KINGS of SPACE

Captain W.E. Johns

A STORY OF INTERPLANETARY FLIGHT

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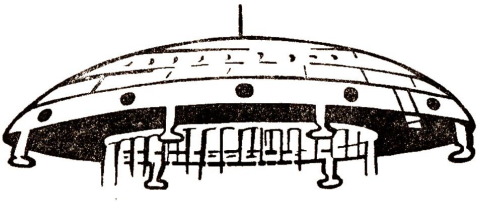
The Solar System



KINGS OF SPACE

A story of Interplanetary Exploration

by

CAPTAIN W. E. JOHNS

What one man is able to imagine, other men will be able to do.

Jules Verne

WITH ILLUSTRATIONS BY STEAD

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FOREWORD

THE GREAT ADVENTURE

It is a common complaint among the youth of today that there is no scope left for adventure; that the age of discovery is past. The entire world has now been explored, they say, and there is nothing left. No more will "travellers' tales" make the eyes of the folks at home go round with wonder.

It may be some comfort to them that the greatest age of discovery has not yet begun, and that they may live to see, and perhaps take part in, such voyages that those of Columbus, Captain Cook, and the other great navigators of old, will seem tame in comparison. Admittedly, we know almost all there is to know about the particular ball of mud on which we live. But Earth is only one world, and a small one at that. What of the others? Look up tonight and you will see them, gleaming, glowing, twinkling, beckoning, calling to the youth of a new age, "What of us? Come and see what we have here!"

Nothing left, indeed!

To tell a story like the one that follows, in which fact is interwoven with fiction, is not easy, and those who attempt it must be prepared for criticism. We know so much, but there is much more we do not know, and anything in the way of speculation, which after all is only personal opinion, is bound to bring protests from those who think differently. For here the scientists themselves cannot agree. Theories of today are scrapped tomorrow as fresh information comes to hand. One thing that science does prove is that prophecy can be a dangerous practice.

It is easier to write a book on a subject about which nothing is known, for then nothing can be denied. A hundred years ago it was easy to write a novel about the heart of Africa, for the land was still the Dark Continent, and an author could indulge in the most whimsical fancies, from lost civilisations to mountains of gold, without fear of ridicule. But as the continent was opened up the writer had to step warily, aware that such romances were becoming ever harder to believe.

Thus with the dark spaces of the Universe. We know just enough to put a check on over-indulgence in fanciful imagination. But still, a little may be permitted, for after all, no one has yet been there; and as history tells us, much that was once held to be impossible has not only come to pass but has become commonplace. Could the early voyagers have imagined the inter-

continental airways of today? Could they have imagined radio and television? It took the Pilgrim Fathers ninety-six days to reach America. Could they have imagined a man going there and back in a day? Could Captain Cook have imagined a man going to Australia in a day? Of course not. They could no more have imagined these things than we can imagine what the next five hundred years will bring.

Another difficulty in such a story as this lies in the telling of it without technical terms or scientific expressions. Every new invention (aviation, for example) must of necessity put new words into the language to describe what previously did not exist and therefore had no name. To use such words would either leave the reader guessing or call for footnotes that would interrupt the narrative. For make no mistake, there are now at work in many countries teams of astronomers, scientists, chemists, engineers and other specialists in the new science of Astronautics, who will eventually solve the riddle of the Universe. Already they have gone further than you may suppose.

There are, of course, many people who scoff at this tremendous project, just as there have always been scoffers at any human endeavour. They may scoff at me for writing this and you for reading it. Let them scoff. In the end they will be confounded, as scoffers always have been. They have little to boast about, as a backward glance will show. They scoffed at George Stevenson for promising a locomotive of twice the speed of a stage coach. People would, they sneered, as soon ride on a rocket. That was why Stevenson named his locomotive Rocket. They scoffed at the early aeronauts, calling them ‘Balloonatics.’ They scoffed at the early aviators, laughing at the idea of a heavier-than-air machine getting off the ground. Had the pioneers listened we would still be earth-bound. There were doctors who asserted that a human body could never travel at more than sixty miles an hour and survive. Even fifty years ago it would have needed a brave man to predict speed faster than sound. Now it has been done, and speeds of 3,000 miles an hour with the new ram jets are in sight. An old woman was once burned as a witch for saying that carriages would one day run without horses!

But let us be generous. Not even the early experimenters themselves could have foreseen these marvels. In the same way it is impossible for many people today to imagine vehicles speeding into space at 40,000 miles an hour, landing on platforms that remain in space with apparently nothing to keep them there. Not only will these things come to pass but there will be other things, far beyond the limits of our imagination now, for that is the normal story of invention and development.

These things come about in two ways. The first is by slow but sure improvement. Thus with the locomotive and the motor-car. The second is by a revolutionary discovery that makes seemingly impossible things possible. Such a case was the invention of the petrol engine, which nobody had foreseen and which alone made flight possible. Until that time they had thought only in terms of steam engines, unable to develop enough power to lift their own weight. What the recently discovered atomic energy will do, no man can say, but as it is thousands of times more powerful than any known fuel it may take us to the stars. Already the possibilities are being examined. It is dangerous stuff. For the first time men have found a force too powerful for them to handle with impunity. But they will find a way to harness it; at least, let us hope so, for if it escapes we are likely to join the meteors that hurtle about in space.

It is unlikely that a rocket will answer the question of space flight, for although it has taught us much its limitations are already apparent.

Some of the things we know about our Solar System, which comprises the Sun and the nine planets (of which Earth is one) that swing around it, are no longer in question. We know that we are all travelling in the same direction. We know that Earth has only one satellite, the Moon. (Mars has two, Uranus five and Jupiter eleven!) As the Moon must be our stepping-stone to the other planets we are fortunate that it is only a mere 240,000 miles away—a short step in astronomical distances. For that reason it has been possible to study it so closely that the physical features on the side facing us have already been named. Of the other side we know nothing, for the same face is always turned towards us. We know that its diameter is 2,160 miles and that its day lasts for 27 of our days. On the other hand, we know little about our nearest neighbour planet, Venus, because her face is always hidden behind a layer of cloud. From such facts as these, by reasoned speculation we can be sure of other things; but beyond that all is guesswork, problems for which no answer will be found until theory can be checked by closer inspection.

Is there life on the other planets? We don't know. But surely it would be very strange indeed if, of all the countless heavenly bodies, there was only life on one—our own. It would be reasonable to suppose that there must be, somewhere, other bodies enjoying the same, or very similar, conditions as ourselves. The fact that we can see no actual movement, on Mars for instance, need not surprise us. It is unlikely that an intelligent being on Mars, even with a powerful telescope, would see any movement on Earth.

Years ago, when men assumed that their own little world was the centre of the Universe, they also took it for granted that all forms of life had always

been the same, everywhere. We know now that this is not so. Life, anywhere and everywhere, must adapt itself to the conditions in which it finds itself, or perish. We may suppose that to produce beings identical with ourselves, with the same animal and vegetable kingdoms, there would have to be another planet of the same age, the same size, the same distance from the sun and with the same atmosphere. There may be one. There may not. We don't know. A planet younger than ourselves, passing through the same conditions which we passed through millions of years ago, might carry creatures similar to those that roamed the Earth when the Earth was young. On the other hand, a planet older than ours might hold forms of life far in advance of ours. We call ourselves civilised. How do we know? Civilisation is comparative. We may be civilised compared with the head hunters of Borneo, but we may be barbarians compared with older forms of life elsewhere. Let us not forget that the written history of mankind takes us back a mere seven thousand years. The Universe counts its birthdays not in years but in millions of years; and its distances, not in miles but in such multiplications that the brain is unable to grasp them. Well might we wonder at the mystery of it all, and strive to solve the mystery.

At the risk of appearing over-technical I have had to touch upon some of these matters in my story. This could not be avoided unless I were to strain the credulity of the intelligent reader by glossing over the problems of interplanetary flight by merely saying, Here is a spaceship, let us go to the Moon. That, I felt, would not do, so you will have to bear with me in the early chapters until we start for the distant skyways.

A great many people know nothing about the world they live on, much less the worlds around them. They will, I hope, learn something from the following pages.

W.E.J.

CHAPTER I

HOW IT BEGAN

GROUP CAPTAIN TIMOTHY CLINTON, R.A.F. (retired) climbed slowly and with infinite caution to the rim of the escarpment, and raising his head an inch at a time peered through the fringe of herbage at the broad expanse of rock and moss and purple heather that lay beyond. Only his eyes moved now as they surveyed, hill by hill and corrie by corrie, the bogs and burns and beetling crags that made a picture of a typical Scottish deer forest. Suddenly they stopped. With movements so slow as to be hardly perceptible he drew up and focused the spyglass that he carried. For perhaps a minute he remained thus, motionless, eye to the instrument. Then, with actions as slow and deliberate as those of his ascent, he allowed his body to slide back below the level of the skyline. Wetting a finger he held it up for a few seconds to test the wind, withdrew it, and continued his descent towards a ledge on which a boy was crouching, watching him, a rifle in his hands.

To a stranger it would have been evident at once that they were blood relations. Both were tall, with the lean physique and clear skins that come from hard exercise in the open air. Both had the same steady grey eyes and fair hair, although that of the man was beginning to grey at the temples. Both had the same firm mouth and purposeful chin. It would have been apparent, too, from their behaviour when they met, that there was a close understanding between them. They were, in fact, father and son, spending a deer-stalking holiday in the lonely mountains of Inverness-shire.

It should be said here that the chief purpose of this pursuit was not merely to kill a stag, although, to be sure, a stag might be killed if he could be beaten at his own game on his own ground. No. The wily beast was an object—an excuse if you like—to urge to the limit of endurance the employment of muscles, nerves and skill, at one and the same time. One can, of course, find pleasurable exercise in climbing a mountain without killing something at the end of it. But no sane person is likely to go miles out of his way, choosing the most difficult route, climbing treacherous slopes, crawling up water-courses, or worming flat on his stomach through face-scratching heather or midge-haunted bogs, taking the skin from his knees and knuckles for no purpose whatsoever. And these are only a few of the trials that must be endured by those who would hunt the great red deer where he dwells.

The stalk on which Rex Clinton and his father were now engaged had already occupied them for nine hours, three of which had been taken up by the long climb to the forest. In that time they had been alternately soaked by storms sweeping in from the Atlantic and blistered by a burning sun. Once, two hours earlier, they had nearly been within shot of their quarry, a big 'Royal,' but a tricky slant of wind had betrayed them, and the herd, of which the great twelve-pointer was the leader, had moved to higher ground.

Eight miles of heavy going now lay between the stalkers and their lodge; the mellow evening light was becoming deceptive; they were showing signs of wear and tear; failure now would mean that the stag had been too clever for them, and all that remained would be the long plod home. They had started while the stars were still in the sky. The stars would be overheard again long before they could reach their lodge.

'Tiger' Clinton, as he was known in Bomber Command during the war, joined his son on the ledge. No one knew who had first called him Tiger, but the reason, as he himself acknowledged, was fairly evident. It was not because he looked in the least like a tiger, or behaved like one. It was simply an automatic play on his name of Timothy, after the well-known comic character 'Tiger Tim'. In that queer way in which a nickname clings in any service, Tiger he became, from the highest to the lowest ranks in his command.

To Rex he now smiled encouragement. "He's there," he whispered. "There are five stags and about a dozen hinds, but you can't mistake him. I've counted his points. He's a royal all right."

"Good!"

"You'll have to be careful. That same old hind is on the watch, and from the way she keeps tossing her head I fancy she's suspicious."

"How far away are they?"

"They're wide—six hundred yards, I'd say."

"Can I get nearer?"

"You'd better try. It's too late to risk a long shot. There's no time left to follow up a wounded beast. You'd better be quick. The wind's backing to the north and cold air will mean mist. Look at the Ben."

Rex glanced at the peak that towered above them and saw that the top was already hiding its face behind a grey veil. "I'll get off," he announced.

"For a start, make for the big rock about forty yards half right. I'll watch from here."

Rex, who had had two seasons stalking with his father during the holidays since his mother had died three years before, knew that this was the critical moment, the opportunity for which all their energies had been expended. Not only would he need the skill he had acquired to get nearer to an animal which is well aware that upon eternal vigilance its life depends, but he would need luck, too. An old cock grouse, watching with beady eye from higher ground, could give him away with its warning call. An eddy of restless air, moving from him to the deer, carrying with it the hated taint of Man, would tell the same story.

Reaching the ridge he spied the game and easily picked out the royal he hoped to get. The herd seemed to be feeding quietly so he began inching his way forward, only to freeze as the knowing old hind on sentry-go looked up suddenly to stare in his direction. Minutes passed. Rex did not flicker an eyelid, although heather pollen tickled his nostrils and mosquitoes got busy on his ears. Apparently satisfied, although obviously suspicious, the hind dropped her head to the moss on which the herd was feeding. Rex had only made five yards when up came her head again. It was, he saw, going to be slow work. A tenuous mist was forming in the atmosphere, but to hurry would be fatal.

The hind resumed her evening meal. Rex dragged himself another yard. Then came the end, as, with a startling whirr of wings a brood of ptarmigan shot into the air from where they had been squatting just in front of his face. The deer bunched instantly, staring at the point from which the danger threatened. The old hind stamped her foot, and with a bound was off, the rest following. Rex sighed his disappointment, but could still find pleasure in the picture the animals made as, clear-cut against the sunset, they topped the hill and disappeared from sight. Then he rose to his feet, knowing that the herd, twice alarmed, would run for miles before it stopped. Unloading, he walked back to his father. “They’re away,” he said sadly.

“Bad luck!” commiserated Tiger, standing up and thumbing tobacco into a well-worn pipe.

“The ptarmigan did it. They sat tight. I nearly put my hand on one.”

“So I saw. But come on. Let’s get to lower ground. I don’t like the look of the weather.”

Rex picked up the haversack while his father closed and cased the spyglass, and together they started off towards the distant strath, already filled with the sombre shadows of the dying day.

Five minutes later the mist came down, grey and opaque, to blot out ben and burn and bog with the suddenness that only those who have seen it

happen could believe.

"Nasty," said Tiger, coming to a stop. "However, we'll try to push on while the daylight lasts. Once it gets dark it'll be hopeless. The danger is more rain coming over. With the wind in the north it'll turn to snow up here."

"If we keep on going down hill we shall soon be on lower ground," reasoned Rex.

"Yes, but where? I've been caught like this before. You've only to get on the wrong slope to finish in the middle of nowhere, twenty or thirty miles from home. But let's keep going. I can't remember any dangerous drops in front of us, so we should be all right for a bit, anyway. And there's always a chance that the mist may be thinner lower down."

"Okay, Tiger; you know best," said Rex. His mother, like everyone else, had always called his father Tiger. It was one of the first words he had picked up and he had been allowed to use the nickname.

Their hopes did not materialise. On the contrary, with the setting of the unseen sun the murk became an almost tangible wall of vapour, restricting visibility to a matter of feet.

The situation that had developed was the one that takes heavy toll of inexperienced climbers every year. To go on, aware that one false step might take one over a cliff or into a bog, would be dangerous. The alternative, to stand still, would be to risk death from exposure should the weather deteriorate. These conditions may not be easy for a townsman to imagine, but they are all too common in actual fact. Had the time been morning instead of late evening Tiger would no doubt have called a halt, in the hope of an improvement in the weather. But darkness was now fast closing in, and unless lower ground was reached before movement became impossible the consequences were likely to be serious, to say the least.

It was Rex who broke a rather lengthy silence. "I've never seen this gully before," he said, trying with his eyes to probe a void that had appeared on their right, and from which, far below, came the babble of rushing water.

"Nor I," replied Tiger quietly. "The truth is, we're lost. I've known it for some time. Amazing how quickly it can happen, isn't it, even when you're sure you know every inch of the ground. But in this sort of country, unless you can see the skyline, it's hopeless. Once you lose your sense of direction you start wandering, and that's what we're doing now. I carried on hoping to strike a sheep track; they usually run up and down hills; but so far we've been unlucky. If we're a long way from sheep-grazing ground we must be a long way from a croft. Still, we'll go on slowly. It's all we can do."

They carried on for what may have been half an hour, by which time deep night had silently drawn its curtain over the inhospitable land.

"It's no use," said Tiger at last. "We'd better pack up before one of us gets hurt. A twisted ankle won't help matters."

"I may be kidding myself, but I thought the stuff was beginning to thin a bit," answered Rex. "It's hard to tell in the dark. I was hoping every minute to see farm lights down there in the strath."

"For all we know we may have turned clean round, in which case we're getting into that wild country behind the Monadhliath Mountains," was the disconcerting reply.

"There's no future in that."

"None at all."

"What are we going to do about it?"

"The sensible thing would be to stay where we are, stamping about to keep ourselves warm until the sun lifts this murk tomorrow morning. Even if we could get another mile or two without breaking any bones we should be no better off than we are here. We'll press on a little way if you like, to see if you were right about the mist thinning."

They had not gone far when Rex let out a shout. "Look!" he exclaimed. "Lights! Down there! Dash it, they've gone."

"Extraordinary," answered Tiger. "There were five red lights in the form of a cross. I saw them. There couldn't possibly be a Red Cross Station here. It was as if they had been switched on and instantly switched off again. I must say that's got me whacked. What sort of house would need a light like that? I mean, the only sort of house one would expect to find so far from a road would be the cottage of a gamekeeper; and the only sort of light would be candles or a paraffin lamp. Yet those lights we saw must have been pretty powerful to pierce this fog. They couldn't have been far away, either."

"What about trying to get to them?"

"We'll have a shot at it," agreed Tiger. "Come on. I'll lead. Keep close."

They set off, now at the groping pace of a blind man in an unfamiliar room.

How much ground they covered in this way they did not know, for there was no means of checking. One thing was certain, however; they were on a steepening downward slope.

It was no doubt this fact of steeply falling ground that eventually saved them from an uncomfortable night on the open moor, for suddenly the mist began to thin; and then, in a stride or two, they were practically out of it.

They had, as Rex realised, emerged from below the cloud in which they had been groping. He could see it, almost touch it, just over his head. There was no sign of a light anywhere.

"That's better," said Tiger, with heart-felt satisfaction.

Without the benefit of moon or stars it was of course still dark, too dark for anything except the nearest and most prominent features to be made out. They were, it seemed, nearly at the bottom of a valley, into which the ground in front of them continued to slope towards the only outstanding feature—a belt of pines.

"There must be a lodge behind those trees," asserted Tiger. "You won't find a plantation of trees at this elevation except where they've been planted as a windbreak. Let's go on. It looks as if we've struck lucky."

They went on down, moving more easily now, to the pines, where, finding no passage through the low-sweeping branches, they had to go round. Reaching the far side Rex saw that his father had been right; at least, he could safely assume so, for now, just in front of them, was a long, high wall, which could have been built for no other purpose than to protect a house of some size.

"What on earth's all this?" asked Tiger, in a tone of voice that suggested astonishment. "I've seen a good many Highland lodges in my time, but this is the first I've seen that thought it necessary to put itself behind a wall as if it were a prison. Who in the name of goodness would go to the trouble and expense of putting up something that is surely quite unnecessary?"

"How about finding the entrance and begging a cup of tea?" suggested Rex practically. "Maybe the people inside will answer your question."

"What's more important, they should be able to tell us where we are," returned Tiger.

Following the wall, they had to go some way before a rough, overgrown track, guided them to a massive wooden door let into the wall. They looked in vain for bell or knocker, although there was an iron handle, and a small grille of the same metal at about eye level.

"They must expect visitors to walk straight in," said Rex. "This is only an outer wall." So saying he grasped the handle. Instantly a cry of shock broke from his lips.

"What's the matter?" asked Tiger quickly.

"I can't let go."

"What d'you mean—you can't let go?"

“Something’s happened. My arm’s paralysed. I can’t open my hand, I tell you.” There was a note of fear in Rex’s voice as he tugged in his efforts to free himself.

“What the——” Tiger stepped forward and grasped Rex’s hand, only to stop with a jerk of surprise. “You’re right,” he said in a curious voice. “My arm’s gone numb, too. What lunacy is this?” he added, a rising inflection in his voice expressing anger.

The answer was forthcoming. It came from the grille, behind which a panel had been pushed aside to reveal a pale, indistinct blur that was evidently a face.

“Who are you? What do you want?” asked a calm, modulated voice.

“We’re deer-stalkers, caught in the fog. We’ve lost our way,” answered Tiger. “We saw some lights. What’ve you done to this door?”

The question was ignored. “May I have your names, nationalities and professions, please,” came the same emotionless voice.

“You may,” replied Tiger curtly. “Group Captain Timothy Clinton, and his son, Rex Clinton. Nationality, British born. Professions, aircraft engineer and aircraft apprentice.”

“Thank you, sir,” came back the voice evenly. “I’m sorry to subject you to some slight inconvenience, but it is only temporary. One moment, please.” Footsteps could be heard retreating.

“We’ve struck a madhouse all right,” asserted Rex.

“Let’s reserve judgment,” answered Tiger. “After all, nobody invited us to open the door. It’ll be interesting to see how it works.” He staggered slightly, as did Rex, as the restraining force was cut and they found themselves free.

Before they had time to comment the door was flooded with light from an unseen source, and swung open to reveal a somewhat portly man of middle age, going bald in front, in butler’s uniform. His attitude was one of dignity with respect. For a brief moment grave eyes regarded them from a face devoid of expression. Then said the same suave voice: “Enter, gentlemen. Professor Brane will see you.”

“Thank you,” answered Tiger politely, as they crossed the threshold and the door closed silently behind them. “I’m sorry to give you this trouble but we were faced with the prospect of spending the night on the hill. May I ask where we are?”

“This is Glensalich Castle, sir, in the glen of that name,” was the quiet rejoinder. “Please follow me.”

“How did you know we were at the door?” asked Rex. “We couldn’t knock or ring.”

“Professor Brane may answer that question, sir,” replied the man smoothly.

A short, stone-flagged path, marched straight through a jungle of overgrown shrubs to the door of a stone-built mansion-house. There was no time to observe details, for the butler, after relieving them of their caps and equipment, was showing them in to a big, warm, well-lighted hall, on the far side of which, apparently awaiting them, was a figure so incongruous, so out of keeping with what might have been expected at such a place, that Rex, forgetting his manners, could only stare in astonishment.

“Come in, Group Captain, come in!” was the cheerful greeting.

Tiger looked puzzled. “I didn’t hear your man announce us. How did you know who I was?”

“Tut-tut. No need, my dear sir, no need. I overheard the conversation at the door,” was the candid admission. “I must apologise for what happened outside, but there was a reason for it. Thank you, Judkins.”

The butler retired.

Smiling, their host advanced with outstretched hands. “Brane is my name,” he said. “Brane by name and brainy by nature—that’s what they used to say of me at school when I was your age, young man,” he went on with a chuckle, looking at Rex. He turned to Tiger. “So it is my good fortune to meet the brilliant Group Captain Clinton. How do you do.”

“Brilliant?” queried Tiger as they shook hands.

“Certainly, although apparently an asinine government hasn’t realised it yet. They have so few brains among themselves that they don’t recognise them when they see them. I have watched your work at the Aircraft Experimental Establishment with the greatest interest. If you don’t mind my saying so, I think you went wrong over that last jet booster, but no doubt you were under pressure from people of less intelligence. I couldn’t work under those conditions. That’s one of the reasons why I’m here. I was in the fortunate position of being able to work my own way. But, dear me, what am I doing, keeping you standing when you must be in need of hot water, a rest and refreshment. Assuming that you will stay the night with us, Judkins—he’s my man of all work—will prepare beds for you. By the time you’ve had a wash no doubt he will have found something for you to eat.”

“I gather you’re interested in aeronautics,” said Tiger, after a brief, awkward silence.

“In my own little way, yes. I hope we shall be able to have a chat about that later. I gather you saw some lights on the hill.”

“Yes. Red lights. What on earth were they?”

The professor shrugged off the question. “A little thing of my own. Supposing I was safe from observation I was making a test, by remote control, under fog conditions.”

While the Professor had been talking Rex’s eyes had been on his face, held, it seemed, by a peculiar fascination. Why this should be was not easy to determine, for had he met him in a city street he would have taken him to be an insignificant clerk, with eccentric ideas about clothes, out of a job. Everything about him would have supported such a belief. But this, he perceived, was certainly not the case. He could only conclude that they had encountered an amiable old man, well endowed with this world’s goods and slightly off his rocker. Was he old? Rex was not sure about that. He could, he thought, be anything between forty and sixty, so difficult was it to estimate his age.

What he actually saw was a mild-looking, elderly gentleman, rather thin, below average height, with an untidy head of hair and large, old-fashioned, metal-rimmed spectacles balanced precariously on the end of his nose. When it appeared certain that they must fall off he pushed them up with a quick movement. But every time he looked down at anything they started to slide again. If there was anything remarkable about his face then it was no more than a pair of bright blue eyes, which, under bushy brows, were so alive with animation that they almost appeared to sparkle. His forehead was abnormally high, and seemed to slope slightly forward rather than back. For the rest, he was clean shaven, with no particular feature calling for comment. The general impression was one of a harmless little man of cheerful disposition.

His clothes, although he appeared to be blissfully unaware of it, were odd, to say the least; and in the matter of condition were certainly nothing to boast about. A soft-collared shirt, too large round the neck, hung below a prominent adam’s apple. A narrow strip of black tie had worked loose and to one side. A frock-coat of old-fashioned cut, spotted and stained, had seen better days. The same could be said of narrow black trousers, the frayed bottoms of which half concealed a pair of cheap tennis shoes.

Such was Rex’s first impression of Professor Lucius Brane, M.A., who at school had been called Brainy, before the butler returned to show them to their quarters. How far his nickname was appropriate he had yet to learn.

CHAPTER II

THE PROFESSOR ANSWERS SOME QUESTIONS

For a late supper, thought Rex, when he came down half an hour later, literally as hungry as a hunter, Professor Brane had certainly done them well. He himself, as he said, had already dined, and had the tact to leave his guests alone while they enjoyed an overdue meal. It was no ordinary meal, either, and only the presence of the sedate Judkins, who anticipated their every want with a calm efficiency that was really rather disconcerting, prevented him from commenting on the luxuries provided. It was evident that the Professor was a man of healthy appetite and epicurean taste.

For the most part the meal was taken in silence, as is usual with men who are really hungry; but Tiger, his curiosity getting the better of him, refusing to be intimidated by the urbane figure who stood behind him, did go so far as to ask how such provisions, usually to be found only at expensive restaurants, managed to reach such a remote spot.

"They are forwarded by train from London, sir, to the nearest railway station, some thirty-five miles distant," explained Judkins, in his even, dispassionate voice. "From there they are conveyed by road to a point where they are collected by a pony boy and brought in panniers to the castle. Except when he is engrossed in an experiment, the Professor chooses his food with some care."

"I can see that," murmured Tiger drily. "How do you like the Highlands?" he prompted, apparently seeking information.

"I see very little of them, sir. Indeed, as little as possible. They are not, if I may use an expressive colloquialism, my cup of tea."

Rex could not repress a smile. He suspected that Judkins, behind his suave exterior, had a human heart, and even the glimmerings of a sense of humour which he kept under control.

A memorable meal concluded, Judkins said he would serve coffee in the study where the Professor awaited them.

Tiger assented, and they were conducted to where their host stood with his back to the fireplace in a room where every available inch of space was so cluttered up with papers, books, instruments, pieces of metal, perspex,

plastic, and a hundred other things, that Rex, remembering the orderliness of his own home, was more than a little shocked.

"I'm afraid I'm rather untidy," said the Professor, looking at them whimsically over his glasses. "But as I tell Judkins, who has striven for years to break my habit of leaving things about, it doesn't really matter because I know where everything is."

Rex smiled mentally at the understatement, *rather* untidy. Never had he seen such a litter.

"Sit down—sit down. Make yourselves comfortable," went on the Professor. "You must have had a nasty experience outside. I seldom go out. I haven't time. Besides, I refuse to misdirect my energies by walking except when it is unavoidable. Did you manage to kill something with that antiquated blunderbuss you were carrying?"

Tiger looked pained. "If you're referring to my rifle, it's a brand new Remington."

"Tut-tut. I don't care how new it is, it's as obsolete as a good many other so-called modern contrivances."

Tiger dropped into an easy chair. "What would you use instead of a rifle, Professor, if you had occasion to use such a weapon?"

"A little thing I amused myself with for a time," was the casual reply. "I haven't given it a name. I don't use it. No need. It's quite small. Carry it like a fountain pen. It could be made any size, of course."

"It must fire a very small bullet."

"As a matter of fact there is no missile. It kills by atomic pulsations. Knocks you flat. Burn a hole right through you if necessary. It has several advantages. It's hardly possible to miss with it and it never needs reloading. One small charge will last for years."

"Have you offered this unique weapon to the War Office?"

The Professor looked shocked. "Good gracious, no. Imagine such a weapon in the hands of an unintelligent recruit. Why, bless my soul, in a moment of carelessness he might kill half his own regiment."

"I see," said Tiger slowly. "Be awkward if the enemy got hold of it."

"Calamitous, not awkward. I've taken steps to see that that can never happen."

"You are, I gather, an inventor," prompted Tiger.

"I've done nothing else than invent things all my life," stated the Professor calmly. "Always inventing something or other. You can call it a hobby, an obsession, or a mental disorder, whichever you like. In the matter

of mechanical and scientific devices the world is in its infancy. We're on the verge of an era of such inventions as will pass belief, and make such things as radio and television kindergarten toys. It's the only hope for life on earth."

Tiger sat back staring, while the Professor poured out more coffee. "In what way?" he asked.

"In every way, my dear Group Captain. The natural resources of the earth are fast becoming exhausted. Food, coal, oil, metals—even the soil is impoverished. Do men suppose they can go on for ever using up the planet they're living on without making good the damage? The habitable parts of the world are shrinking, and at the rate the population is increasing they'll soon have to do something about it or it'll be too late. There's talk of atomic energy saving the situation. So it may. But at present it's going the wrong way. We must find new matter, not destroy what we have. In a word, my dear sir, our little world is too small for the number of people who will soon be crowding on it. Simply moving people from one part of the world to another won't produce more corn, so it won't make the slightest difference."

"If emigration won't help, what will?"

"There's only one answer to that. Cosmogration. That's my own word for extending our activities to the other planets of our solar system, and eventually the universe—always assuming that we can find a habitable globe not already occupied by someone else. Ultimately it's bound to come to that if humanity, as we understand it, is to survive. That's ruling out the possibility that some careless atomic scientist doesn't press the wrong button and blow the whole place to smithereens. Wherefore I say that the sooner we see about finding a way to get off it the better."

The Professor made this startling pronouncement so calmly that Rex could only stare at him in wonderment. It was obvious that he was not joking.

"I see you've given some thought to this problem," said Tiger.

"It has been my major preoccupation for many years," asserted the Professor. "It's time someone thought about it. You, my dear Group Captain, have devoted your considerable engineering ability to increased speeds in horizontal flight. To what purpose? Will it benefit a man to be able to fly from England to Australia in ten hours, ten minutes, or even ten seconds, if he finds there the same conditions he has just left?"

"Then you're not interested in high speed horizontal flight?"

"Up to a point, yes. I merely say that it won't answer the problems with which the world will soon be faced. We've got to get off the earth, not just

buzz round it like bees round a hive. That's why I've specialised in vertical flight. Your study is aeronautics. Mine is astronautics. Aeronautics have carried war to every land. Astronautics will, I hope, by enabling people to escape, lead to peace. You go round and round. I go up and up. Have some more coffee?"

"Thanks," accepted Tiger, who was beginning to look slightly dazed.

From force of habit Tiger had produced his pipe, but hadn't lit it. The Professor must have noticed this, for he went on. "Smoke if you want to. I don't mind in the least. I used to be a great smoker of cigarettes but had to give up the habit. I used to light one, put it down, and then forget about it. The result was, to poor Judkins' great anxiety, and, I suspect, irritation, I was always setting the place on fire. Finally I succeeded in blowing myself up."

"How did you manage that?"

"I was experimenting with liquid fuels at the time. One day, while so engaged, in a moment of absentmindedness, I took out a cigarette and lit it. The result, as one would expect, was an explosion of some violence. It held up my work for a time. Having thus been warned that the habit was a dangerous one for a man of my unstable equilibrium I had reluctantly to relinquish it. To support my determination to do so, in order to have something in my mouth I took to eating caramels. Now that has become a habit, but at least it doesn't cause explosions or set the house on fire. I make my own, using only the best ingredients, with just a little something added to keep my faculties alert." The Professor pushed up his glasses, and switching the subject abruptly, inquired: "Tell me, Group Captain, what is your view of these so-called Flying Saucers?"

