably it was Arcot who derived the greatest benefit from this association, for the ability of the designer had many times brought his theoretical successes to practical commercial production. Now, however, he was consulting Fuller, because the plane he was to take that afternoon for San Francisco was to be slightly changed for him.

He stayed in Fuller's office for the better part of an hour, then returned to the roof and thence to his own roof, where Morey junior was waiting for him.

“Hello, Dick! I heard from Dad that you were going this afternoon, and came over here. I got your note and I have the things fixed up here. The plane leaves at one, and it's ten-thirty now. Let's eat lunch and then start.”

It was half-past eleven when they reached the flying field. They went directly to the private office which had been assigned to them aboard the huge plane. It was right next to the mail-room, and through the wall between the two a

small hole had been cut. Directly beneath this hole was a table, on which the two men now set up a small moving picture camera they had brought with them.

“How many of the gas sample bottles did you bring, Bob?” asked Arcot.

“Jackson had only four ready, so I brought those. I think that will be enough. Have we got that camera properly placed?”

“Everything's O.K., I believe. Nothing to do now but wait.”

Time passed—then they heard a faint whir; the ventilator machinery had started. This drew air in from outside, and pumped it up to the necessary pressure for breathing in the ship, no matter what the external pressure might be. There was a larger pump attached similarly to each of the engines to supply it with the necessary oxygen. Any loss in power by pumping the air in was made up by the lower back pressure on the exhaust. Now the engines were starting—they could feel the momentary vibration—vibration that would cease as they got under way. They could visualize the airtight door being closed; the portable elevator backing off, returning to the field house.

Arcot glanced at his watch. “One o'clock. The starting signal is due.”

Morey sank back into a comfortable chair. “Well, now we have a nice long wait till we get to San Francisco and back, Dick, but you'll have something to talk about then!”

“I hope so, Bob, and I hope we can return on the midnight plane from San Francisco, which will get us in at nine o'clock tomorrow morning, New York time. I wish you'd go right to your father's office and ask him over to our place for supper, and see if Fuller can come too. I think we'll be able to use that molecular controller on this job; it's almost finished, and with it we'll need a good designing engineer. Then our little movie show will no doubt be of interest!”

There was a low rumble that quickly mounted to a staccato roar as the great propellers began whirling and the engines took up the load. The ground began to flash behind them; then suddenly, as flying speed was reached, there was a slight start, the roaring bark of the engine took on a deeper tone, the rocking stopped and the ground dropped away. Like some mighty wild bird, the plane was in the air, a graceful, sentient thing, wheeling in a great circle

as it headed for San Francisco. Now the plane climbed steadily in a long bank; up, up, up she went, and gradually the terrific roar of the engine died to a low throbbing hum as the low pressure of the air silenced the noise.

Below them the giant city contracted as the great ship rode higher. The tiny private helicops were darting about below them like streams of nigh invisible individuals, creeping black lines among the buildings of the city. The towering buildings shone in the noon sun in riotous hues as the colored tile facing reflected the brilliant sunlight with glowing warmth of color.

It was a city of indescribable beauty now. It was one of the things that made this trip worthwhile.

Now the shining city dropped behind them, and only the soft green of the Jersey hills, and the deep purple-black of the sky above were visible. The sun blazed high in the nigh-black heavens, and in the rarefied air, there was so little diffusion that the corona was readily visible with the aid of a smoked glass. Around the sun, long banners in space, the Zodiacal light gleamed dimly. Here and there some of the brighter stars winked in the dark sky.

Below them the landscape swung slowly by. Even to these men who had made the trip dozens of times, the sight was fascinating, inspiring. It was a spectacle which had never been visible before the development of these super-planes. Whole flying observatories had been made that had taken photographs at heights of fifteen miles, where the air was so rarefied that the plane had to travel close to eight hundred miles an hour to remain aloft.

Already ahead of them Arcot and Morey could see the great splotch of color that was Chicago, the mightiest city of Earth. Situated as it was in the heart of the North American continent, with great water and ground landing facilities and broad plains about it, it made a perfect airport. The sea no longer meant much, for it was now only a source of power, recreation and food. Ships were no longer needed. Planes were faster and more economical; hence seacoast cities had declined in importance. With its already great start toward ascendancy, Chicago had rapidly forged ahead, as the air lines developed with the great super-planes. The European planes docked here, and it was the starting point of the South American lines. But now, as they swung high above it, the glistening walls of soft-colored tiles made it a great mass of changing, flashing color beneath them. Now they could see a great air liner,

twice the size of their plane, taking off for Japan, its six giant propellers visible only as flashing blurs as it climbed up toward them. Then it was out of sight.

It was over the green plains of Nebraska that the Pirate usually worked, so there the men became more and more alert, waiting for the first sign of abnormal drowsiness. They sat quietly, not talking, listening intently for some new note, but knowing all the while that any sound the Pirate might make would be concealed by the whirring roar of the air sweeping past the giant airfoils of the plane.

Suddenly Arcot realized he was unbearably sleepy. He glanced drowsily toward Morey who was already lying down. He found it a tremendous effort of the will to make himself reach up and close the switch that started the little camera whirring almost noiselessly. It seemed he never pulled his arm back —he just—lay there—and—

A white uniformed man was bending over him as he opened his eyes. To one side of him he saw Morey smiling down at him.

“You're a fine guard, Arcot. I thought you were going to stay awake and watch them!”

“Oh, no, I left a much more efficient watchman! *It* didn't go to sleep—I'm willing to bet!”

“No, it may not have gone to sleep, but the doctor here tells me it has gone somewhere else. It wasn't found in our room when we woke up. I think the Pirate found it and confiscated it. All our luggage, including the gas sample bottles, is gone.”

“That's all right. I arranged for that. The ship was brought down by an emergency pilot and he had instructions from father. He took care of the luggage so that no member of the pirate's gang could steal it. There might have been some of them in the ground crew. They'll be turned over to us as soon as we see the emergency man. I don't have to lie here any longer, do I, doctor?”

“No, Dr. Arcot, you're all right now. I would suggest that for the next hour or so you take it easy to let your heart get used to beating again. It stopped for some two hours, you know. You'll be all right, however.”