Tiger hesitated. "Well, it's hard to know what to think about them," he said slowly.

The Professor shook his head. "You disappoint me," he stated frankly.

"Tell me what *you* think?" countered Tiger.

"Surely you don't doubt their existence?"

"I don't know."

"Do you find it hard to believe that the inhabitants of a planet, probably one older than ours, or one in which life appeared before it occurred on earth and is therefore in advance of us in scientific knowledge, have solved the problem which we are only just beginning to tackle?"

"No."

“I should think not. These aerial explorers have been seen by hundreds, thousands, of people. Responsible people, too. Yet there are self-appointed critics who assert they don’t exist. This reluctance to believe their own eyes is something I cannot understand.”

“Evidently you believe in them.”

“Of course I do.”

“As vehicles of some sort?”

“What else can they be? Comets? Nonsense. We know how comets behave. Meteors? Rubbish. We know how they behave, too, by radar. These Saucers are under control. They must be, or arriving within the gravitational field of the earth they would fall down on us. What the nature of the controlling force is we don’t know, but we will, one day. It is my considered opinion that these forces—call them creatures with brains if you like—are doing what we ought to be doing; looking around for fresh territory; possibly a world more comfortable than their own, or perhaps out of sheer curiosity. It was curiosity that sent men out to explore our own little world. Curiosity is an essential part of our make-up. Were it not so, prehistoric man would have stood still and we should still be living in those same uncomfortable conditions. In my view the Flying Saucers were to be expected. They are behaving in a perfectly normal and reasonable way.”

“How do you mean?”

“They are proceeding just as we shall proceed when we start to explore the outer spaces. The first obvious step will be to survey our satellite, the Moon. The next will be to land on it. That may be a risky undertaking for the first man who attempts it, for he will be staking his life on the accuracy of mathematical calculations and the possibility of an unknown quantity. The next step will be to establish a cosmodrome. That achieved, the exploration of the other planets will follow in due course.”

“Cosmodrome?” queried Tiger.

“My own word for a base far out in space, either in a suitable orbit or at the point of neutralisation of two fields of gravity. From the latter point the cosmodrome couldn’t fall either way. It would have no weight. A man on it, having no weight either, couldn’t fall off. What the effect of that will be on the human system remains to be seen. Here, our internal organs are kept in place by the gravity and atmospheric pressure to which they have over many years become adapted. I’m not boring you, I hope?”

“Far from it. I’m finding my first lesson in astronautics remarkably interesting,” answered Tiger. “Please continue.”

“I was saying that our aerial visitors which have become known as Flying Saucers are behaving wonderfully well. As a first experiment our interplanetary experts are talking of hitting the Moon with a charge of flash powder which should be visible through a telescope. What would we say if the other planets began to bombard us with flash powder? At present the Saucers are surveying the Earth. One day—indeed, any day now—one may land here. It will then be proved that the insistence of some people on rocket propulsion as the only motive power for a spaceship was wrong.”

“You don’t agree with the rocket principle, then?”

“The physical and mathematical aspects have been cleverly investigated, but I am doubtful if their practical application will solve the problem of interplanetary flight. It was, of course, the German V.2, that sent people rocket mad. But I soon satisfied myself that the ultimate energy to be obtained from liquid fuel, taken in conjunction with the melting point of metals, would never give us what we wanted. Better fuels may be found, but the heat generated would melt any known metal. No, I cannot see us getting much farther with rockets. The fantastic amount of fuel required sets a limit to what is, in my opinion, a clumsy device. A rocket, travelling at 18,000 miles an hour, might reach an altitude of 24,000 miles; but it would still be earth-bound, with no power left to check its fall on the return journey. Remember, just as much power would be required to check the fall of a spaceship as to send it up. The V.2, with an overall weight of four tons, had to devote three tons of that weight to fuel—alcohol and liquid oxygen. Even that enormous load was expended in a few seconds. From that you may gather an idea of how much fuel would be needed to take a rocket to the Moon and back.”

“So you’re satisfied that a rocket is not the answer to interplanetary flight?”

“I am. A rocket, starting at the necessary tremendous speed, will always exhaust most of its power getting clear of the Earth’s atmosphere, leaving nothing in its tanks by the time it reaches the places where it needs more fuel. The answer seemed to me to be a vehicle that could travel in its own time through the atmosphere, reserving its true motive power for when it got beyond that barrier. That, I believe, is what our neighbours on another planet are doing with their Saucers.”

“You think they’re coming from another planet in our own Solar System?”

“I’m fairly sure, but I wouldn’t be definite. You see, when we talk of the outer Universe the time factor must be taken into account. These Flying

Saucers do not necessarily leave home, look at the Earth, and return the same day. They may have been in the air for a long time. True, at a speed of 25,000 miles an hour we could get to the Moon in ten hours. And we needn't be sceptical about such speeds when we remember that in aviation speeds have jumped from sixty to a thousand miles an hour in a few years. But the Moon is close to us. The planets are a different story. The only way the rocket experts can visualise interplanetary flight at the moment is by taking advantage of certain orbits, bouncing from one field of gravity to another, so to speak. That means going a long way round. To reach our nearest planet, Venus, by that method, would take six months. It would take nine months to get to Mars, close on three years to get to Jupiter. That never sounded reasonable to me. Of course, the Flying Saucers may have speeds beyond our imagination; we must always reckon on that. A Saucer, starting from Mars and travelling at sixty miles a second, would get here inside a week. Don't stare. Such speeds are quite feasible once one is free of gravity and head resistance. The difficulty that arises here, though, is how they would avoid obstructions, for it would be quite impossible at such a speed to make a sharp turn."

"Obstructions—in the open spaces?" questioned Rex.

"Yes, indeed. They represent a danger, although fortunately not a serious one, to space flight. Travelling in their orbits are many planetoids—call them satellites—that have left their parents. There are also millions of meteorites, tiny pieces of lost worlds, hurtling about. When one enters the gravitational field of the Earth, and encounters our atmosphere, it becomes incandescent with heat, and, fortunately for us, burning itself out, seldom reaches the ground. Occasionally one reaches us, and in the past some big ones have hit us more than once. Some people call these lost fragments shooting stars."

"I don't think I should care for interplanetary travel," decided Rex.

The Professor's eyes sparkled. "But think of the thrill of it, my boy. Think of the thrill of seeing other worlds!"

"Tell me, Professor. Have you ever seen a Flying Saucer?" asked Tiger.

"I have."

"Where?"

"Here."

"*Here?*"

"Yes. There's one just outside. I wouldn't exactly call it a Saucer. Say a Flying Basin."

Tiger stared. "Are you saying there's one outside here *now*?"

"Yes."

"You don't mean on the ground?"

"Of course. It's mine. I made it. That's why I disapprove of trespassers and take precautions against them. It is also why I chose this remote glen in which to work. I don't want to be thrown into a lunatic asylum. Ha! That's what they call people, you know, who think ahead of normal scientific progress. I ordered Judkins to admit you because you were known to me by name and reputation. By the nature of your work, too, you will understand the importance of secrecy. In deciding to take you into my confidence I was actuated, I confess, to some extent by selfish motives. Two heads, provided there are brains in both of them, are always better than one. There are some constructional details in my machine on which I would value your opinion. That is if you're not in a great hurry to get home."

"I am on two months leave," said Tiger. "It was thought I needed a rest. What is this machine of yours? An aircraft?"

"A cosmobile."

"A *what*?"

"Cosmobile. My own word for the type. From *cosmos*, the ancient outer atmosphere, and *mobile*—moving. There are Skymasters and Globemasters, so in a moment of vagrant fancy I named my machine the Spacemaster."

By this time Rex was beginning to wonder if he was dreaming. The conversation, he thought, was getting too fantastic to be true. Yet there was the Professor, talking with such casual assurance that he obviously believed every word he said. He might be eccentric, but he certainly did not look mad.

Tiger resumed. "Did you actually build this machine here?"

"Yes. I had the component parts prefabricated to my own design, and with the help of the worthy Judkins assembled them here. I own it was not a satisfactory method of working and we encountered many difficulties, but it was the way best suited to my purpose."

"Have you tested this aircraft yet?" inquired Tiger.

"Yes and no. That is to say, not at any great altitude, astronomically speaking, for fear of being seen. But I have made tests sufficient for my purpose. If my calculations are correct, the atmosphere—troposphere, stratosphere, ionosphere or exosphere—will be all the same to the Spacemaster."

"Does your machine bear any resemblance to a Flying Saucer, as these things have been described?"

"More or less. It is deeper than a Saucer; but it certainly has nothing in common with a rocket. I plan to travel comparatively slowly through the atmosphere, because I have doubts about a human body standing up to the initial acceleration of a rocket launched in the way that has become orthodox. I mean, of course, a rocket that was going to get anywhere worth while. A rocket may be all right for carrying instruments, but I would be sorry to be in one."

"May I be permitted to know the sort of motive power you intend to employ, since, as you say, you have no faith in rocket propulsion?"

"You may, but it is getting rather late for serious technical engineering questions," answered the Professor, glancing at the clock. "Tomorrow, if you are interested, I'll show you the Spacemaster and give you an idea of how it works—that is, if you don't want to continue your stag-hunting."

"I'd rather see the Spacemaster."

"Good. I'd hoped you'd say that. I'll also tell you what I hope to do."

"One last question, sir," pleaded Rex. "Do you believe there is life on the Moon?"

The Professor smiled. "Well, I don't expect to see elderly professors in shabby clothes, or bathing beauties without clothes, waiting to greet me. But there may be something. I prefer to reserve opinion. I am well aware that many astronomers state positively that the Moon is dead; but can they prove it? Of course not. After all, if, as many say, the Moon was once part of the Earth, it must have undergone the same processes. Even if, as it is said, the Moon is subject to temperatures different from ours, that is not to say that some of the original forms of life, developed in a remote period, did not adapt themselves to a process of change that may have been so slow as to occupy millions of years. If creatures on Earth could change with a changing environment, as we know they did, why not some form of life on the Moon?"

"But I've heard it said that there's no air there."

"Tut-tut, my boy. A lot of things are said. Who's to prove it? There may be some form of atmosphere, even if it is very thin. It may not be our type of air. It may be hydrogen, or helium—anything. There are loose masses of gas in the outer spaces. I don't care what it is. My argument still applies. Our air suits us, but it may not suit other creatures. It doesn't suit fish. They prefer water, which is a mixture of hydrogen and oxygen. I believe that life can adapt itself to anything in which it finds itself, given sufficient time. For all we know, creatures may have been created that can manage without air of any sort. Why not, if these were the conditions into which they were

introduced? But this is a subject about which we could argue for a long time. Let us to bed, for an early start in the morning."

Presently, his head in a whirl, Rex followed his father to their room. He still found it difficult to believe that this was really happening, and that he had not fallen asleep on the hill to dream it.

"What do you make of the Professor?" he asked, when they were alone.

"He's either a genius or a crank," was the answer. "Tomorrow we shall know which it is. Either way, we've had an interesting evening—better than spending it on the mountain."

CHAPTER III

SPACE AND THE SPACEMASTER

THE following morning Rex was up with the lark, his head still full of their strange adventure. Without waiting for Tiger he went down to find the Professor up before him. With an ancient dressing-gown over his pyjamas, he was in the study scribbling notes while he drank a cup of tea. He went on writing for a minute or two, and then, apparently having finished, he put down the pen and looked up with a little grimace of self-reproach. "Disgraceful of me to come down like this, but you know how it is," he said sadly. "If you don't make a note while it's fresh in your mind you're likely to forget it. At least, I do. Did you sleep well?"

"To tell the truth, sir, I was a long time going to sleep," answered Rex frankly. "I couldn't help thinking about what you told us."

The Professor chuckled. "You know, that's what happens to me. I'm always puzzling over one problem or another. What exactly were you thinking about?"

"What you said about interplanetary flight. I found there were several things not very clear—the difference between a star and a planet, for instance."

"Quite simple. A star is like the sun. In fact, it is a sun, because it produces its own light. A planet has no light of its own. Like the Moon, it can only shine with the reflected light of the Sun."

"Thank you, sir. Being an air cadet I thought I knew a lot about aviation. Now it seems I know very little after all."

"Ah, you're still confusing aeronautics with astronautics. That won't do because they have very little in common. They present entirely different problems, although, to be sure, with these new high speeds they're getting closer to each other. These supersonic jet planes are soon going to set some pretty puzzles. Not only are they going faster than sound but they'll soon be overtaking Time. For instance, a plane leaving here just after dark and flying westwards at seven hundred miles an hour would find itself flying into the previous day's daylight. People will have to be careful or they'll find themselves arriving at their destination before they start." The Professor's eyes twinkled. "Sounds silly, doesn't it? But it's true, because Time is determined by wherever you happen to be. Another thing. If you set off in a

fast plane and headed south, and I took off in another and headed north, you might think we were flying away from each other."

"Wouldn't we be?"

"For a little while perhaps. But because the World is round we should also be flying towards each other, and might meet head on if we didn't watch out. If we both set off north we shouldn't be able to go far because there wouldn't be any more north. There wouldn't be any east or west either; because when we got to the Pole, whichever way we went we should be going south. Of course, this queer state of affairs always did exist, but when men travelled slowly it didn't matter. But these tremendous modern speeds are going to make artificial divisions, like Time, and Latitude and Longitude, so complicated, that we shall have to work out new ones."

Rex nodded. "I can see that."

"In the outer spaces things are going to be even more difficult to grasp," went on the Professor. "Not only will there be no points of the compass, but Time, as we measure it here, will cease to exist. We know that a day on Earth is twenty-four hours, roughly twelve hours of daylight and twelve hours of darkness. What will happen when we get to the Moon, where the day is twenty-seven of our days long? Imagine fourteen consecutive days of daylight! One afternoon on the Moon will be seven of our days long. Everything else will be just as confusing. The thing we call weight, which is no more than a handy measurement for the pull of gravity, won't make sense any more. Weight, like Time, depends on where you are. For instance, if you had a pound of plums on Earth, on the Moon they would only weigh three ounces, because the Moon being so much smaller, gravity is so much less. But don't worry. You'd have just as many plums to eat. That's why in astronautics we no longer talk of weight, but of mass, which is the only thing that matters. It is even more difficult to imagine no weight at all, but I shall pass through those conditions on my way to the Moon. Everything will stay where it is put. Nothing can fall. Water won't pour, so it'll be no use trying to pour it down your throat. To drink I shall have to suck—up or down, it doesn't matter which. Strictly speaking, in space there is no up nor down. On Earth we always talk of falling *down*; but in space we're just as likely to fall up. Even that is only relatively speaking, because not only are we and the other planets spinning round the Sun, but the whole Solar System is spinning through space, with the result that you are at this moment about half a million miles away from where you were this time last night." The Professor laughed at the expression on Rex's face.

"It all sounds pretty hopeless to me," was all Rex could say.

"Not at all, my boy. We shall get over these little difficulties."

Tiger came into the room.

"Ah! Good morning to you," greeted the Professor cheerfully. "We've just been having a little chat about some of the queer things that will happen to a man who finds himself in space."

"It's simply fantastic," Rex told his father.

"No—no," disputed the Professor. "The fundamental laws of nature will remain unchanged. It's just a matter of adjusting ourselves to conditions which we earth-bound mortals have never encountered."

"You're hoping actually to land on the Moon?" queried Tiger.

"Not on my first trip. That will be a serious undertaking. First I shall explore the intervening space. Then I hope to have a close look at the Moon, particularly the far side, which no one has yet seen. It may not be easy to find a landing place, for the Moon is certainly not the lovely thing that poets and song writers would have us believe. Through our telescopes we see only a mountainous wilderness of sterile earth and rocks pitted with tens of thousands of enormous holes, which may be volcanic craters or the result of bombardment by meteorites. I'm not afraid of meteorites. Space is a big place, and the chances of collision are negligible. Few meteors are larger than a pea, although there are big ones, of course. But to go through even a cloud of meteoric dust might well be an alarming experience. I have a device ready should my cabin be punctured. But Judkins will be here at any moment to say that breakfast is served. I must hurry and get myself dressed."

While the Professor was out of the room Rex walked round trying without success to make sense of sketches, blue-prints, and sheets of incredible chemical and algebraical formulae that lay about. It was plain that, as his father had said, if the Professor was not insane he was one of that exclusive school of scientists whose highly specialised brains are so far ahead of those of ordinary people that they live in a little world of their own.

The Professor came back just as Judkins arrived to say that breakfast was ready.

"I seem to remember some talk of building refuelling stations in space," remarked Tiger, as they went through to the dining-room and seated themselves at the table. "It sounded pretty far-fetched to me."

"Not at all—not at all," returned the Professor. "It's an ingenious and quite feasible plan, although in my opinion a clumsy one. It might work for Moon travel, but hardly for interplanetary flight, which would involve long periods of time. The idea is by means of manned rockets to build a platform,

with refuelling facilities, in a pre-arranged orbit. It would be quite possible at a distance of about 24,000 miles from the Moon, which is the point where the gravities of the Moon and the Earth neutralise each other. There would then be no need for a spaceship to carry with it all the fuel required for a journey to the Moon and back. That, in terms of aviation, would be like a transatlantic plane having to take with it enough petrol for the return journey. A spaceship, on its outward journey, could drop off drums of fuel at intervals and pick them up on the return trip. They'd still be there. Of course, the idea of leaving heavy objects floating about in space isn't easy to grasp by people who have always supposed that everything must fall. That only applies while one is in the gravitational field of the Earth. Once out of it, as I said just now, an object, even a lump of lead, has no weight. In simple terms, the farther an object gets from the Earth the less it weighs. Perhaps even more difficult to grasp is the idea that a body, having reached a certain height, instead of slowing down will suddenly go faster. That is because it will then be falling towards the Moon—falling up to it or down to it, whichever you prefer. The problem then will be to check the fall, otherwise the ship, falling free, would crash into the Moon at 5,000 miles an hour. Not that that would be any worse for travellers than crashing into it at a hundred miles an hour."

"Could you miss the Moon altogether?" inquired Rex. "I mean, go right past it?"

The Professor looked at him over his glasses. "Oh yes. But that wouldn't worry me. I should simply accelerate to a speed that would take me back into the gravitational field of the Earth, towards which I should then begin to fall. Marvellous thing, gravity. As you know, it's the gravitational pull of the Moon that causes the tides. If the Moon came any nearer it would pull the seas clean out of their beds and flood the land."

"In short, this Moon project seems to depend almost entirely on the use of gravity?" put in Tiger.

"As far as a rocket is concerned, it would be quite impossible to get to the planets except by the employment of orbital velocity, which is the result of gravity."

"What do you mean by orbital velocity?" asked Rex. "Is it the place where the different gravities cancel themselves out?"

"Oh dear no. In astronautics we talk of escape velocity and orbital velocity. The first is a speed that will actually free us from the gravitational pull of the Earth. Orbital velocity wouldn't do that. A spaceship could only remain in a circular orbit while it had the necessary speed. Should the speed

fail the ship would fall. Let us put it like this. If an object travels fast enough it can't fall. That is to say, gravity can't pull it down, because centrifugal force is pulling it up at the same time. Take a rifle bullet. If you drop one, having no speed, it falls. But at muzzle velocity, the speed at which it leaves the rifle, it doesn't fall. If it were not for the resistance of the air slowing it up, it never would fall. It would go round and round the world at the same height for ever and ever. But as air resistance slows it, it presently drops to a speed when gravity can pull it down. The farther from the earth the less the gravitational pull, so less speed is required to keep it in space. Thus, at a certain height above the Earth, having given my machine the necessary speed, I shall be able to switch off all power and just go sailing on for as long as I please. There will be no head resistance to stop me because I shall be outside the atmosphere. The Moon is sitting in an orbit. So are we, going round and round the Sun. The same thing is happening to all the other planets and their moons. And finally, the whole Solar System, complete with the Sun, is whirling round in the Universe. We are all riding on a wonderful merry-go-round, travelling at unthinkable speeds yet without any sense of movement."

Rex shook his head. "You know all about these things."

The Professor's eyes twinkled. "If I set off for the Moon without having some idea of what's likely to happen, I'd soon be in trouble. If I can survive my first trip I shall know even more about it. But if everyone has had enough to eat, let's go and look at the ship that is going to sail these unknown seas of space."

They got up, Rex wondering what they were going to see.

A short walk along a corridor brought them to a flight of concrete steps which ended in what might best be described as a small square hangar, set between the sloping sides of a deep gorge. The far end of the building was open to the air and the concrete floor continued on some distance into it. An indescribable amount of sheet metal and other debris lay around benches, carrying lathes, presses and other machine-tool equipment.

To these things Rex paid little attention, for his eyes had gone straight to a strange-looking object, obviously the Spacemaster, which occupied the centre of the building. It was about twenty feet high by twenty in diameter, and it was at once clear why the Professor had likened it to a flying basin; for if it resembled anything it was a huge inverted metal bowl mounted on a cylindrical base and supported by a chassis consisting of six legs, equally spaced and spread outwards, resting on small metal balls. The top of the bowl was dome-shaped, but it was not plain sheet metal. It appeared to be built up of blades set close together, something like the petals of a daisy

flower with the petals half twisted. Between this structure and the lower drum, small portholes of heavy glass indicated the position of the cabin. Some distance below this a number of nozzles projected.

"Well, there it is," announced the Professor, a touch of pride in his voice. "A good many years' work have gone into it. Like all prototypes it had its teething troubles." He glanced at Tiger. "Nothing in common with your orthodox aircraft; but as their purposes are entirely different one would expect that. Wings are useless if there is nothing to support them. You can just see the bottom of the rudder, inset vertically in the exhaust thrust just below the nozzles. So far I have found nothing better to withstand the heat than the graphite used by the German V.2 rocket. But perhaps I had better explain the general principles." The Professor popped a caramel into his mouth.

Tiger filled his pipe.

"When I first carried my study of astronomy into the field of interplanetary flight," continued the Professor "it did not take me long to decide that the idea of employing a motive power dependent on fuel was out of the question. The standard space rocket of today burns liquid fuel at the rate of nearly three hundredweights a second. It might be possible eventually to crash such a ship on the Moon, which is what a rocket would do if it went through escape velocity without sufficient fuel left to break its fall. Alternatively, it would crash on the Earth—which every rocket so far has done. For as I believe I told you, just as much fuel would be needed to break the fall as would be needed to get clear of the Earth. Even if a rocket managed to land on the Moon, what about getting back? No one would willingly maroon himself on the Moon. It was this problem, of course, that resulted in the scheme for a refuelling station in space, which we discussed. I went to work on different lines. What obviously was needed was a form of energy that could be produced or generated in flight. In other words, fuel in unlimited supply. Without such a source of power it was to me quite futile to talk of getting to Venus or Mars, our nearest neighbours. Given an inexhaustible motive power interplanetary flight would at once become a comparatively simple project. One could travel in a straight line instead of wandering hundreds of thousands of miles out of the way seeking orbits. But what form of energy could be found in a vacuum, an absolute vacuum if we ignore sub-atomic particles such as photons and electrons? Only one thing. Cosmic rays. There would be no need to store them for they occur everywhere, in everything. Don't ask me what they are because I don't know. Nobody knows. But I have managed to—I won't say harness them—turn them to my purpose. By magnetised sodium discs, which I can open or

close at will, I can attract them and concentrate them so that in their frenzy to escape they pour through diminishing jet nozzles below the machine and give me the required thrust. The discs are closed now, but you can see the circular lines. Strictly speaking they're not discs, but inverted cones that open and close in the manner of the diaphram in a camera. The discs are in series which can be employed independently to maintain equilibrium, or, if necessary, provide the cabin with artificial gravity."

"Artificial gravity?" questioned Tiger, looking incredulous.

"Yes. Quite simple. A gyroscope keeps the whole thing steady, but by revolving the cabin gravity is created in the opposite direction. Normally I shall be anchored to my seat, as will be everything else if it is not to drift about. The rest was comparatively easy. For movement through the atmosphere, or anywhere where there is air, in order to ensure absolute control when landing I have installed two sets of rotor airscrews, one above the other and turning in opposite directions to counteract torque that would otherwise develop at high revolutions. Call them auxiliary to the main power. As you can see, they form the dome, and are no more than a development of the well-known autogyro principle. Below, you see the portholes of the cabin, darkened to combat the ultra-violet rays at high altitudes that might otherwise burn the skin. Air I shall take with me in liquid form to maintain the necessary pressure. As a helicopter the machine behaves perfectly. I'll show you. Judkins!"

"Sir." The butler appeared like magic.

"Stand by for Test Alpha!"

"Yes, sir."

To Rex's surprise Judkins had only to put a hand against the Spacemaster to move it without effort to the open concrete apron.

"Won't this power unit of yours generate a lot of heat?" asked Tiger.

"Yes, I think it may. But I've introduced a thick layer of insulating material between it and the cabin," answered the Professor. "Come in," he went on, mounting the short ladder that gave access to the entrance panel.

They went in, the door closing noiselessly behind them on hermetically-sealing rubber flanges.

"This is what I want you to look at," said the Professor to Tiger, tapping the wall. "It's one-eighth inch steel, reinforced. As you will know, the atmospheric pressure at sea-level is fifteen pounds to the square inch, which means that every square foot of the cabin wall is subject to nearly a ton weight. With pressure equal on both sides that is immaterial; but with such pressure from within only, as would be the case in a vacuum, the ship might

burst open were the walls of insufficient strength. In actual practice the strain need not be as great as that. The human body is wonderfully adaptable, otherwise people would not be able to live in the rarefied air of mountainous countries. What do you think of my welding? Unless I am to lose pressure it must be perfect. I have been a little concerned about it and would be glad to have your opinion. I suppose I should have got a skilled man to do it, but had he talked afterwards it might have resulted in distasteful publicity."

Tiger went over the joints of the panels with great care. "A little rough in places but otherwise perfectly sound," was his opinion. "I don't think you need worry about that."

"Good. You relieve my mind," said the Professor. "The question of pressure is, of course, tied up with air to breathe. It will be carried in liquid form. No difficulty about that. But the question of how much will be required for journeys of varying lengths was a complex problem. The air we breathe normally is composed of one-fifth oxygen, which is the gas we actually need, and the rest nitrogen, which as far as we know is no use to us. I daren't risk trying to live on pure oxygen, so I have compromised with an equal mixture of oxygen and nitrogen, which should be safe. The next question was what to do with the carbon dioxide into which this would be converted by breathing. Rather than dispose of it I found it more advantageous to convert it back to oxygen with sodium hydroxide—the job done for us on earth by the vegetation. But we can discuss these technicalities in the study."

Rex had been gazing round the cabin. Whichever way he looked he was confronted by instrument dials, some large, some small. There was also a good deal of equipment visible, cylinders and the like, as well as devices the purpose of which he could not guess. His inspection ended when the Professor seated himself in a heavily padded chair within reach of a control table carrying numerous levers and switches.

Judkins took up a position, in a similar seat, behind a wheel of some size, in the manner of a helmsman of a ship.

"Gravity one," called the Professor.

"Gravity one," echoed Judkins, giving the wheel a quarter turn.

"Contact."

"Contact, sir." Judkins advanced a lever.

Overhead something began to hum with a deep vibrant note, but there was no sensation of movement.

The Professor swivelled in his chair. “By the way, we don’t talk of speed in space,” he explained. “We speak of it only in terms of gravity—so many gravities.”

Rex, looking through his porthole, saw with astonishment that they were already airborne. They were about ten feet clear of the ground and still rising.

“Cut!” called the Professor.

“Cut.”

The drone began to die.

“Gravity two.”

“Gravity two, sir.”

The drone began again, this time with a far more powerful note, and from below.

“We are now on the cosmic jets,” explained the Professor.

Looking down Rex saw the Earth dropping away below.

“Stop!” ordered the Professor.

“Stop.”

The roar died to a whisper and the Earth came up to meet them.

“Hold at plus ten,” ordered the Professor.

“Plus ten,” echoed Judkins.

The Professor rose smiling. “Nice and steady, isn’t she? That’s due to the gyroscope of course.”

“Incredible,” was all that Tiger could say.

“Merely a matter of energy. With unlimited power one can do anything. We are now on the cosmic jets at one twentieth exposure. At full exposure you would be travelling at not less than twelve gravities, which in terms of speed would be very fast indeed. All right, Judkins. That’s enough. We’ll go down now.”

With the slightest perceptible bump the Spacemaster returned to Earth. As Rex stepped out he noted a faint blue haze coming from under the machine. He jumped as a little of it came his way, and touching his skin created a sensation of pins and needles.

The Professor smiled. “Only exhausted cosmics. They won’t hurt you,” he said cheerfully. He turned to Tiger. “Well, what do you think of the Spacemaster?”

“I haven’t words to tell you,” answered Tiger helplessly. “It’s all too incredible.”

“I’ll show you how she responds to remote control,” said the Professor. “Close the door, Judkins.” He led the way to a switchboard just inside the hangar. “Watch!”

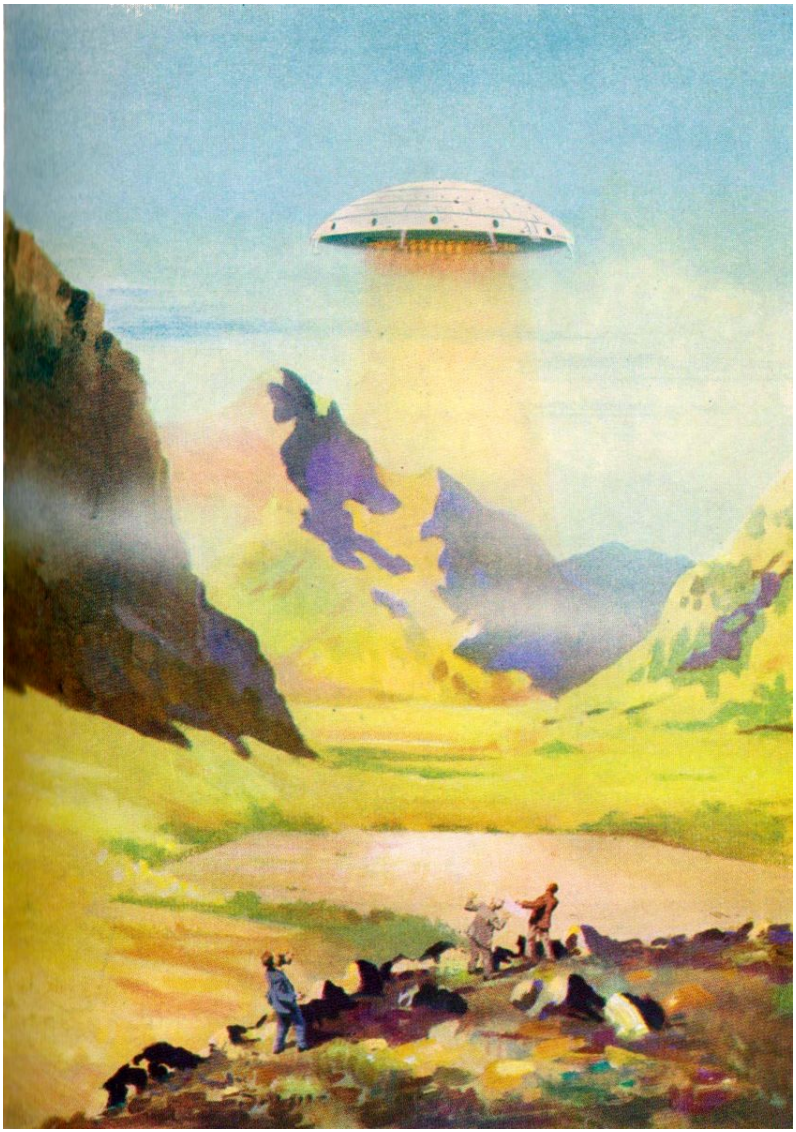
In a flash the Spacemaster had shot up to two hundred feet, level with the top of the gorge, where it remained stationary.

“I won’t send her any higher for fear she might be seen from outside,” remarked the Professor.

All Rex could do was stare. The exhibition, he thought, was taking on the character of an optical illusion. The Spacemaster came slowly back to Earth.

“I think you will agree, Group Captain, that my ship is in advance of anything in the helicopter group,” claimed the Professor.

“There’s nothing in the world like it,” declared Tiger. “How high have you been in it?”



(*see page 53*)

In a flash the spacemaster shot up to two hundred feet.

"Not far. A few hundred miles when there was continuous cloud cover." The Professor smiled roguishly. "I've always been afraid of being seen by some garrulous deer-stalker, who would have such a tale to tell that my work might have been interrupted by inquisitive spectators. I really went up to get some photographs of the Moon, clearer definitions than is possible from sea-level. I've had some minor problems. Heat control was somewhat awkward.

I was also troubled a little by the so-called radio rays shot out from the Sun. These are the rascals that sometimes interfere with wireless reception. Yes, there were a lot of things to think about. I couldn't afford to forget anything."

"No, I can see that," answered Tiger drily. "To say that I'm shaken is to put it mildly. The work I've been doing is child's play to this. Congratulations, Professor."

"Thank you."

Rex stepped in. "Will you have to wear special clothing?"

"For landing on the Moon, yes, but not for the preliminary flight. I've had to devote a lot of thought to personal equipment, such as cosmosuits—as I call my special clothing. I have also devised pressure pads for the pulses to keep the blood steady during early acceleration."

"When are you thinking of making your first really high reconnaissance?" asked Tiger.

"The first suitable day now. I'm all ready. Indeed, I should have gone by now had there been a suitable cloud layer to hide my departure. Judkins will come with me. After all these years of work he is as thrilled by the prospect as I am."

"It should be a wonderful experience."

"You think so?"

"I do indeed. In fact, I envy you. What airman wouldn't?"

The Professor hesitated, looking at Tiger over his spectacles. "Do I take that to mean you would like to come with me?"

"I can't imagine anything giving me a greater thrill."

"Then come by all means," invited the Professor warmly. "With your experience of aerodynamics you might be a useful passenger. You realise that you may lose your life? Remember, I don't *know* what's going to happen. I only think I know."

"The experience promised is worth any risk," asserted Tiger. "After all, I've been taking risks for years to test my theories."

"You won't be able to smoke your pipe."

Tiger laughed. "Maybe I'll have a smoke on the Moon."

"If there's no air, how are you going to light it? You can't get a flame without oxygen."

They all laughed.

“What about this boy of yours?” asked the Professor. “Will he go home or would he rather stay at the castle?”

“If you don’t mind, sir, I’d rather go with you,” said Rex promptly. “If Tiger’s going to be killed, I’d rather be killed with him. Imagine how I’d feel if he went up and never came down? I’d spend the rest of my life staring at the sky, wondering where he was.”

The Professor smiled and offered his little bag of sweets. “We’ll try to see that doesn’t happen.” He looked at Tiger. “It’s for you to say. May he come?”

“I don’t see why not if it’s all right with you, Professor,” decided Tiger, puffing at his pipe.

The Professor looked at both of them over his glasses and spoke earnestly. “Make no mistake, either of you. This project isn’t one to be undertaken lightly. I’ve given you an indication of the physical dangers likely to be encountered. There may be others. We talk calmly of the great vacuum over our heads, but who is to say that it is a vacuum? For all we know there may be deadly gases as yet unknown to us, cast off by the stars; or mysterious rays discharged by the Sun, powerful enough to batter us to death or scorch us to a cinder. And there is yet another factor which so far I haven’t mentioned, and that is psychological. It’s all very well to be enthusiastic here, never doubting your courage in your own element with your feet on solid ground. It’s all very well to fly an aeroplane with the good old familiar Earth just below. But the sensation may be very different when you realise that you’re out in the utterly lonely spaces with the meteors, hurtling into the unknown at thousands of miles an hour, perhaps not even knowing where the world is. If that doesn’t make a man afraid, nothing ever will. Do you still want to come?”

“Yes,” assented Tiger and Rex together.

“So be it,” said the Professor quietly. “Now let us go in. Judkins will bring us a cup of coffee. I’ll tell you just what I hope to do so that you may think about it.”

They walked back to the study in silence. It was as if something in the Professor’s words, or in the quiet way he said them, had revealed to the full the magnitude of the undertaking.

CHAPTER IV

PRELUDE TO ADVENTURE

PRESENTLY, in the study, over coffee, the Professor resumed.

"I can't state the actual zero hour of departure because, as I told you, that will to some extent be decided by the weather. But the Moon is now in an ideal position and I shall take advantage of it at the earliest opportunity. Early morning mist or cloud overcast, likely to disperse later, would suit me best. That would enable us to get away without being seen during the first few minutes, which is all that matters, because we should soon be out of sight. Observation of a machine as unorthodox as mine, near the ground, would inevitably result in inquiries being made, and I don't want word of my experiment to leak out until I'm ready to write a paper on the whole subject. The government might intervene. They might stop me, take everything out of my hands. Realisation of the military value of the Spacemaster would mean the imposition of security officers, who would interfere with my work."

"You don't intend to make an announcement even if the first flight is successful?"

"Certainly not."

Tiger looked astonished.

"On the contrary, before I do that I may destroy my machine and all papers that refer to it," stated the Professor calmly. "That is a matter on which I haven't yet reached a decision, possibly because, should the flight end in disaster, the question wouldn't arise."

"I see," said Tiger slowly. "Most people would be only too anxious to claim credit for such discoveries as you anticipate."

"I dare say, but I don't come into the category of most people." The Professor's expression hardened. "My dear Group Captain," he went on curtly, "you know perfectly well what would happen were I to release information about the Spacemaster. It would instantly be adapted for warfare. Men will destroy the good Earth soon enough without any assistance from me. You may not have realised that I could destroy the world tomorrow. Fortunately for the world I am sane, and cherish no ambitions outside my laboratory. You will agree that it is a shocking thought that civilisation has reached a point where it is within the power of one man

to set the world on fire and destroy all his fellow creatures, and every other form of life, in a few hours. The knowledge that that awful power is in my hands frightens me more than the fear of death, and sometimes makes me wonder would it not be a good thing if I were to destroy myself and my inventions."

Both Rex and Tiger stared. This was a new, an unsuspected mood, thought Rex.

"How would you destroy the world?" asked Tiger.

"Simply by taking a reflector of sodium plates beyond the limit of the air and directing concentrated solar rays on any spot I wished—the old principle of the burning-glass. But let us not torture ourselves with such uneasy thoughts. I will show you the controls and instruments in the Spacemaster before we start so that you would be able to take over in an emergency. Now let us pass on to the order of the proposed experiments." The Professor pushed forward a bag of caramels. "Help yourselves."

"On my first flight," he continued, "I shall devote myself to the practical application of the theory of circular or orbital velocity. To be specific, if my calculations are correct, travelling at 18,000 miles an hour we should engage it at an altitude of about 1,500 miles. We should then become a satellite of the Earth—a microscopic Moon." The Professor chuckled. "Should some inquisitive fellow pick us up on a radar screen he'll wonder what the dickens has drifted in. If this experiment turns out as I hope it will I may go on to further tests. From an altitude of 22,000 miles we should be in a position to observe a curious effect. We should then be in the 24-hour orbit. That is to say, we should be travelling at such a speed in relation to the Earth that we shall always be opposite the same spot, going round and round with it without any effort on our part. There will be no risk of our escaping from the Earth because a much higher velocity would be necessary—certainly not less than 25,000 miles an hour. As I said before, don't be startled by these speeds. Once clear of the Earth's atmosphere they could easily be achieved. You'll be quite unaware of them—unless, of course, you look at the instruments. Only sudden acceleration is likely to affect us. At the end of Operation Orbit, as we might term it in the modern style, we shall return to Earth, to see what effect, if any, the trip has had on the structure of the machine. Some modifications may be necessary. The actual landing will be interesting; possibly quite a delicate business; for we may collect a lot of static electricity, and it will be necessary to discharge this before stepping out ourselves. To earth it through our bodies might prove an uncomfortable experience."

"Very," said Tiger.

"If this experiment is concluded successfully the next step will be to find the neutral gravitational zone between the Earth and the Moon. It has been calculated that this should be about nine-tenths of the way to the Moon—say, 24,000 miles from it, or 215,000 miles from Earth. Beyond that point we should shake off the last embrace of our old friend, the Earth, and begin to fall towards our new love, Selena, as the ancients called the Moon. It gets less with distance, though. To be the first men to set eyes on the far side of the Moon will be a milestone in human history. We should be able to get some dramatic photographs of both Earth and Moon while we are in transit. They should teach us much. I obtained some spectacular results on the trial flight I told you about. You shall see them." The Professor looked up, his eyes gleaming. "Then will come the great event—a landing on the Moon, which has been the dream of men since men were able to think. Imagine it! Think of standing with your feet on that shining blue disc, as it appears to us!"

Rex was thinking about it—or trying to, for it was not easy.

"That will be the end of the first phase, and the beginning of the next, an even greater one; the unveiling of the face of Venus herself. What will she be like? For centuries men have wondered. We, perhaps, will solve the mystery—and what a mystery! Could anything on Earth compare with it?"

Rex drew a deep breath. Again a feeling began to grow on him that he was dreaming. But the Professor's enthusiasm was infectious, and he felt his pulses quicken. He knew, now, how the great navigators of old must have felt when they looked at their primitive charts and read on the great blank spaces that magnetic word 'Unknown.'

The Professor went to a drawer and returned with a series of photographic enlargements which he spread out on the table. "Here, gentlemen, is the objective. Here are the photographs I told you about, those I took on my first test flight."

Rex stared. He had seen pictures of the Moon before, but none like these, and it was not without misgivings that his eyes roved over the appalling scenes of desolation represented. The most outstanding features had had their names roughly printed on them, presumably by the Professor. Strange-sounding names they were, too. *Mare nubium* . . . *Palus nebularum* . . . *Sinus iridum*, he read.

"As you will see, there are five main types of features," went on the Professor. "They are mountains, craters, rills, rays and what are called *maria* —plural of the Latin word *mare*, meaning sea. For a long time those dark areas were thought to be seas. Now we don't know what they are. The same

with the rills and the rays; and we're by no means sure of the craters. The word rill is adapted from the German word *Rille*, meaning a groove, which is what it resembles. See how they cut across the landscape, even through the mountains, as if someone had slashed a lump of mud with a knife. We've nothing like that on Earth. The rays are another mystery. Notice how they radiate always from a crater like the spokes of a wheel. It will be interesting to examine them at close range."

"There seem to be an awful lot of craters," remarked Rex.

"More than 30,000," returned the Professor. "Astronomers have been arguing about them—or rather what caused them—for centuries. At first they were thought to be the craters of extinct volcanoes, although a crater 150 miles across would suggest a colossal volcano. Anyway, that is why they were called craters, although strictly speaking they are not. The general belief today is that they are the result of bombardment by meteors, possibly when the Moon was soft. We have one or two similar craters on Earth, but nothing that size."

"Why not?" asked Rex. "I'd have thought that if the Moon got such a terrific battering, the Earth, having a stronger gravity, would have got it even worse."

"Well done!" exclaimed the Professor warmly. "That's sound reasoning. No one can answer that question, but in my opinion the Earth *did* receive a battering, but wind, water and vegetation over millions of years have smoothed out the wounds."

"Another world war, with people dropping atom bombs on each other, and the Earth will begin to look like the Moon," observed Rex thoughtfully.

The Professor looked at him over his glasses. "It would be a good thing if everyone realised that."

"Do you think that the Moon might have been battered to death in an atomic war?"

"I think it most improbable, but who are we to say such a thing never happened? It has certainly been battered, as you put it."

"By another Moon," suggested Rex, warming to his subject. "Could there have been a war between two Moons, close to each other?"

"But there is only one Moon."

"Now, but there might have been another. You said yourself that some of the other planets have several Moons."

"What happened to the other Moon?"

"It lost the war and got knocked to fragments."

“Can you give any reason for thinking there might have been another Moon at one time?”

“Yes. I’ve always wondered why there aren’t two, or even three Moons.”

“Proceed.”

“Well, when I was at school I was taught that the Moon was once part of the Earth. When the whole thing was soft and spinning, a lump was torn off the Earth and sent whirling into space, leaving the enormous hole where the Pacific Ocean now is.”

“Quite right. That is now the generally accepted theory.”

“Then what’s happened to the lumps that left the similar great holes now filled by the Atlantic and Indian Oceans? When I asked the master that he told me not to try to be clever.”

“He should have made you a prefect on the spot for such an intelligent question,” declared the professor. “But as you get older you will learn that people hate having their pet theories upset. Where indeed have the enormous lumps gone that left those holes now filled by the other oceans? My answer to that would be, there may have been other satellites back in the remote ages; but either they were hurled into distant orbits or broke into fragments too small for us to see.”

“Like the asteroids you told us about?”

“Exactly. It could have happened. You make a very interesting point there, Rex, and I shall devote some thought to it.” The Professor flashed one of his quick smiles. “Of course there’s always a chance that we may find the answer when we start exploring space. To return to the present, and more practical matters, there is little more I can tell you about the actual conditions that will prevail during our flight. For a short while, after the initial take-off, we may be subject to the uncomfortable forces of acceleration, although you may be sure I shall exert no more pressure on our bodies than is unavoidable. I shall check the speed if we look like getting what in the R.A.F. they call a black-out. Don’t attempt to move. Indeed, it is unlikely that you will be able to. Take up a prone position on the floor if you wish; you feel pressure less that way; but I think you’ll find the padded seats fairly comfortable. We shall be strapped in, of course. You should be able to watch the instruments in front of me. Once we gain the necessary velocity for our orbital experiment the pressure will relax, and there will be no more sensation of speed. The very absence of speed and weight may induce sensations at present unsuspected. I don’t know. We shall find out. But if we have no weight we shall have inertia so be careful if you try to move. There will be cords stretched across the cabin to facilitate movement. There will

also be food and water within reach. I will keep you informed of our position. There should be no difficulty about hearing me. If it should happen that we are punctured by a small meteor the hole must be covered as quickly as possible with one of the suction pads which will be handy."

"How long do you reckon we shall be away?" asked Tiger.

"It's hard to say exactly. I plan to return to Earth before dark. Not that it is really important. The red lights which you saw will show us our base. I can arrange for them to come on automatically or switch them on by remote control, as I wish. Well, now that I have given you the general plan, do you still want to come with me?"

"More than ever," answered Tiger without hesitation. "I'm looking forward to it as much as you are."

The Professor shook his head. "I doubt it. When you have spent years looking through a telescope, trying to identify a particular object, imagine the satisfaction of being able to see clearly at last what it is. Before our eyes will be the answers to the fascinating riddles that have perplexed men from the dawn of time."

"What sort of riddles?" asked Rex curiously.

"Oh, all sorts. Hyginus Castle, for example. But you may not know about that. A famous German astronomer once declared that he could see a great castle on a mountain of the Moon called Hyginus. Certainly there is a formation there that looks artificial, although few now believe it to be a castle. And then later on, what of the celebrated canals on Mars? But I mustn't go on like this. Group Captain, don't you think it would be advisable for you to put your private affairs in order before we start?"

Tiger agreed. "It shouldn't take me long. As a test pilot I've always kept my affairs ship-shape in case anything went wrong. I'll go back to our lodge, collect some clothes and small kit, and write a letter to my lawyer telling him that I may be away for some time. I'll get back as quickly as possible."

"Capital! We shall then be ready when the moment comes. After lunch Judkins shall show you the nearest way to the road." The Professor popped a caramel into his mouth. "Have one? Jolly good. Most sustaining."

Rex accepted the invitation. He felt he needed sustaining, although somehow spaceships and caramels seemed more like a combination from Alice in Wonderland.

CHAPTER V

OPERATION ORBIT

THREE days after the conversation narrated in the previous chapter Rex and his father were awakened by a tap on their door, which was opened by Judkins bringing early morning tea. A glance at the window told Rex that it was still grey dawn, and he guessed the reason of the early call. Confirmation was forthcoming.

"Professor Brane sends his compliments, gentlemen, and would be obliged if you would join him, ready for flying, in the study as early as convenient. I was also asked to suggest that you put on your blood-control bands now, as that will save you undressing again for the purpose."

Rex was out of bed in a flash. "That means we're going!"

"The conditions are ideal, sir. Professor Brane is, I know, anxious to take advantage of them in case they should change."

"We shan't keep him waiting," promised Tiger, swinging his legs out of bed.

"Very good, sir." Judkins withdrew.

Rex began to dress in a state of nervous excitement blended with a curious feeling of unreality. To his annoyance he found that his hands were trembling slightly, but excused this weakness by telling himself that the day's programme did, after all, promise to be very unusual.

Ten minutes later they went down to find the Professor standing up making a light breakfast of toast and coffee. His movements were quick, and his manner one of expectancy. His eyes were sparkling. "All ready?" he queried crisply.

"All ready," confirmed Tiger.

"Good. Have some breakfast and we'll get away as soon as possible in case the mist lifts. It's right down on the hill at the moment so there's no chance of anyone seeing us leave. I've been up for some time with Judkins, making the final touches."

Following the Professor's example, Tiger and Rex took a light breakfast standing. Neither of them it seemed was in the mood to think about food.

"Queer thought, isn't it," remarked the Professor, after finishing his coffee. "All the people all over the world are going about their business as

usual, whilst unknown to them the greatest event in human history, one that may completely alter life as it has hitherto been understood, is about to begin. I must confess to some slight nervous apprehension, aware that we are about to subject ourselves to conditions which are impossible to create on Earth."

"I feel like I used to feel before a raid during the war," admitted Tiger. "You know—is this going to be my last day or shall I be alive tonight? I used to wonder, when I saw the sun rise, if I should see it set."

"Exactly. An exhilarating feeling. That, of course, is the very essence of the spirit of adventure, a sensation that only those with courage can enjoy. Life, like everything else, is only truly valued when there is suddenly a risk of losing it. We should pity those unfortunates who are content with courage second-hand, through the people who risk their lives to entertain them by taming lions, walking on high wires, and other circus tricks. But if you are ready, let us go. Judkins is already standing by. The good fellow tries not to show it but he is really quite excited."

Nothing more was said. They followed the Professor to the hangar to find the Spacemaster already on the concrete apron under a canopy of white fog. Still without speaking they mounted the ladder, entered the cabin, and watched the heavy door closed and screwed up behind them.

"Be seated, please, and fasten safety-belts," requested the Professor. "The next few minutes may be uncomfortable, but nothing more than that I hope. I shall not risk acceleration beyond the limits of endurance, you can rely on that."

Rex took his seat by a porthole, strapped himself in securely, and looked round to see that some extra pieces of equipment had been added. A telescope and a camera had been fastened by clips to the control board, to which an open notebook had been pinned. Some sandwiches in transparent boxes and a carafe of water, also fastened down, were within reach of every seat.

"Ready, Judkins!" called the Professor sharply.

"Ready, sir," answered Judkins, from his position at the wheel.

The same formula as on the previous occasion was followed, and the gyroscope and the rotors began to hum. Looking through his porthole Rex saw the ground dropping away. Then they were in mist and he could see nothing. The cosmic jets began to roar with their deep note and in an instant the ship had flashed into dazzling sunlight. Blue sky filled the portholes, while underneath, the sea of vapour, looking like cotton-wool, fell away as if it had been made of marble.

There was an interval of perhaps a minute. Then, “Gravity three to four!” called the Professor.

Judkins echoed the order.

Another short pause.

“Gravity four to five!”

So great a weight now began to press on Rex, forcing him down into his seat, that for a moment he nearly panicked, thinking he would be unable to bear the strain. It got no worse, but it persisted, forcing him down with a power that deprived him of movement and threatened to send him through the floor. Feeling that his body was being compressed like a concertina he closed his eyes. Remembering that the Professor had said that the acceleration would not last long, he waited for the unpleasant sensation to end. He had guessed that this stage was likely to be uncomfortable.

How long it actually lasted he did not know. His heart seemed to be behaving oddly and his ears began to sing. He heard the Professor say something but didn’t catch the words. It was getting difficult to breathe, and a fear came over him that the ship was out of control and hurtling to destruction. Once he opened his eyes, but could see nothing clearly. It seemed to be getting dark. The window was black.

Then, to his great relief, the pressure began to ease. He looked at the others. Their faces were pale, but they appeared to be all right. Tiger gave him a reassuring smile.

“Are we out of the atmosphere yet?” asked Rex, his voice sounding strange in his ears.

“Must be—some time ago,” answered Tiger.

The Professor may have heard the question, for a few seconds later, without turning his head, he called: “Altitude one thousand miles.”

Rex, thinking he could not have heard correctly, looked through his porthole, and at the spectacle that met his eyes he held his breath, staring. The sky was no longer blue. It was black. Appearing to be level with them was a blinding ball of incandescent light that he knew could only be the Sun; but it was very different from the Sun that he had always known, and he experienced a qualm of awe, not far removed from fear, at this manifestation of real power.

There were stars, too. Myriads of stars. Some of them were gleaming with colours that he had never seen stars show before. Stretching right across the dome of heaven was a curving band of diamond dust and eerie glowing vapour that he realised with a shock must be the Milky Way. This,

he thought, wonderingly, was what these things were really like, unfiltered by the Earth's thick screen of humid air.

He looked down, and stared and stared again. Far away below was a section of a mighty globe that had a vaguely familiar appearance. It was, he knew, the Earth from which they had just departed. He felt no fear, no sense of height; merely a great wonder that this huge ball of dirt and rock could float about in space as if it were a bubble. The thought crossed his mind that for the first time he appreciated it for what it really was.

More thoughts, strange thoughts, crowded on him. All through the Middle Ages the religious houses had discouraged scientific speculation on the Universe for fear it conflicted with their dogmas. What fools they had been! Here was proof of Almighty power. How could it all be an accident? Fascinated, he picked up the outlines of the British Isles with their watery boundaries, the Atlantic stretching away on one side and the continent of Europe merging vaguely with Asia and Africa on the other. Northward of Europe was a long white glittering streak that he supposed was the Polar ice-pack. Everywhere there where little flecks like snowflakes, so small that he could hardly believe they could be cloud formations, although he knew they could be nothing else. Even as he watched, he could see the map below receding, bringing still more distant horizons into view.

The Professor's voice broke into his solemn reverie. "Altitude 1,300 miles, approximate."

Looking round, not without an effort, Rex saw the Professor, hunched up behind the quivering needles of his instruments, making notes on his pad. Then, with a curiously slow motion, the Professor turned and smiled. "Everyone all right?" he inquired. On receiving assurance, he ordered: "Draw window screens now or we may be sun-scorched. Unfiltered solar rays can be vicious." He went on with his writing.

Reaching out to obey Rex flinched as his knuckles came in sharp contact with the operating knob. He could not make out what had happened for he thought he had moved slowly. He recalled that the Professor had said something about inertia, but he was not clear about it. However, he drew the extra dark slide across the porthole and was grateful for the relief from the glare. It seemed to be getting warm in the cabin. His face was damp with perspiration but he was not conscious of any actual discomfort.

"A little more oxygen, Judkins," requested the Professor.

"Yes, sir."

Discovering that his mouth was dry Rex reached for the water carafe and found there was no drinking glass. Whereupon he tried to drink out of the

carafe; but when he discovered that the liquid would not pour he remembered what the Professor had said. Still, it seemed so preposterous that water wouldn't pour that he gave the vessel a shake. He did to some extent succeed in this, but the water that emerged came out as solid bubbles.

"Use a tube. There are some beside you," called the Professor.

Rex smiled sheepishly, and pulling a plastic lemonade straw from under the rubber band that held it down found that it served his purpose.

"Height, 1,500 miles, velocity 18,000 miles an hour," announced the Professor. "My friends, we should now be in orbital velocity. We will check it." He cut the jets so that the only sound was the faint hum of the gyroscope.

"You may unfasten your safety-belts if you wish, but be careful how you move or you may knock yourselves," said the Professor. "The Milky Way looks very fine from here doesn't it? Strange though it may seem, the Earth is part of it—just another little piece of matter like the millions of other pieces you can see. That lovely diamond and silver band goes right round the Sun. Observe the Moon. Had we been going to it, it would be no use taking a course directly for it. When we go, I shall have to steer for the point where it will be at at the estimated time of our arrival. While I am confirming that we are in free orbit I will take some photographs."

"Do you mean that we are now travelling round the world like a moon?" asked Rex.

"Precisely. You can call us a microscopic moon if you like." The Professor smiled. "The Earth has got another satellite—a man-made one."

Looking back at the Earth Rex saw that the scene had changed out of recognition. "May I ask where we are, sir?" he inquired.

"Of course. In terms of ordinary navigation we are still travelling from west to east, which is the direction of the Earth's rotation. The land mass you see below is Asia. Incidentally, note that in a short time, without changing direction, we shall be travelling from east to west."

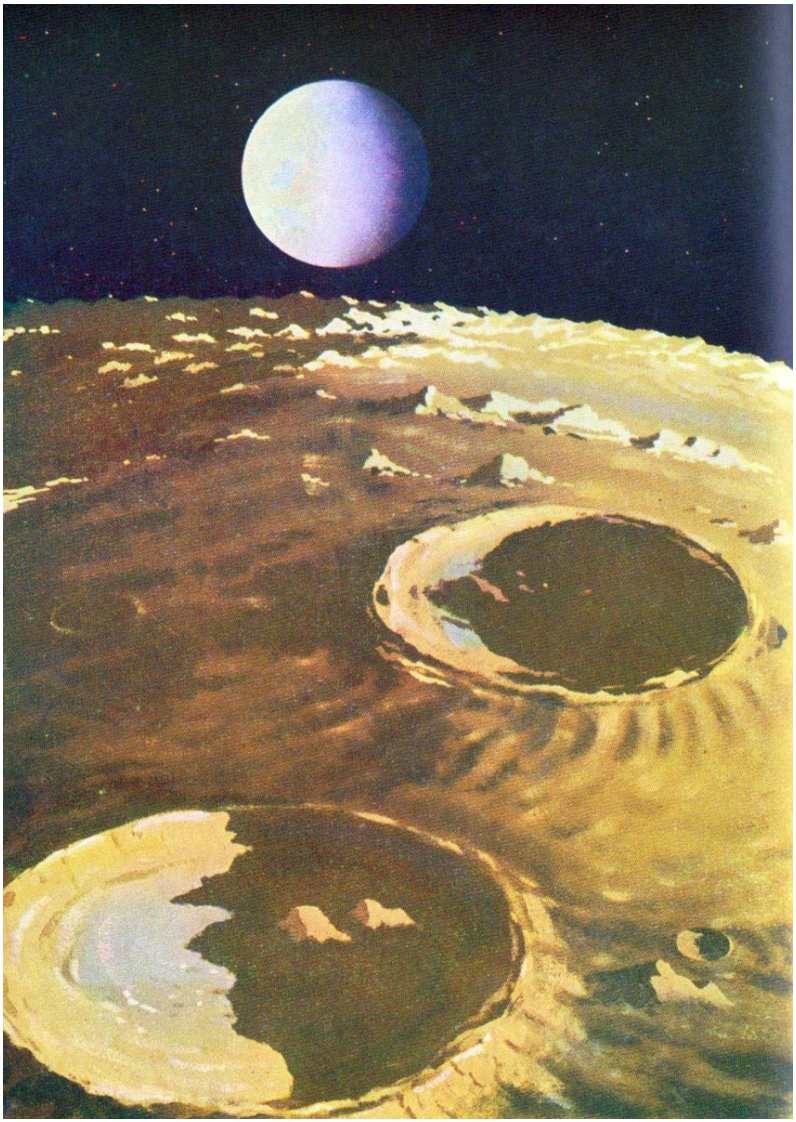
Rex frowned. "How can that happen?"

"Because having travelled about half-way round the globe we shall be returning to our starting-point round the *other* side of the world. A dark shadow will show you where it is night on Earth. I need hardly tell you that we are travelling faster, much faster, than men have ever travelled before. And the strange thing is, we no longer need power to do it. The ship is meeting with no air resistance, so it cannot do other than maintain its velocity."

Rex, sinking back into his chair to work this out, watched the Professor making cautious slow-motion movements first with the telescope and then with the camera. After a while he raised a beckoning finger. Rex joined him, moving with the same unnatural movements. “Here, take the telescope and have a look at mighty Jupiter,” invited the Professor. “He’s a sight worth seeing, as he should be, considering that Earth is a baby compared with him. The three dark spots you see on his face are three of his moons in transit. Take care, for your muscles have so much power now that they may get you into mischief.”

Rex took the instrument. Only from the fact that he could feel it in his hands was he aware that he was holding it. Raising it, he stared again at what he saw. The planet was a disc with rough edges, bound round with bands of colour, mostly red. He looked at it for some time, then handed the telescope to Tiger. “Look! You won’t believe it,” he said simply. “It’s beautiful, but rather frightening.”

He returned cautiously to his seat, for movement produced the queer sensation that his limbs did not belong to him.



(*see page 73*)

"Look! It's beautiful but rather frightening."

The Professor spoke. "Our first experiment, as far as I can judge is successful," he announced. "We have been in free orbit for nearly an hour—that is to say, without power yet without losing height. We will now proceed with the second test. As you will observe, we are now almost immediately above the Pacific. Watch the American continent come round the globe as I increase height and velocity. Remain seated. You may feel the acceleration."

The drone started again, and looking down Rex could see the faint blue exhaust trail of the out-thrust cosmic rays. The Earth became a little more indistinct, and more like an enormous standard schoolroom globe, although he could still not see all of it. Again all sound died away.

"We should now be in the 24-hour orbit," said the Professor after a while. His eyes twinkled. "An odd thought occurs to me. If anything went wrong now we should remain here for ever and evermore."

"Even if we were struck by a meteor?" asked Rex.

"That would make no difference."

"All the air in the cabin would escape."

"That wouldn't affect our position in space. The air is in the cabin only for our convenience. If we were a ball of solid iron it would still make no difference. Speaking of air, the air-conditioning system seems to be working admirably. I see some condensation on the walls but there is obviously no lack of oxygen or we should feel it. We may——"

The Professor got no further, for at that instant there was an ear-splitting crack and the Spacemaster lurched sickeningly, throwing everyone into confusion. Rex, in sudden terror, sprang up, sure it was the end, and skidded across the floor. Getting up, gasping with fright, he clutched at a cord to steady himself. At the same time the jets started and the Professor shouted "Meteor!"

The ship returned to its normal position. The jets died. In the silence that followed the Professor said: "Can anyone see a hole?"

"I don't think there can be one," answered Tiger. "I saw nothing enter the ship."

A search was made, but no puncture could be found. There was, however, a dent in the cabin wall, and it must have been there, the Professor asserted, that the missile had struck them. "An unlucky chance," he went on. "I thought the possibility remote. The meteorite must have been a very small one. Anything larger than a pea, travelling at meteoric speed, would have punctured us. As all is well we can regard the occurrence as an interesting event. I must make a note of it."

With his heart still thumping from shock Rex returned to his seat. Looking down he recognised the outlines of North and South America, joined by the unmistakable Isthmus of Panama. It remained in the same position. Sometime later it was still there.

After a while the Professor looked up from his notes. "We will now cross the Atlantic and get nearer to home," he said.

The jets began to hum, and presently the British Isles came creeping over the edge of the world.

"I am greatly tempted to go on and have a closer look at the Moon," confessed the Professor. "But we have done enough for today. There's no point in exhausting ourselves by trying to do too much. After this practice flight we shall travel with more confidence." He looked down. "There is still a lot of broken cloud over Europe, I see. Notice how the snow persists on the summits of the Swiss Alps."

Rex yawned. Although he could no longer see the Sun it was getting warm in the cabin and he began to feel drowsy. The Professor was still making notes, sometimes breaking off to take an observation with the telescope, or a photograph. Rex watched him without particular interest. It occurred to him that space flight was likely to prove even more boring than long-distance flying in an ordinary air liner.

He had lost count of time when, gazing through his porthole, he saw a thing that struck him as curious. A particularly bright star, or what he had taken to be a star, began to move. Gathering speed it raced across the sky in a great arc, at the same time increasing in size in such a manner that he realised it must have been a great deal closer than he had supposed. Then, suddenly, it vanished. His heart missed a beat. It must be a meteor, and a big one, he thought. Then he remembered that the Professor had said that meteors only became visible at white heat within the Earth's atmosphere. But they were nowhere near the atmosphere. What could it have been?

He called to the Professor who was still making notes. "I think there's something with us in the sky, sir. It flashed as it moved, and it got bigger, as if it were coming nearer."

"Where did you see it?"

"Half right and above. I can't see it now."

As Rex finished speaking, a small, flattish object, with one edge shining brightly, sprang into view and came curving towards them. "There it is!" he exclaimed, and lost it again as it swept out of his field of vision. But only for a moment. It reappeared from the opposite direction, apparently having made a circuit round them. It was larger now, and appeared as a thick disc. Then the probable explanation struck him. "It must be one of those Flying Saucers," he cried.

"I think you're right," answered the Professor in an excited voice. "It must be an aircraft of some sort. It must be, for the thing is obviously under control or it couldn't move about like that."

“Let’s go down in case it attacks us.” There was a suspicion of panic in Rex’s voice.

“No. I shall do nothing of the sort,” replied the Professor, reaching for his telescope. “This is truly wonderful, an unexpected treat. At all costs I must have a look at our fellow explorer. He won’t hurt us. He must be as surprised to see us as we are to see him. In any case, as he is faster than we are, if his intentions are hostile we are already doomed. Ah! What a pity!” He had just levelled his telescope when the object sped across the sky like a shooting star, diminishing at incredible speed before disappearing.

The Professor turned to the others. His eyes were aglow. “You realise what this means? We are not alone in space. Isn’t that a wonderful thought? It implies that there is at least one civilisation ahead of ours. Was he afraid of us, I wonder? Was that why he made off in such haste? Or has he dashed off to report our presence to his friends? If only we knew where he came from we’d call on him some day. I caught a mere glimpse of him through my glass, but it was enough to give me an idea of the construction of his ship. This exceeds anything I could have hoped for. What a magnificent age this is to live in, to be sure!”

“It is indeed, sir,” put in Judkins, speaking for the first time.

“I think I saw something else,” said Tiger. “It was a small black spot which appeared to me to be stationary. Without knowing its distance from us it could of course have been of any size; but I got the impression that it was a small body. I had just decided that it might be a tiny asteroid, and I was about to ask for the telescope, when the Saucer appeared. I can no longer see it.”

“How very interesting,” said the Professor. “There’s no reason why there shouldn’t be small satellites in our vicinity, bodies too small to be observed from Earth. Remember, we are a long way out in space. If our supposition is correct these bodies will have to be charted, for they represent to a space-traveller the same danger as would an uncharted rock or reef to a mariner. The hazard is worse, in fact, because while rocks in the oceans are stationary, bodies in the air, being in an orbit, must always be on the move. The orbits will have to be traced. Well—well. Our first trip has certainly given us something to think about. Observe the shadow creeping over the Earth. Night is approaching so I think we will make our way home. A reduction of speed is all that is necessary to put us into a free fall. From this altitude we should reach a falling speed of seven miles a second. Sounds alarming, doesn’t it? But it isn’t really. I shall check the speed when we reach the atmosphere, of course.”

The cosmic jets came into action and the Spacemaster began to change its position relative to the Earth, which disappeared from Rex's view so that all he could see through his porthole was the eternal expanse of star-studded cosmos. He tried to work out what was happening, but having lost all sense of direction, and his own position in the cabin, he found it beyond him. The nearest he could get was, the jets were now operating against velocity and so acting as brakes. Presently, by leaning forward, he found he could again see a section of the Earth, stretching away on both sides for as far as his eyes could reach. It was dim and vague with twilight.

A few minutes later the Professor announced: "We are now entering the atmosphere. A wonderful view of sunset over the Atlantic."

Presently he spoke again. "I've switched on the homing beacon—the red cross. You can see it plainly."

Overhead the rotor blades began to drone and Rex became aware of a sinking feeling in the stomach like going down in a fast elevator. Looking below he saw the ground as from an ordinary aircraft. Lights were springing up all over the landscape. The red cross was conspicuous. They sank towards it, ever more slowly. The gap narrowed. Movement stopped.

"Back to Earth," announced the Professor. "We shall have to halt here before we actually touch the ground, to release any static electricity we may have generated." Reaching out he allowed a length of weighted copper wire to run down off its spool. From below came a constellation of blue sparks. They did not last long. When there were no more the Spacemaster sank gently, and with a barely perceptible bump, touched down. The rotors stopped.

The Professor's voice came strangely through the silence. "Gentlemen," he said, with a hint of emotion in his voice, "whether it matters to us or not our names will go down in history as the first Earthly voyagers in space. We shall not be the last. From today, a new era begins for those who dwell on this planet. What the end of it will be I would not dare to prophesy. I only know that it will transcend the limits of our imaginations. Now let us go in and celebrate, in the sober manner demanded by an occasion which calls at least for solemn contemplation. And let us not forget those brave men who, years ago, by risking martyrdom for daring to say that the World was round, led the way to the Stars."

CHAPTER VI

INTERVAL FOR REFLECTION

THE two days following the Spacemaster's voyage beyond the atmosphere were spent on the ground, for several reasons. The Professor in particular was fully occupied, writing up his notes in detail while they were fresh in his mind, checking calculations and overhauling the Spacemaster, a matter in which Tiger was able to help him. Judkins, aside from his household duties, was given the photographs to develop and enlarge, and here Rex, who was an amateur photographer of some experience, offered to make himself useful—an offer that was accepted and, incidentally, put him on closer terms with the imperturbable butler.

Apart from all this the Professor thought it would be advisable to wait a little while before attempting another voyage, to make sure that none of them developed aftereffects from having their bodies and organs exposed to conditions never before encountered. He was afraid they might suffer from ear-ache as a result of conditions in the cabin; he thought, too, that the heavily oxygenated air might have some effect on their lungs. In the event, the only discomfort experienced was immediately after landing, when for a little while they were all conscious of a feeling of lassitude and a strange heaviness in their limbs. But this soon passed off.

The Professor was well satisfied with the way the Spacemaster had stood up to its first serious test. It revealed no sign of wear or damage apart from the dent made by the meteorite. From the mark, it had apparently vapourised on striking; so, as the Professor remarked, it was a comfort to know that they had nothing to fear from small meteors. One as large even as a marble would obviously be a more serious matter, but the chances against such a collision were such that they need have no anxiety on that score. Tiger went over the welding of the metal sections without finding anything affected by the one-sided pressure.

The photographs could only be described as sensational. The Professor showed no surprise at this. Once clear of the last vestiges of the Earth's atmosphere, he said, he fully expected some startling results. Hitherto, all such photographs, no matter how clear the sky, had been taken through a screen of humid air. There was enough work in the new photographs, he asserted, to occupy astronomers for a long time. Nothing would please him more than to spend the next twelve months working on them; but all except

the Moon, which was the next objective, would have to wait. As far as that particular body was concerned they would soon have some even better ones; but those now before them would be useful in planning the next operation. He hastened to say that this did not mean the proposed landing on the Moon. There would inevitably be risks attached to such a venture. So before taking any chances he thought it advisable to get a series of close-up photographs for the benefit of the next explorers in case their own attempt to land ended in disaster. For the same reason he was anxious to survey the unknown side of the Moon.

Later, the Professor returned to the subject, with the Moon photographs spread over the study table.

"I would like you, if only for your own interest, to make yourselves familiar with these pictures. At least, learn to recognise the salient features so that when you see them in reality you won't find it necessary to refer constantly to the map for their names. The Leibnitz Mountains, for example, which are higher than anything we have on Earth. Lonely Mount Picot. The Great Wall, as it is called, a seventy-five mile long mountain ridge, quite straight. The crater Aristarchus, thirty miles wide and white inside. I have already told you something about the rays and rills."

Picking up a ruler and using it as a pointer, in the manner of a schoolmaster, the Professor went on. "Always bear in mind that in the Moon we are dealing with a body much smaller than our own. It is, as it were, a child of the Earth. Its diameter, in round figures, is only two thousand miles against our eight thousand miles. The force of gravity, consequently, is much less—roughly one-sixth. The affect of this on the human body, supposing one landed, would be considerable, even alarming. One could jump long distances and lift apparently heavy weights. But we can leave the purely physical aspect until we test it in practice." The Professor popped a caramel into his mouth and pushed the bag forward.

"Your first sight of the Earth from the Moon may surprise you. From Earth the Moon appears to be the same size as the Sun, but that is simply the result of distance. From the Moon, the Earth will appear to be four times the size of the Sun, and four times as large as the Moon looks to us. I mention this so that you will be prepared for it, and not jump to the conclusion that we have blundered into another planet by mistake. As to the actual surface of the Moon you can see for yourselves from these pictures what it is like. It appears to be a dreadful place, and you may be quite sure that it is. Landing may be difficult. It has been said on good authority that the Moon has no air. I accept that with reservations. There must be a little air, or gas of some sort. It is said there is no water. That, too, may be true; but, again, there may be

some. The supposition is built chiefly on the fact that there are no clouds. For which reason the Moon has been described as a dead world, without weather, where nothing ever happens. The literal truth of that depends on what is meant by weather. Of course, if there is no air, there can be no wind; but if we include hot weather, or cold weather, as we say, there is likely to be too much weather on the Moon. The side facing the Sun—I mean midday on the Moon—might be unpleasantly hot, for there is no air blanket such as we have here to cool the rays to a reasonable temperature. On the other hand, the long night might be unbearably cold. These are the reasons why it has often been said that there can be no life of any sort on the Moon. One would be inclined to agree were it not for the fact that scientific predictions have so often been wrong in the past. We shall see. Life has an incredible adaptability. What would an observer from another planet have thought of our Polar regions? He would have said, here is nothing but ice and snow, a frozen sterility unable to support life. But he would be wrong. Eskimos live there quite happily. Of the Sahara Desert, an observer would say that life there was impossible. A reasonable but incorrect supposition. Men and animals do live there, and, moreover, they live there from choice. They would be uncomfortable anywhere else. So let us not jump to conclusions. Even on the Moon something may have survived. Look at those mighty mountains and awful chasms. Who is to say that there is nothing inside them? But here comes Judkins to say that dinner is ready."

It transpired that Judkins had come to announce more than dinner. "Here are yesterday's newspapers, sir," he said. "The pony boy brought them up with the stores. I took the liberty of glancing at the headlines before bringing them in. There is an item that will be of interest to you."

"What is it?" asked the Professor, reaching for the papers.

"It would seem, sir, that in spite of your precautions, the flight of the Spacemaster did not pass unnoticed."

"Dear, dear. How very annoying," muttered the Professor, adjusting his glasses and unfolding a paper. "Yes indeed, you are right," he went on. "Here it is." He read aloud: " '*New Mystery in Sky. Observers Report Strange Object. Who is watching us? The Flying Saucers were busy again yesterday. From several sources reports have come in describing what have become known from their disc-like appearance as Flying Saucers. It seems that there were at least two, for they were seen simultaneously over Europe and America. This, of course, has happened before. But now mystery is piled on mystery, for apart from the Saucers, which were like those that have often been described, there was apparently a third object of somewhat different shape. An Air Ministry spokesman states that the object was picked up by*

radar operators and followed as it climbed at fantastic speed into the sky. When first seen it appeared to be well within the atmosphere, leaving a faint bluish trail. This is nearer to the Earth than is usually the case with the so-called Saucers. The fact that it travelled away from the Earth rules out any possibility of the object being a meteor. No experimental high altitude flying was in progress at the time. This vague statement will satisfy no one. If the government is testing a new weapon, such as a guided missile, the public should be informed, for there is a growing feeling of uneasiness about these sinister visitations'."

The Professor flung the paper on the table. "Weapons!" he growled. "All people can think about today is weapons. Anything they don't understand is a weapon."

"Naturally," put in Tiger. "After all, people have good reason to be apprehensive of new weapons, knowing from bitter experience that one day they will probably be the target for them."

The Professor sighed. "I suppose you're right. Confound these interfering fellows with their radar screens."

"Personally, I think it's nice to know that they were so well on the job."

"How are we going to get off the Earth without being seen? That's the question. Day or night, wet or fine, we are vulnerable to radar. I was more afraid of local people seeing us at a low altitude."

Tiger smiled. "You'll have to see about making the machine invisible."

The Professor took the suggestion seriously. "I doubt if that's possible. I don't mind what the newspapers say or think. What I'm really afraid of is they may locate us here. Newspapermen are like bloodhounds. Once they get their noses on a scent they follow it to the death."

Tiger's smile broadened. "They wouldn't keep their jobs long if they didn't."

The Professor was silent for a minute. "This is going to be a race," he declared. "I shall push on with my experiments as quickly as possible, for the best, by which I mean the investigation of our neighbouring planets, is yet to come." Enthusiasm vibrated in his voice and a gleam came into his eyes. "Think of gazing on Mars, the Red Planet, with its two baby Moons, Phobos and Deimos, almost bumping against her. Think, too, of creeping under the veil that covers the face of Venus and seeing what no man has ever seen. If I can complete my programme without interference I shall have enough data to keep me busy for the rest of my life. Then, should I be discovered, I will destroy the Spacemaster."

"Why?" Tiger looked horrified.

“Because then it could never be said that I invented a machine that destroyed the peace of mind of mankind for ever. In wrong hands the Spacemaster could be the supreme engine of destruction.”

“Who’s talking about weapons now?”

The Professor made a gesture of resignation. “I am. There are times when I am afraid of what I have done. No matter. It hasn’t yet come to the worst. Tomorrow we will go and look closely at the face of the Moon. Everything is ready. Would anybody like a caramel?”

Rex took a sweet and wandered away to think over what he had just heard.

CHAPTER VII

OBJECTIVE MOON

It was just six o'clock and still dark when the Spacemaster left its concrete base the following morning and droned into a clear sky studded with stars; stars which, for Rex, had taken on a new meaning. A week ago he would have described them as 'bright'; but now, knowing how they would appear from the airless dome above, they looked small and dull. Only Venus, hanging low over the horizon, shone like a beacon in the sea of space. The Moon, nearly full, presented a thin, pallid face, like a tarnished silver plate. To Rex, the Man in the Moon that had a provided a subject for poets and singers through the ages, was no longer an illusion now that he knew from the photographs what the features really were.

The sombre mass of the Earth, encrusted with a myriad lights, seemed to be falling away below as if it were something which they themselves had dropped. The rim of the Sun appeared, and the white reflected light it cast spread in an ever-widening band across the continent of Europe. Then, as the Professor accelerated through the fast-thinning atmosphere, and the crushing strain began to make itself felt, Rex closed his eyes and resigned himself to the few minutes of discomfort that he knew would have to be endured.

The worst was soon over, and the spacecraft shot on to intercept its distant objective. It did not stand directly towards it, but towards the spot where it would be when they made contact with it. This, according to the Professor's calculations, should take place in eight or nine hours, according to how long he spent trying to find the neutralisation point of the two gravities, Earth and Moon. By then they would be close enough to the Moon to make out many of its more imposing features with the naked eye.

Slowly the pressure eased, and except that they did not linger seeking orbits, the flight continued as on the previous occasion. It was surprising, he found, how much confidence the first flight had given him; and it occurred to him that once interplanetary travel was established, people would as quickly become accustomed to it as to normal earth-bound flying. There was certainly less sensation of speed. Indeed, had he not known from what the Professor had said, that they must now be travelling in the region of 30,000 miles an hour, he could have believed they were stationary in space. This, he imagined, was the effect of weightlessness. As far as speed-consciousness

was concerned, once the period of acceleration was over it seemed to make no difference whether they travelled at ten, twenty, or thirty thousand miles an hour.

Time passed. With the exception of the Professor, who was always busy doing something, everyone sat gazing into space with the bored expressions of railway travellers watching the passing landscape. The difference was, here there was no landscape to watch, and what could be seen changed so slowly as to be imperceptible. The sky remained black. The Sun blazed, casting off streamers of flame. The stars glowed like suspended arc-lamps and the Milky Way laid its jewelled trail across the Universe. Light patches of nebulous mist, like sky-borne will-o'-the-wisps, showed where new stars were in the making.

So casual did Rex become that he reached for one of his sandwiches, and while eating it, regarded with amusement a small piece of bread that had become detached. In the ordinary way it would of course have fallen to the floor; and Rex did in fact put out a hand to catch it. But the crumb remained where it was, looking unnatural and rather ridiculous. A slight touch sent it floating away like a dandelion seed.

"60,000 miles," reported the Professor, reaching for his camera.

Looking down Rex saw the Earth as a complete ball. He made out the continent of America, conspicuous by its shape. But for the most part outlines were spoiled by what he knew must be cloud formations, although they looked like nothing so much as ostrich feathers stuck all over the globe. He had not realised that there were so many clouds.

His growing indifference to his surroundings was rudely shattered when he saw a long streak of blue flame shoot out below them. For a dreadful moment he thought they were on fire, and his fear was expressed by the cry of consternation that left his lips. This brought the Professor to his side. Almost at once the flame ran away from them across the sky and quickly died. But the Professor had seen it.

"What was that?" asked Rex, in a voice still brittle with alarm.

"Rather startling, wasn't it?" said the Professor calmly. "I can only think we must have passed through some stray particles of hydrogen. Being an inflammable gas our velocity might have caused it to ignite. There has for some time been a belief that there are belts of gasses, of one sort or another, floating loose in space. Very interesting. Should the phenomenon happen again we shall know that we have nothing to fear. We may have passed through several layers of non-inflammable gas for all we know." The

Professor returned to his instruments. “I judge our distance from Earth to be about 100,000 miles, which means that we are nearly half way.”

More time passed. The ball that was the Earth receded, and looking down at it Rex was filled with a great wonder as he was able to see for the first time that it was literally spinning in space round its fiery taskmaster, the Sun. Strange thoughts crowded upon him as he tried to grasp the mystery of gravity, that extraordinary force which could hold such a gigantic mass in space—not only the Earth, but the countless other bodies which, as he could now see clearly, were in suspension, swinging eternally round their predestined orbits. Gravity, he realised, was the all-powerful force that governed the Universe. He hadn’t realised it before. Without it, all would be chaos. And Newton, sitting in his garden, watching the fall of an apple, had been the first to realise it! Again, for the first time, Rex was able to appreciate the magnitude of that discovery.

The Spacemaster was now moving more directly towards the Moon, and turning his attention to it he found that the physical features were beginning to take more definite shape. The craters, with their curious rays, were conspicuous, as were the tips of the mountains where the light caught them. Some of the Professor’s enthusiasm touched him as his eyes travelled over the dark patches which in earlier days had been thought to be seas. Soon they would know what they were. It would be funny if they turned out to be seas after all, or the beds of ancient seas that had dried up, leaving enormous areas of flat mud, like the bottom of a dried-up duck-pond in summer.

“Distance from Earth, 200,000 miles. Distance from Moon, 38,000 miles. We are drawing near the theoretical zone of gravitational neutrality. As we are still travelling at a speed in excess of escape velocity I shall now start to slow down in order not to overshoot the mark and enter the gravitational field of the Moon.”

The jets began to hum, and the Spacemaster turned slowly until the faint blue haze of the exhausted cosmic rays, instead of pointing towards the Earth, thrust their force at the Moon.

This meant, of course, that the Spacemaster had turned upside down, as had everything in it; but as far as Rex could see, in some extraordinary way they were still in the same positions. Had he not noticed the Sun, Moon and Earth, moving slowly across the portholes he would have been unaware of the change. Nothing in the ship had moved. Nothing had fallen. The water was still in the carafes. The Moon, not the Earth, was now below. In spite of all that the Professor had told him, this fantastic state of affairs was getting beyond him, he decided.

The drone of the jets died.

"We are now without velocity," announced the Professor. "That is to say, we are, to all intents and purposes, stationary in space. If my instruments haven't lied we shall be falling neither towards the Earth or the Moon. We will check that by remaining here a little while. It should be possible for you all to confirm it with the naked eye. Incidentally, if we could throw overboard a solid body, it would return to us, attracted by the gravity of the Spacemaster—the heaviest gravity available. It is in this area that the rocket experts propose to leave their extra fuel, and later on perhaps build a cosmodrome."

For some time they sat in silence. Rex didn't care for it. He found it unnerving. Wherefore he was glad when the Professor decided to move on.

"We'd better not waste any more time," said the Professor. "We've seen enough for our purpose. We will go on to see what the Moon has to show us."

The jets began to hum again, and in a matter of minutes the Moon was perceptibly larger.

"My intention is to circumnavigate the Moon, leaving the photography to an automatic camera that will take a photograph every thirty seconds," explained the professor. "After rounding the opposite side, I shall again accelerate to escape velocity and return to the gravitational field of the Earth. The acceleration on this occasion will be hardly noticeable, as we have so little gravity to contend with. After escaping from the Moon we will have something to eat while we proceed in free fall most of the way home. We are now, of course, falling towards the Moon, with the jets breaking our fall. We should be able to see all we need to see of our unpleasant-looking satellite from a height of about ten miles. I shall be too busy taking observations to talk, but we can discuss what we have seen when we get home."

Unpleasant, thought Rex, was the word. As they fell nearer to the objective he was appalled by what he saw. Such a picture of utter desolation was beyond anything he could have imagined, in spite of his having seen the photographs. In a vague sort of way it reminded him of photographs he had seen of No-Man's-Land in the first World War, on a gigantic scale, except that there were no shattered trees or ruined buildings. The general impression was of a world of mud from which rose gaunt, hideous mountains, the whole having been subject to prolonged bombardment by gigantic missiles. It shocked him. That anything, anywhere, could be so dreadful, filled him with an awe that was not far removed from fear.

Certainly there was nothing like it on Earth. Could this, he marvelled, could *this* be the lovely blue disc that had made the nights on Earth so pleasant?

He tried to pick out the features that astronomers had named, but soon gave it up. From such a close range it all looked alike. He stared hard at the supposed seas, but still could not make out what they were. They looked like oceans of black mud. The huge craters seemed to be filled with the same sort of stuff, except where they streaked out into lines of white matter that might turn out to be salt.

Tiger joined him at his porthole. "Pretty awful, isn't it?"

"Ghastly."

"I can't imagine anyone living there."

"Nor I. It scares me to look at it. I hope we're not going much closer."

"Distance, fifty miles," called the Professor cheerfully. "I shall go on a little nearer. Notice the effect of the reflected light from the Earth."

The Earth. Rex had for the moment forgotten it. Craning his neck he could just see it. But it was no longer the Earth he knew. It was a great silver moon, nearly touching the horizon—the great curving horizon of the true Moon. He sank back in his seat and found that he was trembling a little. It was all rather overpowering.

"You're now looking at something no man on Earth has ever seen before," stated the Professor, with a note of pride in his voice. "The far side of the Moon. I can't say I'm surprised, but I must confess to a little disappointment that the character of the surface appears no different from the side we know."

He was silent for a little while, studying the ground through his glass. Then, turning, he went on in a tone that carried a hint of suppressed excitement. "Gentlemen, we have made two discoveries of paramount importance. Around the edges of some of the craters, and in the *maria*, I can see a trace of green which, if it isn't metallic oxide, must be a form of vegetation. If there is vegetation it means there is life down there. Another thing. Here and there, sometimes near the green substance but more often in the valley bottoms, I can see marks that look remarkably like the tracks left by some heavy creature. Tending to support that impression is the fact that the marks converge on what appear to be caves. I'm not saying that this is proof that there are creatures there *now*. But there might have been in the past. With no wind to fill the tracks with dust they might last for a very long time. Here, Group Captain, take the glass and see what you can make of them."

Tiger took the telescope and studied the ground for a little while without speaking. “I think you’re right,” he said at last. “The green looks as if it might be a dwarf shrub, like heather, or possibly a low-growing form of cactus such as one sees in desert countries. What you call tracks certainly look like that, perhaps because I can’t think what else they could be. If they were made by a beast of some sort it must have been a heavy one. As you say, they converge on the caves, which is significant. Take a look, Rex.” Tiger handed over the telescope.

Rex gazed down through the glass. He could see the marks under discussion, but could find nothing to add to what had already been said. He was about to lower the glass when he thought he saw a movement. He wasn’t sure. But it seemed as if a dark bubble had half risen in one of the smaller craters and then sunk down again. “I think that’s mud in the bottom of those craters,” he remarked.

“What makes you think that?” asked the Professor sharply.

“Because I thought I saw the surface of one break, or heave—like thick oil when it’s been heated.”

“Indeed?” said the Professor, looking hard at him.

“I wouldn’t swear to it,” said Rex.

The Professor took the glass and looked down for some time. “I see nothing,” he averred, and went back to his instruments.

Rex returned to his seat. He could no longer see the Earth, for the great mass of the Moon came between them. Another queer thought struck him. For the first time they were out of sight of their own planet. He was relieved when it came creeping round the edge of the Moon again; an edge by no means level, but serrated by the peaks of mountains, glowing orange where the light caught them. Sitting silent he watched the Earth ‘rise’, as he had so often seen the Moon rise. They had, he supposed, traversed the far side of the Moon. When, presently, he saw the Moon begin to fall away below, he knew that this was so, and that they were on their way home. He was not sorry. It was better, he soliloquised, to take this sort of thing in small doses until one became accustomed to it. Far away on that spinning ball, he reflected, people were just sitting down to afternoon tea.

Rather less than an hour later the jets died away and the Professor told them that they were now in free fall towards the Earth. “It has been an enthralling day,” he declared. “But that doesn’t mean we can do without food. You’ll find you can eat quite comfortably.” He smiled. “No gravity is required for that. Would anyone care for a caramel?” He looked at Tiger, his eyes twinkling. “If you can’t make a chimney of your throat you might as

well lubricate it with glucose. You can all go to sleep if you like. There's no danger. I shall be looking after things."

Rex took a caramel, as did Judkins, sitting in his seat as impassive as the sphinx.

Later, he suspected that he had dozed, for he found this easy in the warm cabin breathing air heavily laden with oxygen. Anyway, when next he looked down he saw the Earth no longer as a ball, but as a dark section of one stretching right across the porthole. Moonlight glistened on the oceans.

"Time to put the brakes on," said the Professor quietly. "It's hard to believe, but at this moment we are falling at a speed of about five miles a second." He pulled over a lever and the jets began to hum.

"Ah! Now, there's a sight for you!" he cried suddenly, a minute later. He pointed. "Look over there."

Rex looked, and started. The sky was ablaze with a great hanging curtain of light comprising all the colours of the spectrum. It was in truth a magnificent sight. "What is it?" he asked.

"The Aurora Borealis. We're looking over the North Pole."

"What causes it?"

The Professor shrugged. "There are several theories. Some people believe it to be meteoric dust, others stray particles of hydrogen. Yet another belief is that it is caused by electrons emanating from the Sun. Nobody really knows. We may find out one day. The phenomenon occurs chiefly in the ionosphere, between fifty and three hundred miles above the Earth. In view of the gas we encountered, hydrogen might well be the answer. Seen from up here it is certainly a splendid spectacle."

"Couldn't we go and settle the matter now?" asked Rex.

"No. I should have to make special preparations for that. You see, by the time we reached the area, if the lights are caused by refraction we wouldn't be able to see them, so we wouldn't know where they were. It would be rather like chasing a rainbow. But there are the red lights of home. I must attend to business."

As Rex sank into his seat under the pressure of the reduced rate of fall a movement caught his eye. In an instant he had half struggled up with a shout of warning. "Look! Watch you don't hit him!"

"Hit what?" cried the Professor.

"An aircraft. It's a jet plane—a fighter. He's below, cutting across our track. I spotted his navigation lights."

The Spacemaster's energy jets roared for a moment, spurting blue haze to one side as it changed direction slightly.

(*see page 95*)

"Time to put the brakes on," said the professor

Rex, watching the aircraft, saw from the way it turned on a wing tip that the pilot had seen them. It came round in a beautiful climbing turn, apparently for a better view; but the Spacemaster flashed past it, leaving it

somewhere above, and he saw it no more. “Phew! That was close,” he breathed.

“I shall have to be more careful,” said the Professor. “I’m afraid I quite overlooked the risk of collision with anything except a meteorite. We must have given that fellow a rare shock. What a tale he’ll have to tell when he gets back to his station. Ha! Of course, nobody will believe him. His friends will ask him what he had been drinking. Imagine his indignation!”

“Yes, I can imagine,” agreed Tiger smiling.

“But he’ll be the one to laugh if ever the truth is known,” put in Rex.

“Quite right,” said the Professor. “Let us hope that won’t be just yet.”

Overhead the gyro was humming. The red cross was conspicuous in the dark mass of the Scottish Highlands. The Spacemaster sank towards it.

Five minutes later the undercarriage legs touched the concrete apron with a gentle bump. Through his porthole Rex gazed up at the silver orb whose solitude had at last been invaded.

The Professor spoke. “Gentlemen,” he said quietly. “You have been to the Moon. Congratulations!”

Rex got slowly to his feet. His limbs felt like lead. He was thinking. A week ago he had started out on a stalking holiday. Instead he had been to the Moon. Or had he? Had anyone told him that it was all a dream he would have had no difficulty in believing it.

Deep in thought, and stirred by strange emotions, he followed the others into the house.

CHAPTER VIII

PREPARATIONS AND DISCUSSIONS

It was a week before preparations for the Moon-landing were complete, for apart from overhauling the ship, developing the photographs, and in the case of the Professor writing up the log of the last survey, a considerable amount of extra equipment would be required—special clothing, portable oxygen apparatus, and radio for inter-communication being the most important. Actually, the Professor had already designed and prepared equipment for himself and Judkins, so it was only necessary to make the extra suits for Tiger and Rex—a task which the indefatigable Judkins undertook.

The special suits were less formidable in appearance then Rex had expected, consisting merely of air-tight canvas overalls, supplied by a firm of mackintosh manufacturers, with a perspex headpiece in the manner of a diver's helmet, so that the wearer was hermetically sealed in his suit, which could be inflated and maintained at the necessary pressure from a cylinder of liquid air, controlled by a valve and carried on the back. The Professor admitted frankly, after they had carried out a full dress rehearsal, that the cosmosuits offered plenty of room for improvement. It was unlikely that they would stand up to full sea-level pressure for very long. But then, there was no need for that. They would probably manage with less pressure. He was afraid that there might be some leakage. But the suits, he thought, should serve their purpose for the short period they were likely to remain on the Moon. Anyway, there was no danger. If, under actual Moon conditions the suits looked like failing, then they would have to return quickly to the cabin which would then be recharged.

As, naturally, the air in the cabin would be lost when the exit panel was opened, a large supply for repressurisation was put aboard. The Professor said he did not know to what extent these and other safety preparations were necessary; or, indeed, whether they would prove efficacious in actual practice; for although there had been plenty of conjecture nobody knew for certain what the conditions on the Moon's surface really were. There might be an absolute vacuum, and as this was a state impossible to reproduce on Earth there could be no practical test. On the last flight the instruments had given indication of air of some sort; but he couldn't be sure of it because the instruments might not be a hundred per cent reliable. They might have taken with them, from the Earth's atmosphere, traces of oxygen, hydrogen or

nitrogen. But he thought there might be a slight atmosphere at ground level on the Moon. The nearest they had been was about ten miles, and at that height even above the Earth the air was very thin. The fact that they had encountered hydrogen proved that there were stray belts of gas in outer space. Such gases would, sooner or later, become attached either to the Earth or to the Moon.

This same question of atmosphere would decide whether or not sound could be heard. If the Moon was in absolute vacuum, there would probably be utter silence—unless cosmic or solar rays were capable of transmitting sounds. On the other hand, even a slight atmosphere should make sound faintly audible. Portable radio was being taken so that they would at least be able to converse.

Such problems as these, said the Professor, would be resolved in the first few minutes of their arrival. They would, of course, have to proceed with the greatest caution. First, the pressure inside the cabin would be gradually reduced to allow the air to escape. This would have to be done before the door was opened. A sudden outrush of air would have painful, and possibly fatal, results. With Tiger standing beside him ready to pull him back inside should he appear to be in difficulties, the Professor would take a step outside. Judkins would be at the oxygen valve ready to recharge the cabin promptly should it be evident that something had gone wrong.

It transpired that the Professor had already decided on the spot where the landing would be made. He pointed it out on a photograph. On the side facing the Earth there was a narrow valley between two ranges of mountains, not far, Rex noted, from one of the several green areas that happened to be adjacent to the ‘tracks’.

There were, it turned out, several reasons for this decision. In the first place, at the time of their arrival the valley would be just within the zone of the sunrise. The freezing temperatures of night would, therefore, be giving way to the first warming rays of the distant Sun. It was not so much a question of it being light or dark, for there would in any case be enough earthlight—light reflected from the Earth—for them to see what they were doing. It was a precaution to avoid the extremes of both heat and cold. Another reason was, the floor of the valley appeared to be either sand or gravel. The Professor said he was anxious not to stir up a lot of dust which, in a low gravity, might be a long time settling. There certainly would be a lot of dust on the Moon, for a great amount of rock must have been decomposed by recurring extremes of heat and cold.

They talked at some length about the track-like marks. If these did turn out to be tracks it meant that there had at some time been life on the Moon.

If there had ever been life, argued the Professor, there was a fair chance that some of it had survived. In that case, whatever the creatures turned out to be, they would be highly specialised to endure the particular conditions to which they were exposed. They need expect nothing like earthly creatures. By the same token, went on the Professor, an inhabitant of the Moon, should there be one, would think dwellers on Earth, if ever they saw them, highly specialised to meet *their* particular conditions—as, of course, they are.

"If these are tracks," said the Professor, tapping the photographs with his ruler, "either they were made when the ground was very soft—as it still may be—or the creature must have been of great weight. The depth of them, enabling us to see them, indicates one or the other. As I have already explained, weight as we know it here has little relation to weight on the Moon. A creature weighing, say, a hundred pounds on earth, would only weigh about twenty pounds on the Moon. Thus, if these tracks were on the Earth, and we estimate that a weight of five hundred pounds was necessary to make such deep imprints, then a beast on the Moon, to produce the same result, would have to weigh—by our scale of measurement—more than a ton. That needn't surprise us. After all, a ton weight was nothing in the heyday of the great lizards that once roamed the Earth. But again, weight doesn't necessarily imply size. On the Moon quite a small beast might well have developed what we should call excessive weight, in order to move about easily. We, with our muscles adjusted to the Earth's gravity, should be able to jump enormous heights and distances—not that I would advise anyone to indulge in such experiments."

One thing the photographs did was settle the old argument about a castle on the Moon. There was a place where the rock had crumbled to a fair likeness to battlements; but there was no castle, or any other building.

A point almost of irritation with the Professor was that, in spite of the pictures, he was still unable to find proof-positive as to the cause of the craters, and more particularly, their 'rays'—the long white streaks that radiated from them like spokes from the hub of a wheel.

"We all saw them very distinctly," he said on one occasion. "Has nobody an explanation to offer? I confess myself defeated."

Rex answered. "May I make a guess?"

"Certainly."

"I feel more certain than ever that those craters were caused by colossal explosions, greater even than those of our atomic bombs," said Rex, with a conviction that surprised them. "If you look at a photograph of an atom bomb bursting—you know, one of those awful mushrooms—you'll see that

everything is being sucked up in the middle to make what one might call the stalk of the mushroom. An explosion of that sort might make the lump which we can see in the middle of all the craters."

"Very good, Rex. Go on. What about the rays?"

"I'd say the rays were the result of the explosion bursting right through the crust of the Moon so that whatever was inside boiled up and overflowed; lava, for instance, might have splashed out. Liquid rock would harden to form pumice stone, which is practically white. That's why the rays stand out so clearly."

The Professor, looking at Rex over his glasses, nodded. "That explanation is certainly as convincing as any I've heard. You may have made a contribution to astronomy."

For the rest, the latest batch of photographs revealed little that they did not know. Both sides of the Moon showed the same harsh features. The question as to whether there was any actual surface water was still a debatable point. There were certain flat areas that looked as if they might be water; for in the absence of wind water would appear as motionless as ice. The movement that Rex had seen, or thought he had seen, could be accounted for in only one way. The crater contained either mud or water which had been disturbed by gas rising from below. This supported the Professor's view that there was a little air of some sort on the Moon, although it might turn out to be carbon dioxide.

The other big subject that came up for discussion during the days of preparation was provided by the newspapers. Not only had the Spacemaster been seen again but it had become a topic for the wildest speculation. There had been some criticism of the government for allowing unknown aircraft to operate in British air space. This seemed to upset the Professor to an extent beyond its implications.

"As if the government can do anything about it," he exclaimed irritably. "We seem to live in an age of fear which expresses itself in a public outcry on every possible occasion. What do they mean by air space? Can a country expect to own all space beyond the atmosphere? Ridiculous. When we were in free orbit any country could have said we were in its air space. Very soon someone will lay claim to the Moon."

"Aren't you going to claim it if you're the first to land?" asked Rex.

"Certainly not. In the notes I have prepared, which will be handed with my photographs to the Royal Society should I fail to return from one of my voyages, I suggest that an international agreement should be reached forthwith making solar bodies public property—always supposing that they

are not already occupied. You will observe that the *Glasgow Bulletin*, a Scottish paper, states that the Spacemaster was last seen low over Scotland. For that, no doubt, we may thank the jet pilot who nearly collided with us. I only hope that does not lead to us being tracked down by some inquisitive busybody."

"The question is, after all, one of national importance," protested Tiger.

"You understate the case," declared the Professor trenchantly. "You, my dear Group Captain, in view of your own work, should realise better than most people the terrifying possibilities of the Spacemaster. You must perceive that the country that controls it rules the world. No country can defend itself from attack beyond the atmosphere. That is why, as I have already told you, I have taken precautions to ensure that the ship never falls into hands other than mine."

"What about the plans?"

"There are no plans except those I carry in my head. What you see on the table here are sketches of minor constructional details. No. I am taking no chances of anyone else building a cosmobile. What do you suppose one would be worth to Russia at this moment?"

"But there's no fear of it falling into Russian hands."

"There's every fear. Do you suppose that these newspaper reports are passing unheeded behind the Iron Curtain? Be quite sure that the best spies Moscow can muster have been given assignments to get to the bottom of these reports. Now that Scotland has been named, it is not unlikely that some may turn up here."

"If you feel like that about it why not hand the whole thing over to the British government?"

The Professor threw up his hands in despair. "Surely the fact that enemy spies have penetrated the most closely-guarded atomic research stations, both in Britain and America, is sufficient proof that no government can hope to keep its secrets any longer. That, if you must know the truth, is why I decided that this particular secret was safer here with me, alone, unknown, and unsuspected. That is why there are no plans. Only the machine can yield its secret, and heaven help the man who tries to get away with that." The Professor sat down heavily. "But let us not distress ourselves with these fears. A few more weeks and my work will be finished. Tomorrow is the great day, so let us go to bed and be ready for an early start."

"How long do you expect to stay on the Moon?" asked Rex.

"That will depend on the conditions we find there. If they are intolerable our stay will obviously be very short. On the other hand, given reasonable

conditions, we may be some time. It doesn't matter when we return as long as it is dark, which will lessen the risk of our being seen. For the same reason I shall leave before dawn."

It was on the tip of Rex's tongue to remind the Professor that he and Tiger had seen the red cross landing lights from high ground on the night they had been lost, and what they had seen others might see. But Tiger put a question so the opportunity passed.

"Do we put on our cosmosuits before we start or when we get there?" was Tiger's question.

"I don't think there's any need for us to incommode ourselves on the way out," answered the Professor thoughtfully. "There should be no great effort in donning them on arrival—before we release the pressure, of course. We shall have a certain amount of weight, otherwise it could be a tricky business. I have given the matter some thought and Judkins has already put our suits in the machine. Now to bed."

CHAPTER IX

THE VALLEY OF DISBELIEF

THE start was made shortly before dawn the following morning in an atmosphere that might best be described as subdued. As everyone was aware, this was to be the crucial test, and there would be dangers attending the undertaking. The risks had not been enlarged upon, but obviously they were there. For the first time they were embarking on a voyage from which, should anything go wrong, there could be no return and no hope of rescue. At some future date the next space travellers would perhaps find the remains of the Spacemaster and honour them with a memorial, thought Rex lugubriously, as, the acceleration period past, the spacecraft annihilated distance between Earth and its lonely satellite.

The outward flight on this occasion was without incident. They met no meteors, saw no traces of hydrogen. Travelling at escape velocity, with the neutralisation zone passed, the ship began to fall towards its objective, which appeared precisely as they had last seen it. Not that any change was expected.

The final approach, Rex noticed, was made from a different angle. For this he was prepared, for the Professor had explained that in order to avoid the direct rays of the Sun, which might make the ship uncomfortably hot near ground that had been exposed to them for fourteen Earth days, he would drop in from the 'night' side; that is to say, from a direction that would put the Moon between them and the rising Sun. It would be cold, he predicted, but would soon warm up as the Sun crept over the Moon's horizon, giving them enough daylight, as opposed to the dim earthlight, to see what they were doing. If the heat increased too rapidly, and threatened to scorch them, they would have to retire. There was no alternative, for to land on the dark side of the Moon would be to invite frost-bite, which would be as unpleasant as being roasted.

The atmosphere in the Spacemaster became tense as the scene of desolation, its outlines hardening, came up to meet them—or appeared to come, for the ship was, of course, actually dropping on the Moon. Rex could make out the valley, with its supposed gravel bottom, that was to be the point of contact. The dull green areas, he observed, ran into the valley a little way. There were also some wide black areas, as if the ground had been charred. A sense of weight became perceptible.

The Professor stood up for a better view. Nobody spoke. The jets were roaring, their thrust directed at the ground to break the ship's fall. Already it was evident that the Professor's remarks concerning the probability of dust were correct. The 'wind' created by the ship's exhaust could be seen making a sandy cyclone. The Sun, an enormous ball with a feathery edge, appeared to be balanced on the horizon. Its light, striking the peaks of the mountains, turned them to points of fire.

Rex held his breath during the last few dramatic seconds. The jets died. The gravel came up. There was a gentle scrape . . . a soft thud. Movement stopped. Silence fell.

The Professor turned. His face was pale with emotion. "Gentlemen," he said "we are on the Moon. For this moment I have worked unceasingly for most of my life. Forgive me if I seem a trifle agitated. Please remain seated while I make preliminary tests of the external conditions. While you are waiting it might be a good moment to have a sandwich." He got busy with his instruments, first using the spectroscope, that remarkable device which, by separating light waves into their different colours (the spectrum) can determine the heat, density, and chemical composition of even the most distant stars.

It was about twenty minutes before he announced his findings. "There is an atmosphere," he stated, "but it is so thin that as far as we are concerned it can be ignored. I find definite traces of hydrogen and oxygen, and, less distinctly, nitrogen, argon, neon and carbon dioxide, all of which are known on Earth; but even here, at ground level, the total density is much less than on the top of Mount Everest, so it is no use to us. We will now put on our suits. Without them it would be fatal to release the air in the cabin, and nothing more can be done without releasing it. I am afraid it's rather chilly, but the temperature should fall no lower. On the contrary it may soon get too warm for us."

The operation of dressing occupied nearly half an hour. The Professor satisfied himself that all suits were properly adjusted, with radio and oxygen apparatus in order. Then, turning to the pressure release-valve, he gave it a turn or two. Above the faint hiss of the escaping air the radio voice in Rex's helmet ordered: "Pressurise yourselves to suit your own comfort. Warn me instantly if dizziness or difficulty in breathing is experienced."

Breathing in the manner of gas-mask drill Rex manipulated his oxygen apparatus and had the curious experience of watching his suit expand like a tyre being inflated. He found no difficulty in breathing, but, as he had discovered at the rehearsal, the sensation could not be called comfortable.

The awkwardness would, the Professor had said, wear off as they became accustomed to it.

Tiger now fastened a cord to the Professor's belt, and the Professor advanced to the exit panel. "Pull me back if I appear to be in difficulties," he requested. "Should that happen, close the door and Judkins will recharge the cabin." He unscrewed the panel. Judkins stood with a hand on the oxygen valve.

The door burst open in a way that showed that a certain amount of pressure had remained in the cabin. The Professor stood on the top step, paused, then went on down. Turning, he raised a hand stiffly to the salute, either to show that all was well or as a gesture to indicate that the conquest of lunar flight was now an established fact. Or he may merely have made a respectful salutation to the New World.

Judkins remained on watch while Tiger and Rex joined the Professor on the ground. To Rex this proceeding was not as strange as he had expected it to be, possibly because he was unable to believe that he was actually standing on the Moon. Except that he seemed very light on his feet he might have been standing on any shingle beach at home. Apart from the absence of any movement—and the fact that the 'Moon'—which was now the Earth—had suddenly grown much larger, the effect was no different.

The Professor beckoned, and at a curious bouncing gait began to walk stiffly towards the nearest patch of green, some thirty or forty yards away. Even before they reached it Rex saw that it was vegetation of a sort. So, apparently, did the Professor, for he let out a little cry of delight. "Life!" he exclaimed. "How wonderful!"

At first sight there was nothing particularly wonderful about it, thought Rex. But still, as the Professor had said, it was Life; vegetable life; and there was a world of difference between life, in a form no matter how primitive, and death.

The growth turned out to be a low-growing, vicious-looking form of cactus, each plant consisting of a small rosette of thick, stiff, bayonet-like leaves, pointing outwards and upwards. Some of the plants bore a small, vivid scarlet flower. Another, similar, fleshy plant, flat on the ground, bore minute white flowers. They reminded Rex of a picture he had once seen of plants growing in a desert somewhere—he couldn't remember where.

"A vegetable hedgehog," said the Professor. "Notice how the leaves shine. That means there's a varnish to save the water stored in them from excessive evaporation. That form of protection is usual in desert countries, and just what one would expect to find in these conditions. There must be

some water available, sometimes, even if it is only a very little at rare intervals. This alone is a discovery of outstanding importance. Why those horrid spines, I wonder? They are, of course, another form of protection, normally against grazing animals. But against what were they developed here? Can there be something, a form of rodent perhaps, in these holes I see about?"

Rex had seen the holes. They might have been rat holes, except that instead of entering the ground at an angle they seemed to plunge straight down, with the excavated earth piled neatly round the top. He also noticed something else, something that gave instant weight to the Professor's suggestion that the holes might be the retreat of creatures of some sort. Several of the plants had been nibbled. In one case the fibrous flesh was still oozing sap, showing that the wound was recent. He pointed it out to the others. Then, as his eyes roved over the scene he saw a movement; and there, sure enough, was one of the creatures. The others saw it, too, and with exclamations they moved towards it, taking care not to step on the bristling plants; but just as they drew near to it, although it moved slowly, it disappeared into one of the holes. However, there had been time to have a good look at it, although had it remained still, so much did the colour and texture of the skin resemble the soil, it might easily have been overlooked.

Rex would have described the thing as an enormous worm. It was not a snake; or at all events, not an ordinary snake. It didn't look like a snake. For one thing it had no discernible head. It was nearly a yard long and about three inches thick. Both ends tapered, and were apparently identical. In fact, the only ways in which it differed from an ordinary worm were its size and the coarse texture of its skin.

"Another adaption to highly specialised conditions," said the Professor, in a voice vibrant with excitement. "My friends, the age-old question is answered. There is life on the Moon, both animal and vegetable. What a splendid day we are having!"

"I'd hardly call that an animal," muttered Rex. "It looked to me like a whacking great worm."

"That's just what it was," agreed the Professor. "But even a worm, low form of life that it is, comes into the category of animal. The great thing is, there is *life*. Even if there were nothing more here than worms it's wonderful to know that something has adapted itself to these unique conditions. If one creature can do that it is reasonable to suppose that others have done the same. A thought strikes me—a rather obvious one, perhaps. If there are other creatures, they, too, may have become greatly enlarged. American scientists recently conducted some experiments with extraordinary results.

They consisted of subjecting small mammals to certain solar rays, and overdoses of those elemental gases which I mentioned just now. They produced extraordinary changes. In the case of hydrogen, for instance, not only did the animals increase in size, but they sprouted extra teeth. It would not be remarkable, therefore, if we found cases of abnormal enlargement here. Alas! we really know so very little. We still don't know what life is, or how it began. These worms, for judging from the number of holes there must be many, have sought protection from extreme temperatures by going deep into the ground. An earthworm goes down a long way in certain seasons. If these moonworms go down in proportion to their size then they must go down a very long way. I would wager that water, would be found if we went down far enough. The soil might still hold some of the atmosphere that was certainly here at one period. Look over there!" The Professor pointed to an area of black, twisted objects. "Those are the roots and stumps of ancient trees—I wouldn't care to say how old—preserved or petrified by these windless, rainless, almost airless conditions. They appear to have been charred by fire. If I were asked for a theory as to how these worms have managed to survive I'd say by boring deep into ground that may be damp and almost unaffected by excessive heat or cold. As I said just now, even our own worms go far down in dry or cold periods of weather, which suggests that they can manage with a minimum of air. That would account for their survival here. Their size raises another interesting question. Were our worms once like this, becoming smaller with changing conditions? Conversely, were these worms once small, increasing in size from the presence of something that doesn't occur on Earth?"

"I wouldn't know the answer to that," said Tiger.

"You noticed their protective colouration?"

"You mean, they have camouflaged themselves, so to speak, by taking on the colour of the ground?"

"Yes."

"I realise it now you mention it. Why?"

"What was the reason? In nature nothing happens without a reason. Of what were they afraid? Against what did they find it necessary to protect themselves? Clearly there must have been something at one time, if not now. Not that I find anything surprising in that. If the worms have managed to hang on in conditions that obviously became increasingly difficult, why not some other creatures?"

As they walked forward they saw other worms glide into their holes. Here and there a head, or tail, would remain just outside, as if watching the

intruders.

"They must be extremely sensitive to vibration," asserted the Professor. "Although we are walking quietly they are aware of us. They are, in fact, behaving just like earthworms on a lawn at home. That's curious, because they have no reason to be afraid of us. They must be afraid of something. I wonder what it is?"

"What about birds?" suggested Tiger. "At home it's the birds that make life miserable for the worms. But I wouldn't care to have an argument with a bird capable of pulling one of *these* worms out of the ground. According to the old proverb it's the early bird that gets the worm; so as these worms are out early, the early birds should be about—if there is one."

"You need have no fear about that," stated the Professor emphatically. "Wings would be useless in this negligible atmosphere."

"Don't forget that there are birds which manage to get along without wings," reminded Tiger. "At least, if they have them, they've lost the use of them from having no need to fly. What about the ostrich? He loves dry, dusty places like this. Not only does he keep his feet on the ground but he manages on a diet of grit and gravel—with a few nails and bits of broken glass if he can get 'em. This place should suit him fine. With a whole Moon to peck at he need never be hungry. If he can keep alive without green grass, I don't see why he shouldn't be here."

"I stand corrected," admitted the Professor. "I was, I confess, thinking only of flying birds. Wings would be quite useless here."

As if to prove him wrong a small object on wide transparent wings hurtled past and made a clumsy landing a few yards away.

"There's your bird, Professor," bantered Tiger.

"No—no. That isn't a bird. It appears to be a form of dragonfly."

"But it could fly."

"Glide—not fly. It could no more fly than a flying-fish can fly. Forward momentum alone enabled it to remain airborne. It launched itself by the power of its legs and then glided until gravity pulled it down. Observe the small body in proportion to a wide wing area—a natural evolution in these conditions."

"It chose an unlucky place to land, anyway," said Tiger.

Explanation was unnecessary, for they could all see what had happened. From under a leaf where apparently it had been waiting and watching sprang a spider, a creature with a black hairy body the size of a small watch. It

reached the wretched dragonfly with a single jump that covered at least a yard, seized it, and dragged it, fluttering wildly, back to its hiding-place.

"A tarantula!" exclaimed the Professor. "Moreover one that bears a remarkable resemblance to those that occur in the tropics at home. But perhaps there is nothing strange about that, for spiders are most adaptable insects. They are found everywhere, from the middle of the Sahara Desert to the icy slopes of Mount Everest. I suspect that this fellow shares with our own the nasty faculty of being venomous. That makes three forms of life we have seen in a short time, so I am optimistic about finding more, although I have a growing feeling that we are seeing the few final survivors of a dying, but once well-populated, little world."

Tiger indicated the deep tracks, no great distance away. "Worms didn't make those," he averred. "The things that did must have been a lot larger."

"I have already remarked that whatever it was that caused the worms to grow so large might well have the same effect on other survivors. Do the tracks, now that you can see them plainly, remind you of any others you have seen elsewhere?"

"The nearest in my experience are those made by big tropical turtles. They come ashore on sandy beaches, dig a hole, lay their eggs in it, cover them up and then drag themselves back through the sand to the sea."

"Quite so. But as we are so near the edge of that crater over there, I think we might have a look at it first. I see it has some rays. Is everyone feeling all right?"

"I feel a bit like an indiarubber ball, otherwise I'm comfortable," answered Tiger.

They went on at a slow, rolling stride towards the crater, turning a little diagonally to intercept the nearest ray, a broad white band running back from the lip. On reaching it, the Professor stirred it with the toe of his boot, revealing it to be a layer of dirty white powder deposited in a slight depression.

"It looks remarkably like salt," said he. "Unfortunately we're not in a position to test it. Whatever the stuff is it came out of the crater, which at the moment appears to be full of exceptionally nasty-looking mud. I can only think the stuff splashed out in liquid form in the manner Rex suggested. On evaporation any saline content would no doubt dry white."

"If it splashed out it must have been with some force, or how did it make that groove?" queried Tiger. "It could hardly have fallen into a groove that was already there."

“The pot may have continued to boil over for many years, the liquid always following the same course,” said the Professor pensively. “The chief point of interest to me is the fact that this crater contains mud, which means that in the not very distant past it must have held water. Well, I think we’ve seen all there is to see here.”

They were turning away when the mud in one place, not far from where they stood, began to heave. Then the surface broke, and from the centre of the disturbed area appeared a face so monstrous, so unspeakably hideous, that Rex recoiled in horror. It may have been the size of the beast that shocked him, for the face, as he presently realised, was really that of an old toad. The mouth was not less than a foot across. Dripping with a chalky slime the creature began to drag itself towards the point where the ray entered the pit, thus solving the mystery. The ray, Rex perceived, was nothing more than the path used by the monster when it left its lair.

They did not wait for it to emerge, but retired as quickly as their awkward garments would permit. Not until they were well clear did anyone speak. Then the Professor said: “Bless my soul! What a truly alarming spectacle—one might also say unbelievable. Clearly, either the composition of this particular atmosphere, if we can call it that, must encourage abnormal growth, or there must be some strange property in the ground.”

Turning, they spent a minute or two looking at the creature, now waddling awkwardly up the ray, shedding its unpleasant coating of slime.

“You know, Professor, that ugly brute rings a bell in my mind,” said Tiger thoughtfully. “One that may provide the explanation of why a toad should survive in an almost airless world. From time to time, at home, there are reports of quarrymen finding toads embedded in rocks, usually limestone or slate, a condition in which no air, or anything else, could possibly reach them.”

“They’ve been found in the solid wood of trees, too,” put in Rex.

“I can’t recall ever having read an explanation,” continued Tiger. “In the case of rocks, the creature must have got into the stuff when it was soft and become entombed when it hardened. That’s what’s going to happen to this fellow if he isn’t careful. That anything can live for ages without air, food or water, seems to defy all reason. But if a toad can survive such conditions there’s no reason why one shouldn’t be quite comfortable here.”

“You make a good point,” averred the Professor. “What you say is true. I’ve heard of such cases, and given the matter some thought, without finding any acceptable solution. It will be something for us to talk about when we get home. Here are the tracks, which offer another mystery. You will notice

that they all end at one or another of the caves that honeycomb the cliffs. That can only mean one thing. The creature that made the tracks lived—and still may live—in a cave."

"Some of these tracks are fresh," declared Tiger.

"You really think so?"

"I'm sure. Even here the edges of a track couldn't remain as clear-cut as that for very long. On Earth I'd say this one, for instance, was made within the last few hours."

"How enthralling!" said the Professor enthusiastically. "Let us hope the beast is at home. I wonder does he come out to feed by day or by night? I mean, has he just retired or is he about to come out?"

"Most wild animals on Earth are active at dawn," stated Tiger.

"Then as the day is slowly dawning we may see something of him. The Sun is already above the horizon, but it will take seven of our days to reach its zenith. Perhaps the beast is waiting for it to warm the ground."

"I think the plants are already feeling the effects of the Sun," Rex pointed out. "I can see more and more flowers opening as it reaches them."

The Professor began walking towards the nearest cave. "I imagine these holes are used for the same purpose the worms use theirs," he remarked.

"Be careful!" warned Tiger. "If there's a beast in there he may resent your intrusion."

But apparently the Professor's curiosity exceeded his discretion, for he did not stop, and the others had no alternative than to follow. However, he paused and peered inside when he reached the mouth of the cave. "Can't see anything," he announced. "The hole appears to go in for some distance. Unfortunately, my helmet prevents me from learning anything from my nose."

As the words ended there came echoing eerily from deep inside the cave a thin, distant sound, so melancholy that they all started to back away. The nearest description of it would be a long drawn-out wail, as if something was dying in agony.

"Did you hear that!" cried the Professor excitedly. "The creature is in there. Making allowance for the thin atmosphere such a sound must have had considerable volume for us to hear it at all."

"I think we'd be well advised to move back a bit, in case it's on its way out," said Tiger. "We'd look silly if it charged us. We haven't a weapon between us."

"I'd be loath to do it an injury," said the Professor.

“It may not feel the same way about us,” returned Tiger grimly.

At this stage of the proceedings Rex happened to look up the valley; and at the sight that met his gaze his muscles seemed to turn to jelly. Emerging from the dim recess where the cliff walls drew close together came a creature so grotesque, so uncouth, that for a moment or two all he could do was stare at it. The beast had a body about the size of a small rhinoceros, although its shape, if it resembled anything on Earth, was that of a tortoise. From head to tail it was covered with overlapping scales, like those of an armadillo, but of proportionate size. A snake-like head swayed from side to side as it waddled forward on legs that ended in great splayed feet.

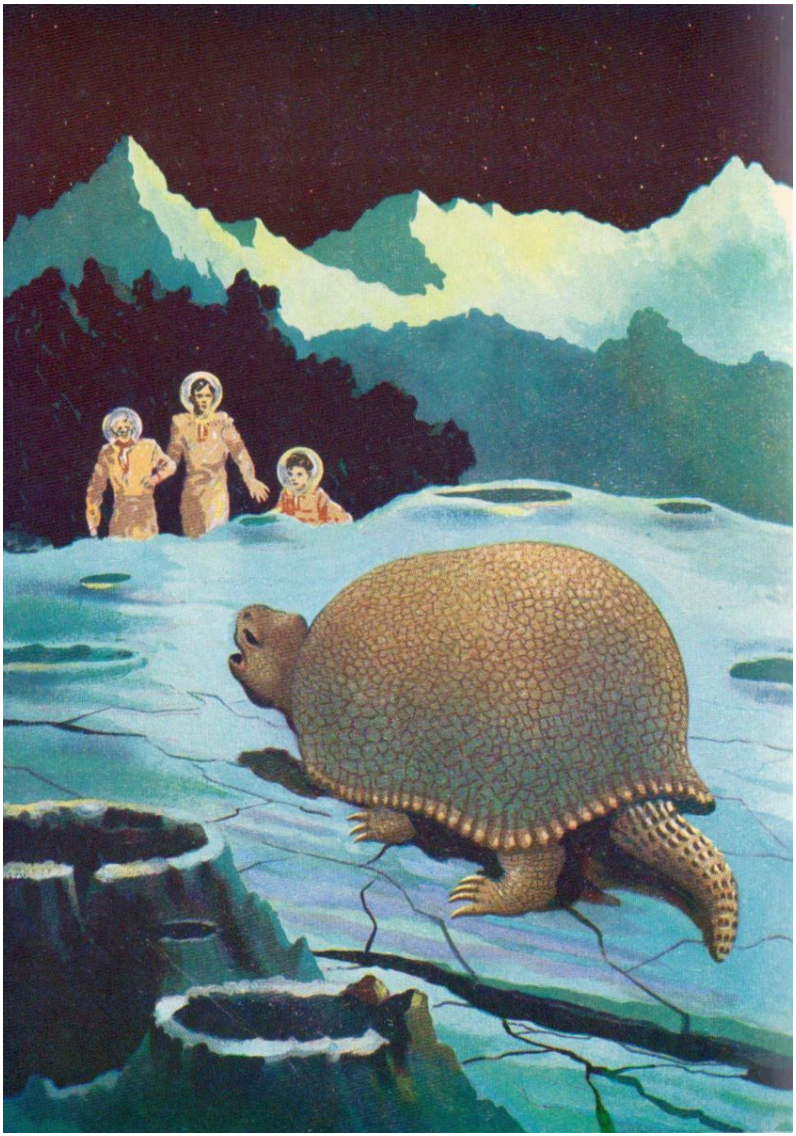
Rex pointed. “Look!” he managed to gasp. “Here comes a dragon!”

The others turned and saw what he had seen.

“A glyptodon, by all that’s wonderful!” cried the Professor.

“Here, let’s get out of this,” said Tiger promptly.

The beast behaved as though it might have heard the words, for it stopped dead, head up, staring. Its mouth opened. From it came a faint squeal.



(*see page 118*)

A creature so grotesque, so uncouth . . . .

It was enough. There was a quick retreat towards the Spacemaster, all three of them in their haste bouncing along with fantastic strides that in different circumstances would have been comical. Rex, not a little scared, looking back over his shoulder saw the beast apparently following them. Reaching the point where they had halted to investigate the cave, however, it stopped—much to his relief, for he had an uncomfortable feeling that it was

coming after them. The creature's head went down as if it might have been smelling the ground. Then, looking up again, it let out a hoarse croak. This may have been a signal, for first one, then several similar beasts, appeared at the mouths of their caves.

By this time the party had nearly reached the Spacemaster, but the Professor stopped, doing something with his camera. Rex wanted to say that this was no time to fiddle about taking photographs, but as he was in no position to protest he said nothing. The Professor was obviously determined to get a picture of the scene, and all Rex could do was hope that he wouldn't be long about it, for the beasts were now getting into positions that suggested a general advance.

"If those brutes come charging this way and collide with the ship they won't do it any good, Professor," remarked Tiger anxiously.

"Shan't be a moment," was the answer. "The opportunity may never occur again."

"They're coming now," said Rex tersely.

He was right, but things turned out differently from what he expected. The creatures did advance, in the eager manner of cattle let into a pasture; but it was soon clear that the Spacemaster was not their objective. They hastened to the nearest patch of vegetation as if they intended to graze on it. Rex hoped so, but in this he was mistaken. Heads went down, but soon came up, holding worms in their jaws. These they gobbled, as farmyard hens gobble earthworms, and went on seeking more. And so the horrid feast proceeded. Rex could easily have been sick. Not in a nightmare could he have imagined a scene so revolting.

"Truly a remarkable picture," observed the Professor warmly.

"Disgusting, if ever I saw one," muttered Tiger.

"It's only what we see at home, magnified," protested the Professor. "Size simply makes it appear more repulsive."

They watched for a little while, satisfied now that they were in no danger, and then made their way into the Spacemaster. The Professor closed the door. "Charge up, please, Judkins," he ordered. "We can remove our cosmosuits as soon as the needle of the pressure gauge is over the red line."

By this time Rex had more interest in the needle than in the scene outside, for perspiration was making his heavy garment uncomfortable.

An ejaculation from Tiger brought them round. Following his gaze Rex saw one of the beasts coming towards them. Whether or not it had actually seen the machine, and recognising it for something new was on its way to

investigate, was not clear; but it was coming towards it in a purposeful manner.

The Professor moved quickly, rapping out orders to Judkins; but he could not get the machine off the ground before the creature arrived. For a second Rex stared into its loathsome face, and in that time the picture was photographed on his mind for ever. Then, just as it seemed that the beast was about to come even nearer, the Spacemaster shot up, the force of its jets sending the great reptile recoiling in contortions.

"What a brute!" muttered Rex. "I thought it had got us."

"No, no. I don't think the old fellow meant any harm," opined the Professor. "Probably just curious. I must admit he was an ugly customer."

"Very ugly indeed, sir, if I may take the liberty of saying so," put in Judkins.

"Certainly not one I'd choose for a pet," said Tiger drily.

Seeing the needle on the red line Rex lost no time in divesting himself of his cumbersome garment. "What did *you* think of the Moon?" he asked Judkins, wiping perspiration from his face with his handkerchief.

"Quite frankly, sir, I thought very little of it," replied Judkins. "It would appear that the inhabitants are even less attractive than some of those that dwell on Earth."

Rex smiled.

"We must come back another day," declared the Professor. "Who knows what other strange beasts we may meet."

"As you say, who knows?" answered Tiger. "If there are many more like those we've seen today, the Moon is obviously no place for a rest cure."

"Tut-tut. Neither was Africa a hundred years ago. Surely it is better to have the Moon dangerously alive than drearily dead? Think of the possibilities it offers to you big game hunters. Instead of your helpless stags, here may be quarry worthy of your bullets. The skin of a lion ceased to be a thing to boast about after the breech-loading magazine rifle appeared; but the man who first brings home the armour-plated hide of the beast we have just seen will have a trophy that should be the envy of his fellow sportsmen."

Further conversation was cut short by the acceleration as the Spacemaster shot on to escape velocity.

When they had crossed the neutral zone and were falling back to Earth in comfort the Professor let out one of his roguish chuckles. "You must admit,

gentlemen, that it has been a most instructive outing. But think of the unkind names people would call us if we dared to report what we have seen."

"But we shall have photographs," said Rex.

The Professor shook his head sadly. "They would say we had faked them. No use trying to make people believe what they don't want to believe. Never mind. Would anyone care for a caramel?"

CHAPTER X

STRANGE OLD WORLD

As can be imagined, the days following the return to Earth were busy ones, for there was much to do and much to talk about. The Professor worked in a fever of activity, checking calculations, studying his photographs and writing up his journal, leaving Tiger to go over the Spacemaster now that he was familiar with its construction. With papers and reference books lying about, the study began to resemble more than ever a waste-paper dump. The Professor became even more untidy in his person, his hair quite out of control and his tie askew. He snatched food at odd moments, impatient of any time not devoted to his obsession, for that is what his work had become. So preoccupied was he that he did not seem particularly concerned when Judkins remarked that the presence over Scotland of the Spacemaster had again been noticed and reported in the Press.

"He's having a wonderful time," Tiger told Rex once, when they were alone. "He's a genius, and a genius isn't to be judged by ordinary standards. Such men are seldom normal in their behaviour. It hasn't even occurred to him that his invention is worth a fortune or that he could become the most famous man in the world today. All that matters is science. Money couldn't buy the joy his discoveries are giving him. It's a good thing there are such men."

The Professor, as he himself averred, was being torn two ways. He wanted to complete his notes on the Moon while everything was fresh in his mind and he wanted to analyse some pieces of rock he had put in his pocket and brought home. He was equally impatient to proceed with his investigation of the two nearest planets, Mars and Venus.

Even when he announced that he was ready to go ahead with the next trip he fretted and fumed because he couldn't make up his mind which planet to visit first. Both had their attractions, he explained, for entirely different reasons. Mars was the best known of all the planets and he was desperately anxious to settle several outstanding arguments about it. He wanted to go to Venus because it was wrapped in mystery. In this case, curiosity concerning the unknown was the magnet.

Tiger suggested that as they couldn't go to both at once he had better decide on one or the other. "At the rate you're living on your nerves you'll get to neither," he said seriously. "You'll finish up in a nursing home." This

was one day after lunch when the Professor had been persuaded to eat something.

"Quite right, my dear fellow," admitted the Professor, picking up a crust of bread and tearing it with ink-stained fingers. "I don't mind confessing that these marvellous discoveries have got me all worked up."

Tiger smiled. "There's no need to confess. We know."

"Well, what do you say? Where shall we go? I must, of course, return to the Moon some time, before all life there ends."

"You think it is ending?"

"Yes. Now that I've had time to devote serious thought to the subject I have a theory which will be difficult to disprove. It introduces a factor which so far I haven't had time to discuss with you, because it is an extremely complex one and was not vital to our present experiments." The Professor smiled over his glasses. "At least, I hoped it wouldn't arise. Flying about in space are masses of matter, partly solid and partly gaseous, which we call comets. Some have long tails. About sixty follow regular orbits inside our own solar system. Others visit us from the outer universe, retire, and are never seen again. Exactly what they are, what causes them, where they come from and where they finally go, we don't know. There are too many theories for me to discuss them all now, but there is good reason to suppose that the Earth has passed dangerously close to one on several occasions—close enough to be seriously affected. As recently as 1946 we missed collision with one by a mere matter of eight days. It may have been collision with the tail of a comet that caused the fearful catastrophes we read of in the Scriptures, when, you may recall, the sky rained fire and red hot stones, creating deserts and killing great numbers of people. The waters, including the Red Sea, turned red—with, I suspect, meteoric dust. This, at the time, was put down, naturally, as the vengeance of God. I believe that the Moon got the full blast of that, or a similar collision. Masses of solid matter struck it from all directions, causing those enormous craters. Other missiles, arriving diagonally, tore up those grooves which we call rills. Blazing gases and burning oil scorched the surface and destroyed most of the atmosphere. You must have noticed those charred areas."

"Oil?" queried Rex.

"Why not? Where do you suppose all the oil in the earth came from? Petroleum is merely a mixture of the two elements, carbon and hydrogen. I believe that before the disaster the Moon was not unlike our own Earth, but the holocaust killed everything except a few low forms of life that were able to find refuge underground. Those who said the Moon was dead are nearly

correct. A few creatures are making a last stand in almost hopeless conditions. The end—unless the Moon can collect or generate a new atmosphere—is not far off." The Professor regarded them with a curious expression. "Another strange feature arises in connection with what we saw on the Moon, one for which science has been unable to provide an explanation. Such creatures as we saw, I think you will agree, would come under the heading of vermin?"

"Yes," agreed Tiger slowly, obviously wondering what was coming.

"Of course, it may be coincidence, but the Old Testament has much to say about vermin appearing after great catastrophes on Earth. For instance, in Exodus, we are told that divers vermin appeared among the people of Egypt. The land brought forth frogs in abundance, even in the palaces of kings, so that people were devoured by them. Four of the famous plagues were caused by vermin. Locusts, dragonflies and caterpillars without number, ate up the crops. It is a very odd thing, you will agree, that these very creatures are to be found on the Moon—which, mark you, has been subject to something similar to what must have happened in Egypt at the time of the departure of the Children of Israel. It is unlikely that many people today take those stories literally. I mean, one can hardly imagine frogs devouring people. But the creature we saw in the crater, frog or toad—much the same thing—would have no difficulty in doing that. I'm not attempting to prove anything, but we may have thrown new light on an old story."

"Yes," conceded Tiger. "It's odd, to say the least of it."

"If the surface was ravaged by fire how did those plants survive?" asked Rex.

"Seeds may have been deep down in the ground. They could have been brought up by the movements of the worms."

Rex was looking shaken. "If that could happen to the Moon I suppose it could happen to us."

"Just as easily. It could happen any day. It probably will. A comet has only to pass near enough to move the Earth a little in its orbit, or even tilt it a little more on its axis, to bring on another Ice Age. Men would do well to remember that."

"Perhaps it's better that they don't realise it," put in Tiger. "Let's talk of something less harrowing. All right, Professor. If that's how you feel let's go back to the Moon. I'll take my rifle and collect the hide of one of those dragons for the Science Museum before they become extinct."

"I didn't mean go back immediately," answered the Professor quickly. "We have more important things to do. We can return to the Moon later. I can hardly wait to have a close look at the canals on Mars; and if I don't soon get behind that veil that hides the face of Venus I shall go crazy."

Tiger shrugged and filled his pipe. "You can't have it both ways. Suppose you tell us something about the two propositions and we'll weigh them in the balance."

"Excellent idea," agreed the Professor. "I knew you'd make a practical suggestion. Very well. Let us first consider Mars, the planet that has excited popular imagination ever since the Italian astronomer Schiaparelli made his momentous discovery of canals on it. He didn't mean our sort of canals, literally. He called them in his own language *canali*, meaning channels. As some are hundreds of miles long and quite straight it has been assumed that they are artificial, which in turn implies the activities of creatures of intelligence. Hence the popular word for them—Martians. More than forty canals have been observed on occasion. Mars is, in fact, the only planet on which indications of life have been seen."

"What are these canals supposed to be?" inquired Tiger.

"Irrigation channels to distribute water from the melting polar ice-caps. It's a guess, but not an unreasonable one, because there are certainly signs of vegetation, with seasonal changes of colour as they occur on Earth in spring and autumn. If there is vegetable life, as you saw on the Moon, there is almost certainly animal life."

"No more dragons, I hope," murmured Rex.

"We shall see," declared the Professor. "You must know that Mars is much smaller than Earth—only about half the size, in fact. It travels round the Sun just outside our own orbit. The day is a trifle longer than ours but conditions should be similar. No extremes of temperature. There are two Moons, Phobos and Deimos, both tiny and very close to their parent. Gravity is about one-third of ours. Reckoning Rex to weigh a hundred pounds, he would weigh only thirty-eight pounds on Mars. Apart from the canals we can see no features of importance, such as mountains or large sheets of water. There must be some water for we can occasionally see clouds, and there is either ice or snow at the poles. Incidentally, we can sometimes see brown clouds, which, for want of any other explanation, are assumed to be dust storms. Mars itself is often quite red. If there are clouds there must be *some* air, although it is likely to be thin. At any rate, it's transparent. With an invisible atmosphere, from Mars the sky will appear black, not blue. Our blue sky is caused by the dense atmosphere. Being

farther away from the Sun we may suppose that the daylight is not as bright as ours. So much, briefly, for Mars." The Professor popped a caramel into his mouth.

"Now for Venus," he resumed. "Although she comes nearer to us than any other planet we know little about her because, as I have told you, she hides under a cloud of vapour. What that vapour consists of we would very much like to know, because it must have an effect on what is underneath. You see, she moves round the Sun closer than we do, so unless those clouds tone down the solar rays it's likely to be pretty warm. Even with cloud, the atmosphere, which is thought to be more dense than it is here, is likely to resemble that of a greenhouse. We don't know. We don't really know anything, except that she is practically the same size as the Earth, the diameter being a mere two hundred miles less, which should make the gravity about the same as ours. Because her orbit is nearer to the Sun than ours a year on Venus is only 224 of our days; but we don't know what the length of her day is because of those confounded clouds. It might be anything. She may rotate slowly or she may spin like a top. However, there should be plenty of atmosphere, but all we know of its composition—again on account of the clouds—is that it may contain a high percentage of carbon dioxide. That's as much as I can tell you without going into technicalities or indulging in speculation. You will understand why I am so anxious to have a peep behind her veil."

"Do I understand that nobody has yet seen the actual surface of Venus?"

"Nobody."

"Then it's time somebody did."

"I agree." The Professor chuckled. "I approve modesty in ladies, but not to that extent."

"Then suppose we go and have a look at her."

"Very well. You have made up my mind for me. It so happens that Venus is in good opposition. That is to say, she is now coming round in her orbit to a closer position in relation to Earth."

"How far away is Venus?" asked Rex.

"A natural question, my boy, but one that shows you don't quite understand the position. The distance varies enormously. Let us put it like this. The Sun is the centre, the hub of the solar system. All the planets are going round it in their own orbits at different distances. The nearest is Mercury. Then comes Venus. Farther away still is Earth. Then we have Mars, and the rest of them in turn. Now then. As Venus goes round the Sun faster than we do, being closer to it and not having so far to go, there must

be a time when she is on the far side of it. She is then at her greatest distance from us. As she comes round to our side she must obviously come closer to us. There is a great deal of difference. When she is farthest from us she is six times as far away as when she is at her nearest point. For that reason, at her nearest point she appears six times as large. As a result of her journey, although you can't see it with the naked eye, she waxes and wanes just like the Moon—as the light of the Sun happens to strike her. The reason why she shines so brightly is because her cloud acts as a wonderful reflector to the light of the Sun. She is now fairly close, and still coming towards us."

"I see," said Rex. "Then how long will the journey take?"

The Professor hesitated. "That's another poser, because I can't say definitely what the effect will be of the several gravities to which we shall be exposed. The Sun and Mercury will pull. So will the Earth and the Moon. So will Venus herself. Nor do I know the maximum velocity the Spacemaster may reach in ideal conditions, but I expect it to be something almost unbelievable. If it is as high as I expect, we ought to reach Venus in five or six days. Of course, that means we shall have to take more food and a large supply of oxygen. These present no difficulties. We shall also have to take mattresses to sleep on. I'd advise you to take a book, too, or you may be bored with nothing to do. I'll lend you a book on astronomy, with a chart of the heavens, so that you can study the stars at your leisure under almost perfect conditions."

"When do you suggest we start?" asked Tiger.

"As soon as possible. Tomorrow?"

"That suits me," agreed Tiger.

"Then let's get ready," decided the Professor.

When, the following morning, Rex was awakened before dawn by Judkins, he was again conscious of that thrill of expectation, not entirely free from apprehension, at the prospect before him. The Moon had seemed an ambitious project, but this, he felt, was plunging from the realms of unreality into stark fantasy. The humdrum world of everyday life was getting more and more remote, a life apart from the one he was now living. It was almost as if he had died that night they were lost on the hill, and had arrived in a different world to lead a new existence. The surprising thing about that was the ease with which he had become accustomed to it.

Half an hour later he was in the Spacemaster, passing through space at a velocity which, a month earlier, he would have held to be impossible, but which he now accepted as nothing extraordinary.

There was this about it, he reflected, as the day wore on. In space travel one day was as another. One place was as another. There was no weather to change. One became as much part of the firmament as the other celestial bodies, just another atom in the mighty Universe. The only things that changed were the relative positions of the stars and planets as they rolled round their eternal orbits, as they had always rolled, and would, presumably, continue to roll for countless ages to come. There were plenty of them. He had forgotten how many millions the Professor had said there were in the Milky Way alone, in the galaxy of which they were a minute speck. It was all too much for the human brain to grasp. The brain boggled when one tried to contemplate it. If there was one word to describe interplanetary travel, he pondered, it was monotony.

By evening the Earth had become a great gleaming disc, a mighty Moon with a slightly tarnished face, dwarfing its own satellite, the true Moon, held prisoner in the unbreakable grip of gravity. Venus, a bright star even from Earth, was no longer a pretty spangle stuck on the dome of the sky. It was a broad, brilliant, blue-white crescent, without a mark on it, hanging like a giant sickle in the vast emptiness. She, too, was a prisoner, a prisoner of the Sun, like the rest of them—even colossal Jupiter, larger than all the other planets put together.

At what speed, in earthly measurements, the Spacemaster was travelling, Rex did not know. There was no sensation of movement. Distance, in ordinary terms, had ceased to exist. The only factor that meant anything was Time, and that, as far as he was concerned, did not mean very much.

The Professor was busy with his instruments and caramels. Rex watched him for a time, then had his dinner of sandwiches, biscuits and cheese. The jets droned on, so presently he lay down on his mattress and after a time fell asleep.

The four following days did no more than accentuate the relative positions of the solar bodies. Venus, partly in shadow, was a magnificent gleaming crescent. She was, Rex knew, racing along her orbit at twenty-one miles a second, while they were hurtling towards the zone in space where she should be at the estimated time of their arrival. The Sun appeared larger. Earth, with its Moon in attendance, had become a beautiful double star—or rather, planet. They certainly looked an awful long way away, thought Rex, with a fresh pang of apprehension. Would he ever see them again? he wondered. He dismissed the thought quickly from his mind. Terror lay that way. He didn't know why it should. He had never feared an accident in an orthodox plane. Why should he fear one now? In each case the result could only be the same. Death was death. It could be neither better nor worse, he

told himself. Yet, somehow, he could not entirely convince himself that this was so. There was something terrible about these vast, lonely spaces—possibly because they were strange.

The calm voice of the Professor dismissed these morbid thoughts. “We are getting near, my worthy colleagues,” he said. “We are falling into the orbit of the luminous lady on our right hand, and she is coming to meet us at a velocity that should be evident in a few hours. I can hardly contain my impatience.”

Rex smiled. Here was a man travelling at goodness only knew how many thousands of miles an hour, yet he was still not going fast enough. Rightly had Tiger said, the Professor was not to be judged by ordinary standards.

It was soon apparent that he had spoken the truth, for Venus was now a mighty globe, one part dull, the rest blazing in the light of the Sun. She grew larger every hour, and the Spacemaster’s jets, coming into action, turned slowly towards her to check their fall. This suited Rex, who had decided that any world was better than none. Very soon curiosity was master of all other emotions. He stared hard at the world they were approaching, the famous Evening Star, known and beloved by men—and sometimes worshipped by them—since men were able to write. The Ancients had called her Hesperus in the evening and Phosphorus in the morning. But no matter how hard Rex stared he could still see no feature, no mark of any sort. Evidently Venus was going to guard her secrets until the last moment.

The Professor was using one instrument after another. “I can still see nothing but cloud,” he reported.

Rex’s aeronautical training raised questions. How thick was this cloud? How were they going to get down through it without risk of collision with what was underneath? No doubt the Professor had asked himself these questions and found answers for them—at least he hoped so. There would obviously be little hope for an ordinary plane to get down without disaster. Only a helicopter could compete with such conditions, and, thank goodness, thought Rex, the Spacemaster with its rotors was a one hundred per cent efficient helicopter.

Venus was no longer a complete globe. Only a great section of it now filled the portholes, part of an immense ball of cotton-wool, it seemed. But that there was something more than vapour became evident when gravity made itself felt and it became possible to move with less sensation of weightlessness. The Spacemaster might have been returning home, to find the Earth blanketed in an unbroken layer of cloud. Pressure under his feet

told Rex that the Professor was now braking hard; which was as well for his peace of mind, for a few seconds later they were in mist, thin at first, but swiftly thickening in density to zero visibility. The Spacemaster's rotors began humming.

The Professor, moving with the alacrity of a man trying to catch a train, took a sample of the fog and applied his tests. "Harmless!" he cried delightedly. "Good air, and a high humidity which means plenty of water below. There's some carbon dioxide, but not enough to affect us seriously. Isn't that capital? It's more than I dared to hope for."

"What's good about carbon dioxide?" asked Tiger.

"It means there is life below—vegetable life at least. Vegetation needs heat and water. Plants breathe oxygen and produce carbon dioxide; but in sunlight the process is reversed; they consume carbon dioxide and release oxygen. These things are here so surely there must be life. Prepare yourselves for some shocks, my friends, for I believe these are the conditions that prevailed on Earth millions of years ago, in the Age that produced the tremendous vegetable growths which we now use in the form of coal."

Rex found himself perspiring. "It's getting warm," he said.

"Inevitable so near the Sun," answered the Professor. "Without this cloud we might be broiled. Bear it, my boy, for unless I am mistaken we are on the verge of such wonders that no living man ever saw. A little discomfort should be worth that. Ah!"

The Professor's final exclamation needed no explanation. The Spacemaster, now descending slowly, had dropped below the overcast, and there, a thousand feet or so below, was the surface of Venus, dull, but clear, unveiled at last.

"I'll stop a little while so that we may look," decided the Professor, in a voice tremulous with emotion. "What a spectacle we have been privileged to see! What does it matter what happens to us after this?"

It was, Rex mentally admitted, a spectacle. It took his breath away, as the phrase goes. Spellbound, he could only stare.

He knew from books he had read, and from what he had seen at the Natural History Museum in London, that he had flown back several million years and was now gazing at the Past—the Past in terms of life on Earth. There was ample proof that this was what the Earth had been like when it was young.

Behind the thick pall of cloud that had hidden her for so long Venus was a world—and what a world! It was not a fair, pleasant, smiling land, with

cool rivers sweeping into sparkling seas under clean, sun-washed air. For as far as he could see, through a dull, misty gloom, it was a flat, water-logged swamp; a bog with pools of stagnant, weed-choked water, from which arose a miasma of steaming mist to deepen the indigo curtain overhead, a blanket of vapour which no ray of sunlight pierced. No need to wonder any longer why the clouds were there, thought Rex.

The trouble seemed to be, the ground was too flat, so that the water, having no fall in any direction, no sea in which to drain, could only be disposed of by evaporation. But still, there were areas of the Earth's surface where this occurred. It did not follow that the same conditions prevailed over the whole planet.

From out of the primeval slime that bordered the pools sprang a jungle of vegetation that was obviously engaged in a desperate struggle for supremacy. Rising from great reeds and masses of moss, tall palms and giant tree ferns, bursting their fronds in the air like green rockets, appeared to be winning, although even they were often dragged down by the weight of creepers which clutched at them in their efforts to reach the air. All in all it was a scene of hopeless confusion, an emerald green nightmare. Here and there through it ran lanes where everything had been crushed flat as if by the passage of a steam-roller. And as he stared, wondering what could have caused this, Rex saw the answer. Down one of them, crushing or pushing everything aside under its colossal weight, came a creature of such enormous size that he found it difficult to believe his eyes. Like the old lady on first sight of an elephant, he wanted to cry out "I don't believe it!"

"A dinosaur! A living dinosaur, by all that's marvellous!" declared the Professor in a high-pitched voice that revealed his excitement. "Isn't he magnificent? Herds of them once wallowed where London now stands, for they have left their teeth and bones in the clay to prove it. There were several sorts, some vegetable eaters and some carnivorous. My friends, Regent Street was once such a track as you see below. It was the path the monsters made to reach the Thames, and primeval man could only move along the same trail. It's a far cry from those original tracks to tar macadam. I fancy the fellow below is Brontosaurus excelsus—a vegetarian."

Rex only heard dimly what the Professor said. He was too engrossed in the creature below. It was, in shape, a lizard, a lizard not less than sixty feet long. From the front end of its huge body sprang a long tapering neck ending in a snake-like head. From behind came a long diminishing tail of ordinary lizard form. The beast walked on four legs, although the hind ones were more powerful than the front.

The Professor lowered the ship to about two hundred feet.

Rex instinctively stepped back a pace as there flapped past a flock of leathery-winged monstrosities with beaks like the jaws of alligators.

"Pterodactyls!" exclaimed the Professor. "I have never studied paleontology[A] closely, but I feel sure these flying lizards have no right to be here, in this particular Era. No doubt there are fish lizards in those pools. Gentlemen, I promised you a spectacle. I hope you're not disappointed. What have you to say, Judkins?"

[A] The study of the fossilised remains of animals and plants of former geological ages.

"A truly remarkable sight, sir," was the emotionless reply. "Venus has a queer population, if I may express an opinion."

"Queer is a nice word for it, Judkins," put in Tiger. "An emergency landing here should be an experience to remember."

"We'll move on a little way to see if we can find a spot dry enough to land on," decided the professor.

"Did you say *land* on?" cried Rex.

"Why yes, my boy. We've come a long way and the ship needs tidying up. Apart from a little much needed exercise we might as well see what there is to see while we are here."

"We can see quite a lot from here," Tiger pointed out.

The Professor threw him a reproachful glance. "Tut-tut, my dear fellow. Never let it be said that you turned your back on adventure. If this isn't adventure, what is it?"

"If you're asking me that question seriously, I'd say it's uncommonly like lunacy," returned Tiger smiling. "However, carry on. It merely struck me as being an awkward place to get our legs stuck in the mud."

"The mystery of Venus is a mystery no longer," asserted the Professor triumphantly. "All is plain to see. In due course I shall congratulate those astronomers who predicted just these conditions. Heat, unlimited water and air, were almost certain to produce extravagant forms of life."

"Air?" queried Tiger.

"Of course there is air. Those who predicted an atmosphere unsuitable for life may have forgotten that they were looking only at the outer fringe, some hundreds of miles above the surface of the planet. True, there was no

indication of what was below. That was a matter for surmise. Now we know. Apart from the fact that the air around us is obviously very warm, we shall, I think, be able to breathe it. We shall see. Have the goodness to oblige me by taking a photograph of that handsome beast below. He appears to be contemplating having a swim."

The Spacemaster, inclined at an angle and under gentle power, was drifting sideways. For some time there was no change in the scene below. Huge bodies could be observed wallowing in the ooze, which sometimes heaved and bubbled from the movements of unseen horrors.

Rex had begun to fear that the whole planet was alike when just ahead appeared an area of slightly higher ground. There were some outcrops of rock, which suggested that it was hard. There were also some trees growing on it, trees with bristling, dark green foliage. Rex recognised them as types known at home as Monkey Puzzles.

"Ah! This is better," said the Professor. "We'll go down and have a rest. I hope we don't find it too oppressive."

"Be careful what you're landing on, sir," requested Rex nervously.

"I shall be very careful indeed, I assure you," promised the Professor. "It would be a tragic thing to be devoured by a dinosaur so soon after making his acquaintance."

"Or at any other time," murmured Tiger drily.

The Professor chuckled. "Your witty observations, my dear fellow, are in accord with my exuberant mood. The Moon was splendid, but this is the greatest day of my life."

"Just try to see that it isn't the last," requested Tiger. "In view of what we know now, I suppose there isn't much chance of finding anything in the way of human beings down below?"

"I should be very surprised indeed to find *homo sapiens*—that is, true man," answered the Professor thoughtfully. "But there's just a chance there might be the type from which he developed—in a very primitive form, of course. We're probably fifty or sixty million years too soon for people like ourselves."

"That's rather a long time to wait."

"Tut-tut. You will have your little joke. But I must watch what I am doing."

The Spacemaster drifted on, losing height, until it was over the higher ground, which now appeared to be almost entirely rock, sometimes flat but

for the most part twisted into a curious pattern. The area was roughly round and about half a mile in diameter.

"A not unpleasant little island," remarked the Professor. "It should suit our purpose."

The ship sank lower, the rotors humming, until, with a gentle bump, it came to rest.

The Professor saluted. "Welcome to Venus, gentlemen!" He smiled. "I don't think there will be any great rush to establish colonies on *this* New World."

"You don't know what some men will do when they get bored," returned Tiger.

"True—true," conceded the Professor. "Now listen." He gave the pressure valve half a turn. Another. It made no sound. He looked round. "You realise what that means? The pressure outside is the same as inside. If the air is breathable we will open the door. Excuse me a moment."

Ten minutes were sufficient for his test. "Safe," he announced. "Not entirely comfortable, but safe. What more could we hope for?" He strode to the door and opened it cautiously.

His expression changed abruptly as from a distance there came through the sultry air the first sounds they had heard for days except those which they themselves had made. It was a mixture of barks and yelps, reminiscent of a pack of hounds in full cry. "It seems that we're not alone," he said in a curious voice. "But let us have something to eat. We'll also take the opportunity to empty the rubbish bins. We might then have a little walk to see if we can discover the authors of those strange sounds."

"We had better keep our eyes open in case they discover us," opined Tiger seriously.

CHAPTER XI

NATURE IN THE RAW

To Rex, for one reason alone, Venus was infinitely to be preferred to the Moon. It was not necessary to wear a cumbersome cosmosuit. No matter how efficient such a garment might be, he had decided, it would always be a nuisance and a handicap to easy movement. The relief of being able to step out of the Spacemaster at will, as if they might have been on Earth, was, therefore, a matter for congratulation. Another great advantage of having an atmosphere was that all sounds could be heard, not limited to radio conversation. They could eat in comfort. They could smell. Tiger could smoke his pipe, which he did at the first opportunity.

This is not to say that the atmosphere in which Rex presently found himself was all that could be desired. It was dense; it was heavy and it was sultry, largely the result of the cloud mass pressing down on it and preventing anything in the way of a breeze. The cloud had been light enough on the sunny side, but underneath it was the colour of lead, so that everything was in perpetual gloom. The effect was an almost overpowering stuffiness, such as might be encountered in an overheated greenhouse. There was a queer, vitiated smell about it, too, which might have been due to the presence of carbonic acid gas. Even sitting still, as they did to have a picnic meal outside the ship, sweat trickled down their faces. But still, with all this, as Tiger remarked, things were no worse than in some tropical rain forests on Earth.

From time to time noises reached their ears, reminding them that the planet had a population of its own. There were crashes as of trees being cast down, and, what was more disconcerting, roars and deep-throated growls. Once again they heard the medley of barks that had greeted them on arrival. The Professor admitted that he was puzzled by these, for although from what they had seen he was sure that the planet teemed with life, he could not visualise any forms other than the monsters which similar conditions had produced on Earth in the distant past. These, unable to adapt themselves to change, had become extinct in spite of their fantastic size, leaving the world to types less gross. As a student he was familiar with many of the early brutes, for they had left their story in bones in the primeval ooze, now hardened into slate or clay; so he could, he thought, give a fairly accurate picture of the probable population of Venus.

The meal finished, and the work of tidying up the Spacemaster attended to, the Professor announced his intention of doing a little exploring. They all went off together towards the nearest group of trees, which were found to be growing in a little depression in which had accumulated some leaf mould and rock debris. Even the trees, with their short, bristling, primitive form of leaf, were uncouth. Rex hadn't realised that the so-called Monkey Puzzles, often seen in gardens at home, were survivors of an era that existed long before the deciduous trees, the oaks and the elms, had come to soften the landscape. There were some conifers, too, huge fir trees, similar but harsher forms of the famous redwoods of California. Yellow resin oozed like treacle down their trunks.

The Professor pointed to a sticky mass of it. "Do you know what that is?" he asked. As no one answered he went on. "Amber is what we call it today. Those big yellow beads with which ladies sometimes adorn themselves started life just as you see it here. In due course the trees perished and rotted away, leaving their resin deep in the ooze, to be washed up by the waves of the sea millions of years later. What is now the Baltic Sea must have been a great forest of these trees at one time, for it is on that coast that amber is most commonly found. Look. See those flies sticking on that piece? You will see those same insects in the amber we find today, having been mummified in it for untold ages. Very interesting, I think you will agree."

A gruesome touch was provided by bones that lay on all sides. Some were enormous. Some were obviously old, but others appeared to be fairly recent.

"What is this—a prehistoric slaughter-house?" inquired Tiger, pipe between his teeth.

"With everything hunting for food no doubt some desperate battles have been fought on this piece of dry land," answered the Professor. "Apart from that, everything has to die some time, if only of old age. Most creatures would crawl on to dry land to die, I imagine. These remains cover a long period. One can see that. Bones of this size, even exposed to the weather, would take centuries to decompose."

He examined some of the bones, as he did the rocks on which they lay. He picked up a piece, greenish in colour, and tested its weight in his hand. "Almost pure copper," he stated. "Here will be the copper mines of the future, no doubt, when the Earth has exhausted its own supply. There will be gold, too, for the finding, I expect; and, for that matter, all the other minerals we have on Earth. There's just a chance that a new one may turn up. In ancient records there is mention of a red metal which no one can find now.

What fabulous wealth awaits the pioneers who establish the first colony here! Mind you, they won't necessarily come from Earth. At least one other planet has a cosmobile besides ourselves. Don't forget the Flying Saucers. They couldn't have come from here, that's certain. It isn't unlikely that one day men will fight for possession of this ground we're walking on. They fought for the new continents. Here is a complete new world. Some people would be staking claims on it within a month if I let out the secret of the Spacemaster, or if they could find some other way of getting here. What tales they'd have to tell! Poor Columbus and his America would cut a second-rate figure in comparison."

They strolled on, the Professor examining everything with the closest attention. "Ah! What have we here?" he cried suddenly, stooping and picking up a small semitransparent object, the shape and size of a filbert nut.

"What is it?" asked Rex.

"Quartz crystal, I think. No. Bless my soul! It's a diamond!"

"A *diamond*!"

"Yes. Look! There are plenty. See them sticking out of that rock? That's where they were formed by heat and pressure. The action of water has through the ages worn away the rock, leaving the diamonds, which are much harder, exposed. Ultimately, when the rock has all worn away, the crystals will be left lying on the ground."

"May I have some?"

"Certainly not."

"Why?" Rex looked surprised and disappointed.

"Because the law forbids anyone to import precious stones without declaring them to the Customs Officers. I have no intention of reporting myself at a Customs Office, and I'm not going to risk being sent to prison for failing to declare a bauble, however pretty it may be." The Professor tossed the diamond aside.

They walked on.

They had not gone far when an exclamation from Tiger brought the party to a halt. He pointed to the far side of the island, beyond which lay a lagoon. Words were unnecessary. Dragging themselves out of the mud were several creatures of such a size that Rex would have sought in vain for an adjective to describe them.

"More brontosaurus," said the Professor. "Probably quite harmless, provided we don't molest them."

“I haven’t the slightest intention of molesting them,” declared Tiger, knocking out his pipe and mopping his face with a handkerchief already wet.

“Let’s sit down and watch them,” suggested the Professor. “A pity we can’t take one home with us. What an attraction it would be at the zoo.”

“And what a cage would be needed to hold it,” murmured Tiger.

Sitting on a convenient bank of rock they watched the enormous brutes splashing about at the water’s edge like cattle round a pond on a summer’s day. Sometimes one would tear up a trailing mass of weed. They watched for some time, but as nothing unusual occurred, they were about to move on when another beast, smaller, but of the same lizard type, appeared from nowhere, as the saying is. It made a rush at the brontosaurus, which appeared to be a young one, farthest from the water. It was obvious that it would catch it, too, for the ungainly creature, quickly deserted by its companions, blundered about in a panic, screaming with terror.

“Oh dear. A megalosaurus,” said the Professor. “He’s a carnivore.”

The newcomer, its jaws agape, overtook its victim, and flung itself upon it in such insensate fury that Rex could only watch speechlessly. The titanic struggle that followed, in a noise that defied description, did not last long; and the result was never in doubt. The brontosaurus, for all its size, had no chance against its ferocious assailant, which, seizing its prey by the neck, flung it on its side and began to devour it while it was still alive, tearing away great masses of meat while its victim’s swaying head drooped nearer to the ground. Its cries became fainter.

“A disgusting example of nature in the raw,” observed the Professor calmly. “The many bones we see about are now explained.”

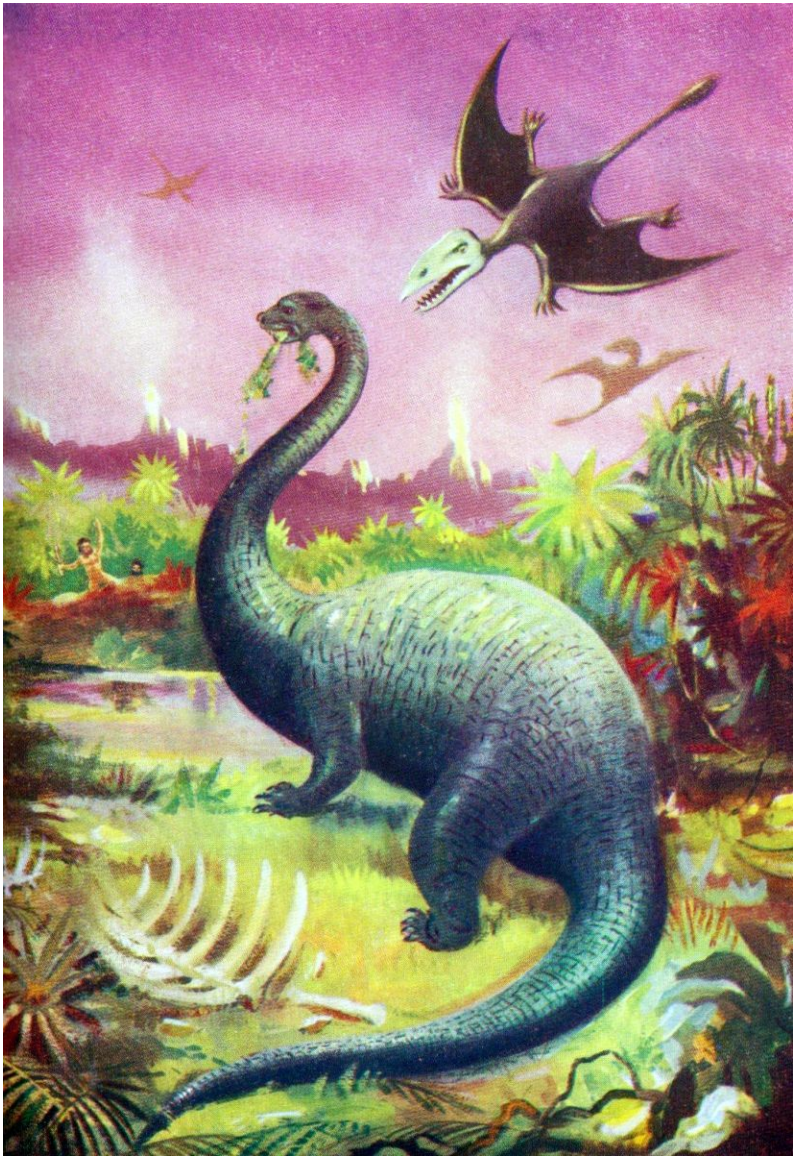
But this, it soon appeared, was not to be the end of the brutish display. From all sides, perhaps attracted by the clamour, came the pterodactyls, their leathery wings outspread like umbrellas, as vultures gather round a stricken camel in the desert. Their obvious intention was to share the feast; and this they did, in spite of the efforts of the frenzied proprietor to drive them off. More than one of the birds went down under tooth or claw, but the others, not to be denied, took the opportunity to dash in and tear at the carcase with their teeth-lined mandibles. The din was appalling. And it may have been for this reason that the next arrivals on the scene were neither heard nor observed until they were close.

The source of the mysterious barks was now revealed. From a belt of trees that ran far out into the mire, barking and yelping came a mob of creatures of a very different type. Indeed, so different were they, and so

unexpected, that at first sight of them everyone sprang to his feet. Rex instinctively began to back away towards the ship.

"Keep still!" ordered the Professor curtly. "If we keep still they may not see us. We must watch this."

Rex noticed that he offered no explanation of what the creatures were, perhaps assuming that this would be understood. To him they looked uncommonly like men, very big men, men or apes, covered with either hair or mud; it was impossible from the distance to tell which. From the fact that they carried clubs he decided that they must be something more than apes, and therefore, as creatures of some intelligence, to be more feared than the monsters. Apparently the megalosaurus knew this, for it broke off its gory repast to stare at the barking, snarling figures, running and leaping towards it. The pterodactyls rose in a cloud, wings clashing, but the megalosaurus stood its ground, turning with jaws wide open to face those who would deprive him of his prey—for that, clearly, was the intention of the newcomers. This brave front did not last long. Yelping like mad dogs the ape-men assailed it from all sides, hurling rocks so thickly that the air was full of them. This was too much for the megalosaurus. Roaring with rage it began to back towards the water, whereupon the ape-men rushed upon the now dead brontosaurus and tore at it like wolves.



(see page 146)

“Keep still!” ordered the professor, “we must watch this.”

“Observe our ancestors before they learned table manners,” said the Professor, quietly. “Could you imagine a picture of such bestial ferocity. In my papers I shall devote a chapter to this enlightening incident. A most wonderful experience, don’t you think?”

“If you really want to know what I think, it’s this,” answered Tiger. “I think if we had any sense we should get a bit nearer to the ship. I don’t like the look of those fellows. They can move a lot faster than we can. They haven’t seen us yet. They’re too busy stuffing themselves with uncooked brontosaur. But presently they may look around, and seeing us, decide to have us for a savoury to round off their nauseating dinner.”

“I think you’re right,” agreed the Professor. “I’d very much like to have a closer look at one of those barbaric gentlemen; indeed, I’d like to measure his head; but I fear he would object. It seems that one of the first things our ancestors learned to do was hunt in packs.”

“We haven’t altogether lost that habit,” returned Tiger whimsically. “I think we’d better be going. I can see one of them looking this way.”

They began to retreat towards the Spacemaster, Rex snatching furtive glances over his shoulder. And it was soon evident that Tiger had been right, for the ape-men had gathered in a bunch and were gazing in their direction.

Further observation was now prevented by something for which none of them was prepared. Without the slightest warning the clouds above them seemed to collapse, and there descended such a quantity of water that the weight of it nearly beat them to the ground. It could not be called rain. Even to describe what was happening as a cloudburst would be understatement. Rex had seen a cloudburst but it was nothing like this. In such quantities did the water come down that it was like standing in a waterfall; and there did, in fact, seem to be a risk of them all perishing by drowning. The noise of it was indescribable. Water fell faster than it could run off the rock, so they had to splash along ankle deep, holding each other to prevent them from becoming separated. The Spacemaster had disappeared from sight, of course, the moment the deluge started, and Rex could only hope that they would be able to find it. He also hoped that when they did find it it would not be damaged.

Worse was to come. “Where is it?” yelled Tiger, meaning the ship. “We can’t be far away.”

Any answer was drowned in such a clap of thunder that Rex thought his ear-drums had been shattered. Then the storm really began. Again and again the thunder crashed as if the planet was falling to pieces, while through the dim twilight flashed lightning so blinding that Rex covered his eyes with a hand as he stumbled along hanging on to Judkins’s arm. With a shattering roar something struck the ground near them. Pieces of rock screamed past and a strong smell of sulphur filled the air. All Rex could think was, if one

of these thunderbolts, or whatever the things were, hit the Spacemaster, they were finished.

A yell of "Here it is!" from Tiger brought relief, and a minute later, with water pouring off them, they were dragging themselves into the Spacemaster. Inside, the noise was even more deafening, but it was at least possible to breathe freely.

"My fault. I should have been prepared for this," shouted the Professor, as they twisted the worst of the water from their clothes. After that, all they could do was wait. Conversation was impossible. Tiger did, it is true, cup his hands round his mouth and yell in the Professor's ear: "Wouldn't it be better to get above this?" But the Professor shook his head emphatically.

The tempest lasted for about half an hour and then ended as abruptly as it had begun. At least, it died away to a drizzle. The steam now rose in clouds from the hot ground—from everything, in fact, including the Spacemaster. The cabin soon looked, and felt, like a Turkish bath. Visibility was still restricted to a few yards.

"What are you going to do?" Tiger asked the Professor. "Surely it's not much use staying here in this?"

"I am afraid you're right," was the answer. "We've done very well for one visit. As I said just now, I should have been prepared for such a deluge. The conditions pointed to it. I have no doubt that such storms occur here frequently; perhaps every few hours. The water falls. Excessive evaporation, due to Venus's proximity to the Sun, lifts it again until the clouds become overloaded and down it comes. So it goes on, year after year. A most unpleasant climate. It may improve as the surface water cuts channels for itself, always supposing that there are depressions deep enough to hold it all. It is our great oceans that save us. Without those great holes there is enough water on Earth to cover the land. If Venus has no ocean it will be too bad. Even if she had an ocean the water might be pulled out of it at regular intervals by the Sun, just as our little Moon creates high tides by pulling the water about when it is near the Earth."

"I'm sorry to interrupt your learned observations, Professor, but don't you think it's time we made a move?" suggested Tiger. "It looks like being some time before this steam clears, and should those hairy missing-links decide to investigate it might be rather awkward."

"If one of them got into the cabin it might be very awkward indeed," admitted the Professor. "What those tough gentlemen lack in brains they more than make up for in brawn. One can judge that from the size of some of the rocks they tossed about."

As he finished speaking the Professor advanced to the door to close it; but at that same moment a grey shape materialised in the mist, and moving forward fulfilled his wish for a close view of an ape-man. They came face to face. Both stopped. Both stared. Neither of them made a sound.

Rex, who happened to be standing just behind the Professor, found himself gazing at a visage that was certainly not that of an ape. The eyes were too intelligent, and their expression sad and thoughtful rather than ferocious. The nose was flat, with distended nostrils, but it was a human nose. The mouth was large. Below it was a definite chin, although this was covered with unkempt hair that started on the head and formed a mat, covering the ears and running down to the neck, which ended on a pair of massive shoulders. The chief difference between the Venusian and civilised man was the forehead, which sloped back sharply from just above the eyes.

For perhaps three seconds the man from Earth and the man of Venus gazed at each other. Then they both sprang back together, one with a yelp, the other with a startled cry. Recovering, the Professor slammed the door and dashed to his control table. "Air, Judkins," he called swiftly. "Full pressure."

Rex remained rigid, wondering if they were going to be in time, for he could see more shapes emerging from the mist and there were some threatening barks. He drew a deep breath of relief when the rotors began to whirr, causing the figures outside to withdraw with an outburst of barks and yelps which were presumably some primitive form of conversation.

"Poor fellows," said the Professor sympathetically. "I should like to stay and help them. Think what we could teach them."

"Think what they could teach *us*," returned Tiger grimly. "Let's go, before they decide to come aboard."

"This is a great occasion," declared the Professor. "For the first time, perhaps in the history of all creation, men of two planets have met."

As the Spacemaster began slowly to rise Rex caught a last glimpse of several pensive faces looking up at them.

"They must wonder, for I believe they are capable of wondering, where we came from," resumed the Professor. "Remember, these eternal clouds that blanket their world prevent them from seeing any others. They know nothing of the stars. It is unlikely that they have ever seen the Sun, although it belongs to them as much as it does to us. We are neighbours, rushing for ever round and round that same fiery master. The cloud, of course, may save all life on Venus from extinction, by toning down the solar rays which here must have great force. Things may change over the next few million years.

Should Venus throw off her excessive atmosphere, which could happen, she might become a comfortable place on which to live. She is obviously still very young, as worlds go. It's a great pity we couldn't have taken one of our new friends home with us. They were not such bad-looking chaps as I would have expected. What fun it would have been to introduce one to the Royal Society." The Professor chuckled.

"Gentlemen, allow me to introduce Hairy Harry from Hesperus," murmured Tiger.

Judkins started to laugh, but broke off.

The Professor looked at him reproachfully over his glasses.

"Beg pardon, sir," said Judkins apologetically.

Now while this was going on it had seemed to Rex that their ascent was not as swift as usual. The customary pressure was less severe, and he could only suppose that the Professor, for some reason of his own, was making a slow departure. But when a puzzled frown creased the Professor's forehead, and he threw over a lever without materially affecting the acceleration, he had an uncomfortable feeling that something was amiss.

Tiger apparently noticed it, too, for he said sharply: "What's wrong?"

Rex's stomach seemed to drop inside him when the Professor answered: "I don't know, but the jets are not working as they should. The ship is behaving as if the power was failing."

"What could cause it to fail?"

The Professor shrugged. "It might be that some water from that downpour has seeped into the working parts. Electrical discharges of the storm, which were noticeable, may be causing the trouble. What I really suspect, however, is that the cosmic rays on which we rely, and which I had always supposed would pierce anything, are unable to penetrate to the base of this tremendous cloud layer. I estimate that it is at least five hundred miles thick. Again, the lightning may have disturbed or dissipated the rays. We shall soon know."

"How will you know?" asked Tiger.

"Because as soon as we have exhausted the rays contained within the structural components of the ship she will stop, and at once begin to fall. That is bound to happen if for any reason we are not getting enough power to give us escape velocity."

"You mean, we shall fall back on Venus?" asked Rex, in a thin voice.

"As we are well within her field of gravity we could fall nowhere else. But don't let that disturb you. If it should happen you'll know nothing about

it, for the simple reason that we should strike the planet at a speed of several miles a second." The Professor spoke so calmly that Rex could only stare at him.

There was a short silence.

Then the Professor went on. "It's a curious thing, but I've never been able to discover a way of storing cosmic rays for such an emergency as this —not that I ever imagined it would arise. You can't imprison the little rascals. They will pass through anything, including metal, so I failed to visualise conditions such as these within the solar system. Which shows how fatal it can be to take anything for granted."

Feeling suddenly weak Rex sank a little deeper into his chair, straining his ears to the murmur of the jets for any increase or decrease of power. They seemed to be getting weaker.

"We are still rising, but not as fast as I would wish," said the Professor quietly.

It seemed to Rex that the situation had become a sort of race, on the result of which their fate depended. If their energy diminished below a certain point before they reached the Sun, they would lose. If it could be maintained until they reached the upper layers of the cloud, where some cosmic rays might be expected, they would win. He found small comfort in the Professor's casual remark that if they fell they would know nothing about it.

"It's getting lighter," said Tiger suddenly.

"You're right," confirmed the Professor. "That means we are nearly clear."

Rex began to breathe again as proof was provided by the jets, which began to drone with a rising tempo.

"Ah! That sounds healthier," said the Professor cheerfully.

A minute later, when the Spacemaster shot out into clear space, with a dark, star-spangled sky above, and the Sun turning the surface of the cloud to streaming silver, Rex could have shouted with relief.

"Well, there's no tutor like experience," announced the Professor tritely. "I shall have to make provision to insure that such anxiety as we have just survived does not occur again."

The clouds of Venus began to fall away below like solid matter as the Spacemaster picked up her maximum velocity. Smiling, the Professor sank back in his seat. "Now we can all have a nice long sleep," he announced. "At this velocity we shall shoot right through the neutral zone back into the

gravitational field of our own good Earth. You will agree, my friends, that this has been another wonderful day to remember. Would anyone care for a caramel?"

Five days later, standing on the concrete landing-ground outside the hangar, holding the steps of the Spacemaster to preserve his balance—for the long flight home had left him unsteady on his feet—Rex gazed at the blue-white star, low in the sky, which he knew was Venus. No, I haven't really been there, he told himself. I must be dreaming. Presently I shall wake up.

Slowly, and very deep in thought, he followed the others into the house.

CHAPTER XII

WHAT HAPPENED ON PHOBOS

As soon as he had had a night's rest in his own bed and written up his notes the Professor was making preparations for a journey to Mars, the only remaining planet within reasonable distance of Earth, and the most likely one, in the solar system, he thought, from which the Flying Saucers might be coming. If they were not coming from Mars, or the groups of planetoids beyond, then they would almost certainly be visitors from the outer cosmos.

The visit to Mars, he averred, would see the conclusion of his immediate programme, and, if successful, the fulfilment of his life's ambition. It would take him a long time to put on paper a full record of his discoveries and their implications. He might make further flights at a later date, but only after he had set down the fruits of his discoveries for the benefit of future interplanetary navigators.

He had, he told them one night after the evening meal, already given them an outline of what was known about Mars, and certain conclusions that had been drawn from telescopic observation. It had long been thought that the planet was the one most likely to support life—that is, intelligent life, as it was understood on Earth. Beyond Mars was the realm of the asteroids, many bodies of all sizes, thought to be the remains of a planet that had broken up. Beyond, again, was Jupiter, largest planet of all. But with these, for the time being at any rate, they need not concern themselves. The objective was Mars, which, being in an orbit outside the Earth and consequently farther from the Sun, was unlikely to be as warm as either Earth or Venus. Long before they reached the planet, the Professor thought, they should know more about it, for the atmosphere that enveloped it was likely to be thin, and there were few clouds to hinder visibility.

In particular, the famous so-called canals, which in order to be visible from Earth must be very wide, should stand revealed for what they really were. Mars, being farther away than Venus, would take longer to reach—not fewer than eight days, he reckoned. His eyes twinkled. "I must make a good supply of caramels."

"Shall we need our suits?" asked Rex.

"Yes. I expect to find some atmosphere on Mars, perhaps quite a reasonable one, but there may not be enough for us without extra oxygen. Apart from air to breathe there is the question of pressure. We are bound to

feel anything in the way of an abrupt change. As I have told you, the human body is surprisingly adaptable, and will stand up to the most extreme changes of temperature and pressure provided the initial shock is not too great. Given time to acclimatise itself, as we say, it will respond nobly. A man climbing a mountain makes the change gradually, and no ill effects are experienced. We, from the Spacemaster, step straight from one set of conditions to another. As you know, as we sit here every square inch of our bodies is subject to a pressure of fifteen pounds, but we are unaware of this because the pressure is equal and our bodies have adapted themselves to it through the ages. In exactly the same way any form of life on Mars will have adapted itself to its own particular pressure, oxygen supply, and any other unique conditions. Mars being only half the size of Earth, gravity will be much less. If I take three pounds of caramels with me they will weigh only a fraction over a pound when I land on Mars." The Professor's eyes twinkled. "But I needn't worry about that because I shall have just as many caramels. Again, our year of 365 days becomes 687 days on Mars. We shall have two Moons to explore, Phobos and Deimos. They're both very small and close to their parent. Phobos is on the near side so we may call there on the way. From there we should get a majestic view of Mars, less than 6,000 miles distant. Deimos is on the far side. By the way, if we should land on either of these small satellites be careful not to jump about, or with your muscles, adapted for Earth, you may jump clear into space. But the point is, if the conditions on Mars are much different from ours I shall not expect to find there men like ourselves—even though they were like us at some distant period of their history." The Professor regarded them thoughtfully over his glasses. "But this won't do," he concluded. "There is much to be done."

Preparations for departure continued apace. There were no newspaper reports of the Spacemaster but Flying Saucers had been seen over America. Judkins reported that the pony boy had spoken of seeing two strangers on the hill, who did not look like stalkers; but nobody paid much attention. The Professor seemed more concerned with the Saucers.

"If there are a lot of them about I wonder how they avoid collision," he said. "With so much space, the risk is, of course, very small. But it exists, and as I think I told you, at high speeds there can be no question of sharp turns. Not that the necessity would arise. Two spaceships travelling head on at escape velocity would be in collision before they saw each other. So it is no use dwelling on a hazard that cannot be prevented."

The days passed quickly until at last the Professor announced that all was ready, so as there was no reason for delay he proposed starting in the

morning. He had finished his notes, packed them and addressed them to the Royal Society, and put them in his safe, where, if the Spacemaster did not return, they would be found and forwarded. Whatever happened to them, therefore, the information gathered on their survey flights into space would not be wasted. From the way he spoke he regarded the possibility of their non-return quite casually. Not so Rex, who was again conscious of that 'high dive' feeling when he remembered those awful lonely spaces beyond the atmosphere. He took comfort from the thought that not so long ago the unknown oceans must have seemed like that to mariners. At least they were spared the discomforts and privations of the early sailors. And, after all, what were eight days to make a landfall, compared with sea voyages of months and years before the days of steam?

His fears faded as soon as they were off the ground, and having watched the Earth become a globe he settled down to the now familiar routine of space travel. He had taken the Professor's advice and brought some more books.

There were only two incidents to break the monotony of the voyage. The first was when a Flying Saucer came and had a look at them. The Professor, whose watch it happened to be, saw it first—or rather he saw the sunlight reflected on it. As he said afterwards, he took it to be an asteroid that had somehow got outside its orbit. When it turned edge-on and came nearer he recognised it for what it was. It came quite close and actually kept them company for a while, so that they all had a good look at it. But of occupants, supposing there were some, they saw nothing. Before it left them it several times darted off at a tangent, as if inviting them to follow. Indeed, Tiger gave it as his opinion that this was the purpose of the manoeuvre. "What else could it mean?" he inquired.

No one offered an alternative explanation. The Professor held on his course, saying that as they had a long way to go he did not feel inclined to dally on the way. The Saucer watched them for a time, from a distance, and then flashed away like a shooting star.

Its behaviour was discussed again later, following an incident which, it was agreed, offered another possibility.

All was quiet in the cabin, with the crew reading or dozing, when the Professor let out a startled exclamation. A split second later there came such a noise that Rex was sure the end had come. It was as if the ship had struck a hailstorm, and lasted for perhaps three seconds. Then silence returned. Rex turned an ashen face to Tiger. Even the placid Judkins had turned pale.

“It’s all right,” explained the Professor quickly. “We passed through a narrow belt of meteoric dust. I saw it, but could not avoid it. It appeared as a streak of pale haze such as might have been left by the tail of a comet. I would have warned you had I realised in time what it was. At first I thought it might have been the trail of our Flying Saucer friend; but now I believe it was either meteoric dust or frozen particles of gas of some sort, possibly helium cast off by the Sun. One can often see such phenomena through the telescope. I suspect there is more star dust about than is generally supposed, waiting for the gravity of some body to absorb it. No damage appears to have been done beyond a few scratches on the windows.”

“Speaking of Saucers, it occurs to me that the one we saw might have been trying to warn us to keep clear of the stuff, knowing it was there,” opined Tiger.

“It could be so,” agreed the Professor. “I hope you’re right, for that would indicate a friendly disposition. What a pity we can’t send a signal to thank him. But then, I would have been surprised had the Saucer turned out to be hostile.”

“Why?”

“Firstly, because creatures with sufficient intelligence to make a spaceship as efficient as the one we just saw, must, surely, by the same token, have more sense than to indulge in useless slaughter? Secondly, travellers on dangerous voyages always have been not only friendly towards each other, but willing to accept perils on their behalf. Sailors, no matter what their nationality, still cling to that praiseworthy tradition. What a wonderful world Earth would be if all men behaved like that.”

“They probably would be if they were left alone and didn’t have their minds poisoned by propaganda-mongers with bees in their bonnets,” returned Tiger bitterly.

“That would be dangerous talk in some parts of the world,” said the Professor soberly. He reached for his telescope. “Observe how red Mars is getting now that we are drawing near. Mars was the ancient God of War. Let us hope, if there are men on the planet, that they have never heard of war. You can see the dainty satellite, Phobos, distinctly. It appears as a small black dot, of course, since it is between us and the planet. We can’t see Deimos because it’s round the other side.”

They took turns to look at the objective through the telescope.

Each day brought it into sharper focus. The dull yellowish-red colour became more conspicuous although it was confined to certain areas. The

polar snowcaps glistened unmistakably. The long canals could be seen with the naked eye, looking as if a spider's web had been thrown over an orange.

The Professor pointed out their own home planet, also shining brightly; but Venus, dwarfed by distance, had lost its earthly sparkle.

The eighth day saw the objective as a globe, wonderfully clear as it hung in space, the canals looking like a net thrown over it. Little Phobos seemed almost to be touching. The Professor was pale with excitement and seldom put down the telescope.

"What was the use of trying to solve the canal problem from Earth when I still can't see the answer from here?" he said sadly. "The weakness of the telescope is, while it may magnify, it doesn't give a clearer definition."

"You'll know all the answers presently," consoled Tiger.

"I think we'll drop in on Phobos to see what we can make of Mars from there," decided the Professor.

Tiger agreed. "It's always a good thing to make a reconnaissance of unknown country before jumping straight into it," he cautioned. "I've seen places that were easier to get into than get out of."

"Quite so," said the Professor. "Isn't it wonderful to be up here?"

"We're certainly well away from the crowds," replied Tiger smiling.

"What's the next body outside Mars?" asked Rex.

"The next real planet is Jupiter, and he's the grandfather of all planets," answered the Professor. "We're not likely to trouble him, because apart from being a long way away we think he is still very warm with his own heat. But between Mars and Jupiter there's an interesting field for exploration, although not on this trip. That's the home of the planetoids I told you about. Some of them are quite large, with diameters of hundreds of miles. There was a scare some years ago when it was realised that some of these planetoids crossed the orbit of the Earth. Nervous people started talking about a collision. It could happen, but I don't think we need worry. The chances of one of them hitting us are about the same as a rifle bullet hitting an anti-aircraft shell. But we'll talk about these things another day. At present we have something nearer to interest us."

As Mars drew nearer Rex found himself marvelling that the celestial bodies, which from Earth look so much alike, could in reality be so different. The approach to Mars was very different from the approach to Venus. Venus was a land shrouded with mystery. Mars offered the whole of its face for inspection. Not that there was much to see. Apart from the canals there was not a single noteworthy feature. There were no mountains, cliffs or craters. In fact, it looked, thought Rex, as he stood regarding it, as if it

had all been ironed flat, in a broad pattern of two colours. At least three-quarters of the side facing them was the yellowish-red tint, just as he had seen the desert areas of the Middle East look from a high altitude. Indeed, he felt sure that it was desert. The rest, the canals, was now definitely green, and obviously vegetation. He looked in vain for anything like a sea, a river, or even a lake, which would now, judging from his ordinary flying experience, be reflecting the sunlight like pieces of mirror glass. As they drew still nearer it became possible to make out some wisps of tenuous mist, but of clouds such as those that cover the Earth there were none.

"It all looks very dead to me," was Tiger's opinion, after studying it through the telescope.

"I'm afraid you're right," agreed the Professor despondently. "It's too early to say definitely, but it begins to look as if those who predicted an uninhabited desert were correct. I confess I am disappointed."

Hours passed. They all stood watching the planet, no longer a globe but a vast section of one, filling the portholes.

"Of one thing we can now be pretty sure," said the Professor. "The Flying Saucers don't come from Mars. I was almost sure they did."

"What makes you think that?" asked Tiger.

"If this was their base we should by now be seeing signs, possibly in the air, but almost certainly on the ground. A vehicle as advanced as a spaceship could only result from a highly developed state of industry, which demands roads or railways for surface transport between mines, oil-fields, factories and the like. Whatever Mars may be, even through the telescope, I can see no signs of the activity, or cultivation, of our own world. As you remarked, it looks dead. That means Phobos is dead too. Why are there no mountains? There's a problem for you."

"What's your opinion of that?"

"Either they have been worn down, abraded by continual dust-storms, or disintegrated from sheer old age. Either that or the planet has been subject to a disaster of the first magnitude."

"The mountains in the Sahara are being worn down by the action of wind-blown sand."

"Exactly. It could have happened here. If Mars is older than Earth, in astronomical terms, the process could be even more advanced. We have a crumb of comfort in the thought that if there is wind there must be air. Little Phobos, I perceive, has a somewhat more rugged face. The same argument applied in reverse. If Mars stole its atmosphere, as it might by its superior gravity, there would be no wind to grind the hills to dust."

"Do you still intend to land on Phobos?"

"If I can find a suitable place. I have a theory that I'd like to put to the test, and it is this. If ever Mars carried a highly developed civilisation we shall find signs of it on Phobos. I feel that the distance between them is so small—no farther than from London to Singapore—that there must have been communication."

Nothing more was said. The little globe of Phobos, looking more and more like a miniature Moon without its craters, drew near. The Professor turned the Spacemaster and began to check the fall. Watching, Rex thought he saw the 'harbour' for which the Professor was making—a flat, sandy-looking basin surrounded by low rounded hills, destitute of any forms of vegetation. But as he stared he saw something else, something that caused him to take a new interest. "I can see houses!" he cried.

For a minute no one answered. Then Tiger said: "I can see what you mean, and they do look like dwellings of a sort."

"Probably curious rock formations," interposed the Professor. "If they were houses the people would be out by now, to look at us."

"If there were any people to come out," said Tiger. "The existence of dwellings doesn't necessarily mean that they're occupied."

In a rising atmosphere of excitement the Spacemaster continued its descent until it must have been evident to all that there was a village in the hollow. But there was still no sign of life.

A few minutes later, with dust swirling away from its jets, the landing legs of the Spacemaster grated in the sand some fifty yards or so from the nearest houses. There was no longer any doubt about them being houses. They were small square structures, the same colour as the hills, with open doors and square windows.

As movement stopped and silence fell everyone in the Spacemaster stood at his window and stared at the scene outside. Not that there was much to look at apart from the houses.

"Dead," said the Professor at last. "This, I'm afraid, is what we shall find on Mars, on a larger scale. Wait while I check the atmosphere."

It did not take him long to make his test. "Practically no atmosphere at all," he announced. "Very faint traces of oxygen and hydrogen. No use to us. I imagine Mars has gradually stolen what air there was here; for there must have been an atmosphere of sorts at one time or these houses wouldn't be here. We might as well investigate while we are on the spot, so let us get into our suits."

In twenty minutes they were ready, and the same procedure was followed as for the Moon-landing. The Professor was out first, and held on to one of the landing legs to recover his balance while waiting for the others.

While Rex had been dressing he had noticed something. Not far from where the ship had landed there appeared to be a circular cavity in the ground, as if it had been dug up and smoothed over. Spaced around this were a number of small marks. It was the regular pattern made by these that at first attracted his attention. He swayed towards them with an even more floating sensation than he had experienced on the Moon. Reaching them he stopped.

"What are you doing?" asked Tiger.

Rex did not answer at once. He looked at the marks. Turning, he looked at the ground under the Spacemaster, and saw the same basin-like hole where the sand had been churned up by the jets. He realised, too, that when the Spacemaster left the ground its legs would leave the same marks in the sand as those by which he was standing.

"I believe a spaceship has landed here," he answered. "Perhaps a Saucer."

This brought the others to his side.

"There's no doubt about it," declared the Professor. "How extraordinary! No, on second thoughts, it isn't extraordinary. The pilot of a spaceship would naturally choose the best available spot for a landing, just as I did. Of course, it may have been a long time ago. The absence of wind would leave the marks unaffected indefinitely. Well done, Rex. First discovery goes to you. Now let us look at these houses. Their structure indicates clearly a form of intelligence close to our own."

Leaving Judkins in charge of the ship they bounced their way over the dry dusty ground towards the nearest doorway; but before reaching it they pulled up and looked at each other as a significant line of mounds came into view. There was no mistaking what they were. Their shape said plainly that they were graves. There were no headstones nor any other form of decoration. Just a long straight row of heaped-up dry earth. For a moment no one spoke. Then the Professor said: "What tale of tragedy have we here? People with the intelligence to build houses would also bury their dead. The question that arises is, who did the burying? Were the bodies buried by someone from outside or by those who dwelt in these houses; for in the latter case there would be no one to bury the last survivor? Let us go on. We may find the answer."

The Professor proceeded to the doorway. There was no actual door. He went in and the others followed, to find themselves in a small square room with an earth floor. There were three articles of furniture; a bed, a table and a chair. All were fashioned in the same way and of the same material; coarse plaited rushes. Several earthenware pots of simple design stood on the floor.

"Now what are we to make of this?" murmured the Professor. "Observe, there is no wood anywhere. Obviously they had no wood, or it would have been used. You may say, neither had they any rushes, for rushes need water, and there is certainly no water on Phobos. Very well. The answer must be, the rushes, or the pieces of furniture already fabricated, must have come from Mars. In that case it follows that wood was not available on Mars—anyway, at the time these things were made. We need not, therefore, expect to find any trees on Mars. The vegetation, I suspect, is mostly rushes. Note the pots. There was water where they came from, for you can't make earthenware without clay, and you can't work clay without water. I think we can say with certainty that men very much like ourselves lived here. Let us go on."

The next house revealed the same simple furniture. So did the next, and the next.

"What did these people use for food?" asked Tiger. "There is obviously none here."

"There may have been some at one time, when there was air, although that must have been a long time ago," replied the Professor. "As I read the story these people died of starvation, and that must have been before the air disappeared entirely. They may have been supplied with food from Mars for a time, but when supplies ended, as obviously they did, the people here perished. Impossible though it may seem to us now, in view of what we can see, there must have been a time when life on Phobos was possible, or this settlement could never have come into existence. The conditions are not very unlike those we found on our own Moon, but the Moon being so much larger, life has lingered on. Phobos is finished, and, as I believe, our own Moon is on its way to final extinction."

The last house in the row produced a shock. A man was lying on the bed. He was dead. Rex didn't realise it until the Professor said so, for so wonderfully preserved was the body that it looked alive. It was that of a very tall man clad in a single garment of coarse material in the manner of a Roman toga. His features were normally human, but so woefully emaciated that he might well have died from starvation. The colour of his skin was creamy brown. His hair was long and flaxen.

“How long since he died, Professor?” asked Tiger quietly.

“I wouldn’t like to guess,” was the answer. “It might be ten years, a hundred, a thousand, or even ten thousand years. The agents of decomposition are air and water. Neither of them occur here, in which case a body, undisturbed, would be preserved indefinitely—as happens with the mummies of Ancient Egypt, in their dry, sealed tombs. The presence here of this body is of profound importance. It is the greatest discovery we have made to date. For now we know that there is, or has been, human life on at least one other planet. We also know that there is now no animal life on Phobos, for had there been, this body would have been damaged, if not consumed.”

“Could this man have been one of the crew of a spaceship that called here?” asked Rex.

“No,” answered the Professor without hesitation. “Had that been so, surely his companions would have buried him? The tragedy is, I think, plain to read. It’s inconceivable that this tiny sphere could have produced life of its own, so the man must have been a Martian. He was here with several companions. It would be idle to speculate for what purpose they came here, or were put here; but here they came and here they were abandoned, to perish miserably. This man was the last survivor. Having buried his companions he himself lay down to die. Why were these men abandoned? Why did their countrymen on Mars leave them to their fate? The answer is, I’m afraid, all too apparent. They themselves were faced with a similar end. In a word, what we have found here we shall find on the planet over the way on a bigger scale. Let’s go and look.”

“Does that mean there’s no air on Mars?” asked Rex.

“I didn’t say that. I expect to find an atmosphere there. It may be thin, and the belt may not be as wide as that which envelops our Earth; but air of some sort there certainly is, or there could be no cloud. There has always been some doubt about the amount of oxygen because our instruments are to some extent affected by the oxygen in our own atmosphere.”

By this time they had reached the Spacemaster and the Professor asked Judkins for his telescope. Through it he subjected the neighbouring planet to a close scrutiny that lasted for some time. “I can see marks that might be towns of some size, but I would rather not make a definite statement,” he announced. “The canals are without doubt bands of vegetation; and they are too straight to have been the unaided work of nature. Nature abhors straight lines. Let us go over and settle the matter. As the journey is only a short one

we'll keep our suits on. We shall probably need them again, but we can always take them off if we find they're not necessary. All aboard."

CHAPTER XIII

LAND OF LIVING DEATH

A FLIGHT—OR rather a drop—of minutes, took the Spacemaster from the little satellite to the surface of its parent, so that a vast panorama was soon exposed to view. While they were still a hundred miles away the Professor had announced, with satisfaction in his voice, that already he detected signs of air; which surprised him, for it had been reckoned by some astronomers that the atmosphere was not more than fifty miles in depth. Rex shared his satisfaction for the freedom of movement this promised. But, as will be seen, he was to be disappointed, although in view of what happened, he had no cause for complaint.

From an altitude of a few miles he looked down on a picture for which he could muster no enthusiasm; for as far as it was possible to see the surface of the planet was one vast plain, creating an impression of monotony almost beyond belief. Nine-tenths of it, he estimated, was desert, flat, sterile, hopeless. The remaining part within his view was a broad band of green that ran as straight as a railway line across the landscape to where, in the far distance, it was crossed at right angles by another. Along this unnatural line, spaced at intervals, were light-coloured patches that looked as if they might be towns of some size. He could think of nothing else they could be. He thought he could discern similar marks out in the desert, too. The Professor had been right, he decided. This strange arrangement was not the work of nature.

As the Spacemaster dropped nearer the picture became intensified, but yielded no further information. Nothing moved. Anywhere. Nothing, large or small. If the green belt was grass, and that was what it looked like, it supported no grazing animals.

"I'm going to look closer at the canals," announced the Professor.

The Spacemaster went down until it was hovering at about fifty feet.

"Grass," said Rex.

"No, reeds," contended Tiger.

"It looks to me very much like an ordinary marsh," said the Professor. "There's water there or the growth wouldn't be as green as that. What have we over here?" He took the ship some way out into the desert and brought it to a stop, still hovering, over what was unmistakably a town. From above, it

appeared not unlike one of the desert towns of Arabia. There were no trees. Not one. There was a little scrub in the nature of camel-thorn. But there was no movement of any sort. No smoke arose from chimneys. It was clear that the place was no longer inhabited.

"A melancholy picture," said the Professor. "I shall now go round to the far side of the planet, where, running into night, we shall see lights—if there is anyone to light them. It won't take us long."

The Spacemaster continued on at increasing speed, but the scene remained unchanged. More desert came into view: more canals. All were alike, with the exception of what appeared from slight shadows to be occasional undulations. As their progress brought them closer to the horizon the fiery glow of the Sun turned the barren earth to crimson, an awe-inspiring sight. Outcrops of rock flickered like flames where the light caught them. But not a tree was to be seen. No movement. No sign of life. Only the eternal desert with its green girdles rolling on endlessly.

"Dead," muttered the Professor. "Observe, my friends, how even a star can perish of old age."

Approaching the side opposite from the Sun they ran through twilight into darkness, a darkness relieved only by a dim light reflected from the satellite Deimos, which was still catching the Sun. But of lights on the ground there were none.

"Nothing," said the Professor, as he accelerated and sent the Spacemaster back into daylight. "It is a solemn and depressing thought that everything must one day perish," he added. "This, no doubt, will be the fate of the Earth one day—unless our atom-exploding experts set it off into the same state of nuclear fission as the Sun; for that, you know, is what is happening in the centre of our own little system."

"That looks like a big city, the biggest we have seen so far, at the junction of those two canals," observed Tiger. "It may have been the capital of the planet, for it's hard to see how there could have been any national divisions of territory, such as we have."

"We'll go and look at it."

"Have you reached any decision about the purpose of the canals?"

"Well, I have a theory, and it seems to be a fairly obvious one," answered the Professor. "They were once open waterways, but they have now become choked with weeds and rushes. What must have happened is clear. Mars has no seas. If ever it had any they have dried up until not a vestige remains. Wind-blown sand may have levelled the mountains, and depositing them in the seas in the form of dust, filled them up. Perhaps there

never was much water. Whether there was much or little, the planet began to dry out, just as the whole of North Africa and parts of the Middle East have dried up within our own historical records. The land that once flowed with milk and honey now flows mostly with sun-scorched sand. If that could happen there, why shouldn't it happen here in a bigger way? The Martians, seeing what was happening, strove desperately to conserve their dwindling water supply by concentrating it in canals. Towns in what is now desert, but may once have stood in fertile country, were abandoned as the water failed. New ones were built beside the artificial waterways."

"But why are there no trees?" asked Rex. "Trees hold water in the soil."

"Either there were no trees, although that seems most unlikely, or else the Martians cut too many down, thereby committing the same folly that has created the great deserts of China and elsewhere. May be they cut down their trees for the same reason—to make more arable land available to support a growing population. It is easier to create a desert than it is to stop one advancing. At every breath of wind the dust blows and the desert grows and grows until it has overrun the fertile land. That is happening on Earth, you know, in many places. Here, I feel sure, we are seeing the ultimate result. But there is still a question for which I can find no answer."

Tiger spoke. "You mean, why did the people die? Why did they let their canals become overgrown? Even now, just under the surface, there must be water. With heat and water, and a reasonable supply of air, which you say there is, food could be grown."

"You have hit the nail on the head. Why *did* they die? Some of the canals may have been overwhelmed in the desert, but not all of them. The margin of those which we can see below would support a considerable population. There must have been something else to account for the wholesale extermination of men and animals. Look at the city below us. Observe the splendid square in the middle and the noble buildings around it; no doubt the administrative centre. They could only have been the work of a great civilisation. If any men were left alive it would be here. We should see them moving about. I can't see one."

"What would they eat?" inquired Tiger.

"You might well ask. But these people didn't die of hunger. Had they retained their strength they would have tilled the fertile banks of the canals, if nothing more. But I see no sign of cultivation. That ground would graze herds of cattle. Why are there no cattle? I refuse to believe that there never were animals, or edible vegetables, on a planet as well adapted for life as our

own world. No. These people were overtaken by calamity, sudden or perhaps extended over years. Anyway, they appear to have gone."

"Suppose we go down and have a closer look," suggested Tiger. "I must say it's all very mystifying."

"Could the planet have passed through a belt of poisonous gas?" suggested Rex.

"No. At present we are in a thin but not unhealthy atmosphere. Poison gas would have killed the vegetation, which, as we can see, is thriving. I will land in the big square. There is ample room. On the ground we may learn the answers to these perplexing questions."

Five minutes later the Spacemaster was standing in the middle of the square, with all eyes at the windows gazing at a sight that would have caused no surprise on Earth, but one which, in the circumstances, could only be regarded in astonishment.

To start with, the square, which was literally a square with sides not less than a hundred yards in length, was paved. The Spacemaster's legs were resting on great slabs of hewn stone. All round the square ran a broad road, with stone seats at intervals. Beyond the road, and lining it, were buildings of a character that could only have been designed and executed by an advanced civilisation. On one side, the houses, like the municipal buildings in a country town, were larger than the others. Dust lay everywhere. Drifts of it crossed the road and in some places was heaped high against the buildings.

"This gives me a feeling of being in ancient Rome—without the Romans," remarked Tiger.

"It's very wonderful," said the Professor, in a hushed voice. "Words almost fail me. I can determine what the atmosphere is like now that we are at ground level." Turning, he busied himself with his instruments, opening the pressure valve and taking a sample of air.

He seemed doubtful about the result. Finally, making up his mind, he said: "I believe we could manage for a little while without our cosmosuits, but as the sudden shock might have us gasping for breath it would be better not to risk it. One must remember that when the supply of oxygen fails one has little warning of approaching unconsciousness. A moment of uncertainty, then black-out. We will keep on our suits."

This, to Rex, was a great disappointment. He had hoped to be free to run about if he felt like it. However, he obeyed the order, of course, little guessing what failure to have done so would have meant.

“You can empty the rubbish bins, Judkins, while we are absent,” ordered the Professor. “After that I would like you to close the door, or, at the slightest breeze, with all this dust about, the cabin is likely to be filled with grit. We don’t want dust floating about in the air all the way home.”

“I shall take care that doesn’t happen, sir,” acknowledged Judkins.

“Then let us take a little walk and see what this strange city in the sky has to offer for our inspection.” The Professor unscrewed the escape panel.

Presently they all stepped out on to the paving and looked about them. “The trouble in this case is, there is too much to see,” said the Professor. “The problem is to know where to start. At least we have no dinosaurs to make exploration uncomfortable,” he added cheerfully.

“Just a minute,” said Tiger, in a strange voice. “I can see a man over there.”

“A man? Where?” demanded the Professor tersely.

“Outside that house on the right. Isn’t that a man sitting on the ground with his back to the wall? I can see two or three more farther along.”

“Indeed, I think you’re right,” answered the Professor. “The one you first mentioned appears to be looking at us. If he is, why doesn’t he come over? They can’t have visitors from other planets so often that they aren’t worth standing up to look at. Unless, of course, the man is another corpse.”

“He’s alive,” asserted Tiger. “I saw him move an arm.”

“Let’s go over to him. He must be harmless, or helpless—I don’t know which.”

They started walking towards the sitting figure, which they soon saw was identical with the man they had seen on Phobos. But just before they reached him they stopped instinctively when a tall stooping figure appeared from another doorway. They watched him walk slowly with faltering steps to the nearest seat, on which he sank in an attitude of utter dejection.

“That man is ill,” said the Professor.

“Or blind,” suggested Tiger.

“Possibly both. But a blind man doesn’t necessarily lack virility. That poor fellow walked as if every step was an effort.” The Professor began to move forward.

“I don’t like this,” murmured Tiger, a note of anxiety creeping into his voice. “There’s something wrong somewhere. I’ve learned to place reliance in my instinct, and it’s warning me to watch my step. There’s something here. I don’t know what it is, but it’s grim.”

“What can there be to fear?” asked the Professor, a trifle impatiently, still walking forward. “I see no beasts, savage or otherwise. I took a sample of the air. It’s weak, but not dangerously so, and it certainly isn’t lethal.”

“Have it your own way,” conceded Tiger, following.

They reached the first man on the seat. Of middle age, as a type he was exactly the same as the corpse they had seen on Phobos; and he was nearly as emaciated. He may have heard them coming, for he half raised his head and gazed at them with lacklustre eyes. Rex noticed with disgust that there were several ants crawling on him, but he made no attempt to dislodge them.

The Professor raised a hand in greeting, for as he was in his helmet, vocal sounds were of course impossible.

The man took no notice. His head sank a little lower on his chest.

“He’s in a bad way,” said Tiger quietly. “If it isn’t plain starvation, he’s suffering from disease of some sort.”

“There’s nothing we can do for him,” stated the Professor. “Apart from the fact that we are encased in canvas, I didn’t come prepared for anything like this. I wonder what his ailment is. I don’t recognise any symptoms.”

“I can tell you what’s the matter with him,” answered Tiger.

“What is it?”

“He’s suffering from sleepy sickness—or something of that nature. I’ve seen cases in Africa. The virus is carried by the tsetse-fly, which depends normally on the blood of animals for food. I see neither animals nor flies here. Nevertheless, that wretched man is rotten with a virus or an infection of some sort. The same with those other fellows over there. They’re all suffering from the same disorder and they’ve got it pretty badly. If I’m any judge, none of them is long for this world. I wonder if that’s what’s wrong with the whole place? I mean, is this the thing that has wiped out the population with the exception of these few survivors we see here?”

“But people subject constantly to a virus usually develop an immunity against it,” argued the Professor.

“Not always. In parts of Africa the natives die like flies from sleepy sickness, and they’ve been exposed to it for goodness knows how long.”

“What about ants?” asked Rex. “I see plenty about. Could they carry disease?”

“Ants may bite or sting, but they don’t usually carry infection,” answered the Professor. “That, I admit, is the way of ants on Earth. These may be different, but I can’t imagine ants wiping out an entire population. Mosquitoes might do it. I see some about.”

Rex had already brushed from his helmet some that were obstructing his view. It so happened, too, that at this moment his eyes wandered on down a street that ended at the canal. He could see the green of it. He moved his position and looked again, for he had seen something else. Hanging over the canal was a curious brown mist. Was this, he wondered, one of the supposed desert storms that had been observed from Earth? Or locusts? He knew they moved in swarms of millions. For a moment longer he stared at the cloud, which seemed to be rising higher. Then the truth struck him. "Good heavens!" he cried. "Look at the mosquitoes rising from that bog! Did you ever see anything like that?" Even then he wasn't conscious of any immediate danger.

"Where?" asked Tiger urgently.

Rex pointed.

Tiger looked. "Unholy smoke!" he exclaimed. Then his voice rose sharply. "That's it! Mosquitoes! And by the billion by the look of it. They're coming this way. Let's get out of this. There are enough to swamp us, even if they can't eat us through our suits."

It may have been the inflection in Tiger's voice that convinced the Professor. "Yes," he agreed. "What a nuisance! But I must see inside one of these houses."

"If that swarm hits us, you'll be lucky to see the inside of the ship," rapped out Tiger. "Look at them! Over there—and over there. They're rising from every canal like brown smoke. Come on! Let's get back to the ship."

"Very well," agreed the Professor reluctantly. "I hope Judkins closed the door as I ordered. We don't want to take a load of these little beasts back home with us."

"If they did on Earth what I suspect they've done here you might find you'd been responsible for the very thing you've been so anxious to avoid," said Tiger crisply. "These bugs might turn out to be more deadly than atom bombs."

They hurried on. Looking back Rex saw that the air was now so full of insects that the Sun was dimmed. An unnatural twilight had fallen. The Sun itself was an evil-looking brown ball. The leading swarms had reached the city and were dropping into it, apparently in search of food. A thrill of horror swept over him as he realised that against such an attack the few surviving Martians could do nothing. Day after day their strength was being sapped by an enemy they were powerless to resist. Knowing it, they had abandoned themselves to their fate.

The party arrived at the ship just in time. Judkins must have seen them hurrying, and guessing that something was amiss stood ready to open the door and let them in. They bundled inside and Judkins slammed it behind them. Within a minute visibility had been reduced to zero by the hordes of insects that smothered the windows.

"Careful everybody!" said the Professor tersely. "Let no one remove his suit. Some may have got in with us. Oxygen, Judkins. Full pressure. That should either poison them with an overdose of oxygen or crush them to death. If these little beasts can kill people who must have developed some immunity, think what they could do to us, who have no immunity at all. Bless my soul! What a spectacle! Who could have imagined such a thing? Thank goodness we were wearing our suits, or this could have had fatal results. Fever might have developed during our long journey home, in which case the ship would have arrived somewhere out of control. How very disappointing. I hadn't time to see inside a single house. What a tragedy!"

"It's a bigger tragedy for those unfortunate people outside," said Tiger soberly.

"Dreadful. Poor creatures! It seems awful to leave them, but what can we do?"

"Nothing," answered Tiger.

The Professor hesitated. "You're quite right. We are helpless. I'll come back another day better equipped to deal with such a situation. The remarkable thing is, from Earth, through our telescopes we have often seen brown clouds on Mars. The general opinion was that they were sandstorms. And, indeed, there might well have been sandstorms here. But I am beginning to wonder if they were not insectstorms—swarms beyond imagination. But who in the name of everything that is incredible would have thought of that?"

"No one," replied Tiger. "What strikes me as equally remarkable is the fact that these people, who had obviously reached a high state of civilisation, and must have perceived their danger long ago, never discovered an insecticide."

"The substances we use may not be available on Mars," the Professor pointed out. "In that case their position would have been hopeless from the start. Nor apparently did they possess medicines, or other remedies. What we see here might well have happened in our own tropics had the natives not discovered the properties of quinine, for instance, which as you know is a derivative from the bark of a tree. There are no trees of any sort here. In

losing their trees, assuming that there must have been some at one period, the Martians lost everything."

"Extraordinary!" murmured Tiger. "Judging from the cities there must once have been a great and healthy population on Mars, and not so long ago. It seems fantastic that it could have been wiped out by so small a thing as a mosquito."

"That, no doubt, is what happened," declared the Professor. "It became a war of man versus insects, and the insects won. When the deserts began to overrun the land the people dug canals, either for irrigation purposes or to halt the advance of the encroaching sands. It must have been a tremendous undertaking, but it was done. Alas for them, the mosquitoes concentrated along the waterways. These conditions so suited them that they multiplied exceedingly and took possession. We can believe that the Martians put up a fight, but what could they do against such an army? Inoculated daily with poison by the mosquitoes, sickness overtook them until it became a plague, a pestilence. Once the people started to die faster than they could be born the end was a foregone conclusion. The fewer the number of living bodies, the faster would be the rate of mortality of the survivors; for there appears to be no alternative food supply for the insects. Dear dear, how dreadful! Mind you, this havoc isn't the work of a few years. The struggle for survival may have been going on for thousands of years, perhaps tens of thousands. But it is now nearing its inevitable end. The only survivors are the few who must have had a greater resistance than the majority, and even they, as we saw, appear to have lost the will to live. Which is no matter for wonder. In the end the mosquitoes will have destroyed themselves as well, for when the food supply gives out nothing awaits them but starvation. What a strange thing life is to be sure. Always something must die that something else may live."

"If these mosquitoes could be exterminated Mars would once more become a habitable world, I imagine," said Tiger.

"With cities and towns already built, waiting for the new population," murmured Rex.

The Professor looked at the mass of insects that blotted out his window. "Observe, my friends, how little it needs to destroy, not merely a nation but a world. If only men on Earth could see what we have seen here, and learn that mighty lesson, perhaps they would spend less time trying to exterminate each other. But I think any invaders we took on board must now be dead. They wouldn't last long in this atmosphere. We'll take off our suits and have something to eat; then we'll start for home. I shall have plenty to think about

on the way. It seems cowardly to abandon those unfortunate wretches outside, but there's nothing we can do about it today."

"Does that mean you're thinking of coming back?" asked Tiger.

"Certainly. But not in this ship. Something much larger will be required to carry the equipment that would be necessary to make Mars once more a healthy world."

"You think it could be done?" asked Rex.

"Why not? We have this great advantage. We know where the enemy hides. We can see plainly the narrow margins in which his forces are concentrated—a different matter from having great jungles to deal with. But we can discuss the whole question later."

The Professor went to his control table. The jets began to hum. In a flash the mosquitoes had been swept clear of the windows, but below the ship the great brown cloud persisted.

A moment later it was evident to everyone that something was wrong. The jets changed their note. The ship faltered, and then went on, making a most extraordinary noise.

"What is it?" asked Rex, in a strained voice.

"The mosquitoes," answered the Professor. "They're being sucked into the intakes in such numbers that they're choking the exhaust nozzles."

As if to confirm his words there came a series of sharp pops from below.

"She'll blow them out and clear herself, I think," said the Professor calmly.

Rex looked down, for the windows were now clear. The cloud was still thick, but to his great relief it began to pale, and the jets, after a few more explosive pops, took up their normal note. Another minute and they were above the menace, at which he could only stare appalled, for nothing else could be seen. Somewhere below the cloud, now swirling where the exhausts struck it, was the lost city of the Martians. As the Spacemaster, picking up speed, rose higher, the haze of insects could be seen sweeping over the ground in waves. To Rex, the sight of these victorious armies was more unnerving than had been the monsters of Venus.

The Professor spoke. "Before we left the Earth, my colleagues, I warned you that we might encounter unexpected perils. But I must confess, and I do so frankly, that to be grounded by insects was something far outside the limits of my imagination. However, all is well."

The Spacemaster accelerated for its homeward passage.

CHAPTER XIV

THE LAST PROBLEM

WHEN, eight days later, in the after-glow of a fine sunset, the Spacemaster dropped gently into its nest at Glensalich Castle, Rex had no suspicion that his adventures had not ended.

Their journeys into the realms of space were over, for the time being at any rate, and he was looking forward to getting his feet once more on the good earth of his own planet. It had all been a wonderful experience, but he felt that a rest in normal conditions, with some healthy exercise, would be welcome. This may have been reaction, due to some extent to the depression which they had all suffered from contemplation of the miserable fate fast overtaking the people of Mars. This had formed the chief topic of conversation all the way home. That the Professor's extraordinary brain was already busy on possible methods of relief was evident from remarks he made. To save a dying race of men, reflected Rex, would certainly be a great and humane undertaking, and one which, were he invited to join, he could not without shame decline. After all, the Martians were not monsters, or ape-men. They were people like themselves, and the Professor was only expressing how they all felt about it when he said that something should be done. Insecticides from Earth to destroy the blight, and modern drugs to cure the sick, might still save the entire population of the planet from extinction.

Such thoughts as these still exercised Rex's mind as they dismounted from the Spacemaster and stood for a little while beside it to regain their sense of normal balance. Actually, there were fewer after effects than the Professor had anticipated. A slight dizziness and a pronounced heaviness of the limbs were the chief symptoms. However, these soon passed off, so leaving the Spacemaster where it stood they made their way into the house for a hot bath and a square meal before tidying up the ship and putting it in its hangar.

It was the Professor who went first into the study, to deposit the camera and his notebooks. The others heard him cry out, and hurrying in after him saw the reason.

A man, a man in a dark suit, with an expressionless face and cold eyes, was standing at the far side of the table. In his hand, held level, was an automatic. From the state of the room it was evident that he had been engaged in searching it when he was interrupted. Cupboard doors were

open. Drawers had been pulled out and their contents strewn on the floor. The man did not look in the least embarrassed from having been discovered in a criminal act.

The Professor raised an accusing finger. “What are you doing here, you rascal?” he demanded wrathfully.

The man’s eyelids dropped a little. He did not answer.

“Did you hear me?” cried the Professor. “Put that pistol away or it’ll be the worse for you. I’m a dangerous man, and I don’t like these monkey tricks.”

The man merely smiled crookedly.

A slight movement behind made Rex turn. Another man, with the same sallow skin and expressionless face, was standing in the doorway. He, too, pointed an automatic.

Naturally, the first thought that struck Rex was that the men were common burglars; but he dismissed it instantly. These were no ordinary housebreakers. They neither looked nor behaved like burglars. There was something sinister about them, and a disconcerting confidence. He had a suspicion of what they were after. Suspicion hardened swiftly to certainty. The Professor’s fears of this sort of trouble were now justified.

“Where are the plans?” asked the man by the table, in an even voice with a marked foreign accent.

“Plans of what?” demanded the Professor.

“Of the airship.”

“Ah! So that’s what you’re after, is it, you rogues?” answered the Professor curtly. “You’re wasting your time. There are no plans.”

“Where are the plans?” repeated the man, in an ominously calm voice.

The Professor, white-faced, glared at the speaker. “I have already told you there are no plans; and my foresight in destroying them is now rewarded. I’ll see you go to prison for this, you villains.”

“Talk less,” was the harsh reply. “If you not give the plans I shoot all of you and find them.” The man spoke quietly, but the threat was none the less real for that.

“I cannot give you something that doesn’t exist,” snapped the Professor. “As for shooting us, you will gain nothing by that. For when I die my secrets die with me. Where do you come from?”

The man ignored the question. “What I shall gain is the airship. You have landed in it.”

“Ha! Tinker with that, you nasty man, and you’re likely to bump your head on the Moon.”

“You shall show us how to make it work.”

“Are you an engineer as well as a spy?”

“I am engineer. You shall show me the airship or I will kill you.”

The Professor turned to Tiger. “You see what dreadful people there are in the world,” he said sadly. “I was right to take precautions, but you were sceptical.”

“Not talk so much,” said the man shortly.

Tiger spoke. “What gave you the idea that there was an airship here?”

“We know. We watch. We see. Not talk so much.”

“That pony boy was right about strangers on the hill,” averred the Professor. “I should have taken heed, but I was thinking more of newspaper men.”

“We go to the airship,” decided the man. “Lead!”

“This is no ordinary airship, you realise that?” said Tiger.

“We know.”

The Professor interposed. “What would you say if I told you we have just been to Mars? Ah! That makes you stare. No doubt your wicked master would like to go to Mars and enslave the people there.” The Professor smiled mirthlessly and glanced at Tiger. “What a time they would have.”

The man reached for some photographs that he must have taken from a drawer. “Mars?” he queried.

“No, that’s only the Moon,” answered the Professor. “Very good photographs, I think, although I took them. Presently your astronomers shall have copies, for I work for the world, not myself.”

Rex wondered what all this was leading up to, for the Professor’s manner had changed, as if, in his enthusiasm for his work, he had forgotten who and what these men were. For that they were enemy spies, and dangerous ones, was no longer in doubt.

“We go to the airship,” said the man who had done the talking. “Lead!”

“Very well,” agreed the Professor. “If you’re so anxious to see it, there’s no reason why you shouldn’t. Naturally, I’m rather proud of it,” He winked at Tiger. “I think perhaps it’s the best way. No use being shot——”

“Lead!” cut in the man peremptorily.

“All right. You needn’t be so unpleasant about it.”

With one of the men walking in front, and the other behind, the party made its way to the hangar. “There’s nothing here except tools,” said the Professor casually, passing on to the concrete apron. “Judkins, you’d better stay here to switch on the lights, should I call for them.”

The eyes of both men were now on the Spacemaster; and it may have been eagerness to examine it that caused them to ignore the fact that Judkins had dropped behind. Rex himself would have paid no attention to the incident, which was trivial and innocent in itself, had he not intercepted a meaning glance between the Professor and Judkins. This made him suspect that there was an understanding between them, but he little guessed what it was.

“Of course, you can’t see much from here,” went on the Professor, when they reached the Spacemaster. “The motive power is, as no doubt you have guessed, something new and quite unorthodox. It is that alone which makes vertical flight possible. The controls are fairly simple.”

“Show!” ordered the man who had done the talking.

“Now look here,” said the Professor sternly, “don’t you attempt to take the airship away. If you do, it will be at your own risk.”

“Show,” was the curt order.

The Professor shrugged. “If you say so. You hold the gun.” To Tiger and Rex he said: “You’d better wait here or we shall get in each other’s way inside.” With that he went lightly up the steps into the cabin. The two men followed him.

Rex, still puzzled, could hear him talking inside about pressure, oxygen and the like, in a manner that suggested that his enthusiasm had run away with his discretion. He looked at Tiger. “What’s he telling them?”

“Leave him alone,” replied Tiger. “I don’t know what his game is, but I fancy *he* knows.”

“Here are the controls,” the Professor was explaining. “Here is the starting switch—so. But it’s getting hard to see. We’d better have some lights. My man will put them on from the hangar. Just a moment.” The Professor appeared in the doorway. “Right!” he shouted, “Let her go.”

After that things happened so fast that Rex could hardly keep pace with them.

As he finished speaking the Professor jumped out, and grabbing Rex and Tiger, pulled them sideways with him. Simultaneously the jets roared. Blue exhaust haze swirled. One of the men appeared at the door of the Spacemaster, gun raised, as if he were undecided whether to shoot or jump

out. His hesitation was fatal. But, of course, as Rex realised later, he couldn't have had the faintest notion of what was going to happen.

What did happen was, the Spacemaster went up like a rocket.

The speed of its ascent made even Rex gasp; for this was the first time he had seen it from outside when it was under propulsion. In a matter of seconds it was a small dark spot in the sky, rapidly diminishing in size until it was lost to sight. When he realised what had happened—or thought he did—a cry of despair came from his lips. "Professor!" he shouted. "They've got the ship."

"I think it would be more correct to say that the ship has got them," answered the Professor calmly, still gazing up with his spectacles on the end of his nose. "They came to take my ship, the scoundrels. Now they've got it. I hope they're enjoying it. As they've got what they wanted they have no cause for complaint—even if they could complain."

"What do you mean by that?" asked Tiger.

"By now they are dead men," replied the Professor quietly. "Such men deserve to die for they are a menace to mankind. We need not wonder to what deadly uses they would have put my ship had they succeeded in their purpose."

"Do you really mean they're *dead*?" asked Rex, in a whisper.

"I set the take-off at twelve gravities," answered the Professor evenly. "No human being could stand that for long. Besides, the door was open, and at such velocity the air inside would be sucked out instantly."

"Couldn't they have shut it?"

"Shut it? My dear boy, at an acceleration of twelve gravities they would be clamped to the floor as if by steel bands. You may remember what it was like in the lower atmosphere at four gravities, and that was a gradual acceleration. Be sure I was taking no risks of allowing them to escape with a weapon capable of destroying civilisation. No. Indeed no. I may tell you now that when I stepped into the Spacemaster a moment ago I was prepared to sacrifice myself rather than allow that to happen. As it turned out that wasn't necessary. Those wicked men, in their anxiety to learn my secret, gave me a chance to escape their fate. Otherwise, I would now be with them. Judkins, good man, knew what I intended he should do when I stopped him at the remote control switch."

Understanding dawned in Rex's eyes. "So *he* sent the ship up?"

"At my signal. He was obeying my orders."

There was a brief silence as the full force of the Professor's words sank home.

Judkins appeared. "I trust I did the right thing, sir?"

"You did, indeed, Judkins. Thank you."

"But we've lost the ship," said Rex miserably.

"That matters little," answered the Professor. "It was showing signs of wear and I wouldn't have risked another long journey in it. Besides, I have several modifications in mind for improved performance and comfort of travelling. I shall need a new and bigger ship for the rescue trip to Mars."

Another pause.

"Where is the Spacemaster likely to finish up?" asked Tiger. "It would be a tragedy if it fell in Russia."

"There's not the slightest fear of that," replied the Professor confidently. "Travelling at far above escape velocity it will hurtle through all solar gravities to the deep cosmic spaces beyond. It may one day collide with one of the stars in the outer universe."

"How long is that likely to take?" asked Rex.

"If the Spacemaster holds together, which seems unlikely, it might hit a star in perhaps a million years. A strange thought, isn't it, that long after we are dead and forgotten, my little ship, with the men who would have stolen it, will still be somewhere far out in space, silent and alone, sailing round some eternal orbit. By that time things on Earth, and, indeed, in the Universe, will have changed. Men may have found it no longer necessary to spy on each other. But after this distressing incident let us go in and have our baths. Judkins, I am sure, will do his best for us at the table."

Each busy with his own thoughts they walked slowly back to the house.

THE END

TRANSCRIBER NOTES

Misspelled words and printer errors have been corrected. Where multiple spellings occur, majority use has been employed.

Punctuation has been maintained except where obvious printer errors occur.

Some illustrations were moved to facilitate page layout.

[The end of *Kings of Space--A Story of Interplanetary Exploration* by Capt. W. E. (William Earl) Johns]