

ГЕРБЕРТ УЭЛЛС

THE FIRST MEN
IN THE MOON

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The First Men in the Moon

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Содержание

Chapter 1. Mr. Bedford Meets Mr. Cavor at Lympne	4
Chapter 2. The First Making of Cavorite	25
Chapter 3. The Building of the sphere	35
Chapter 4. Inside the Sphere	45
Chapter 5. The Journey to the Moon	50
Chapter 6. The Landing on the Moon	57
Chapter 7. Sunrise on the Moon	62
Chapter 8. A Lunar Morning	69
Конец ознакомительного фрагмента.	70

Wells, H. G

The First Men in the Moon

Chapter 1. Mr. Bedford Meets Mr. Cavor at Lypne

As I sit down to write here amidst the shadows of vine-leaves under the blue sky of southern Italy, it comes to me with a certain quality of astonishment that my participation in these amazing adventures of Mr. Cavor was, after all, the outcome of the purest accident. It might have been any one. I fell into these things at a time when I thought myself removed from the slightest possibility of disturbing experiences. I had gone to Lypne because I had imagined it the most uneventful place in the world. "Here, at any rate," said I, "I shall find peace and a chance to work!"

And this book is the sequel. So utterly at variance is destiny with all the little plans of men. I may perhaps mention here that very recently I had come an ugly cropper in certain business enterprises. Sitting now surrounded by all the circumstances of wealth, there is a luxury in admitting my extremity. I can admit, even, that to a certain extent my disasters were conceivably of my own making. It may be there are directions in which I have

some capacity, but the conduct of business operations is not among these. But in those days I was young, and my youth among other objectionable forms took that of a pride in my capacity for affairs. I am young still in years, but the things that have happened to me have rubbed something of the youth from my mind. Whether they have brought any wisdom to light below it is a more doubtful matter. It is scarcely necessary to go into the details of the speculations that landed me at Lympe, in Kent. Nowadays even about business transactions there is a strong spice of adventure. I took risks. In these things there is invariably a certain amount of give and take, and it fell to me finally to do the giving reluctantly enough. Even when I had got out of everything, one cantankerous creditor saw fit to be malignant. Perhaps you have met that flaming sense of outraged virtue, or perhaps you have only felt it. He ran me hard. It seemed to me, at last, that there was nothing for it but to write a play, unless I wanted to drudge for my living as a clerk. I have a certain imagination, and luxurious tastes, and I meant to make a vigorous fight for it before that fate overtook me. In addition to my belief in my powers as a business man, I had always in those days had an idea that I was equal to writing a very good play. It is not, I believe, a very uncommon persuasion. I knew there is nothing a man can do outside legitimate business transactions that has such opulent possibilities, and very probably that biased my opinion. I had, indeed, got into the habit of regarding this unwritten drama as a convenient little reserve put by for a rainy day. That rainy day

had come, and I set to work.

I soon discovered that writing a play was a longer business than I had supposed; at first I had reckoned ten days for it, and it was to have a pied-a-terre while it was in hand that I came to Lympne. I reckoned myself lucky in getting that little bungalow.

I got it on a three years' agreement. I put in a few sticks of furniture, and while the play was in hand I did my own cooking. My cooking would have shocked Mrs. Bond. And yet, you know, it had flavour. I had a coffee-pot, a sauce-pan for eggs, and one for potatoes, and a frying-pan for sausages and bacon— such was the simple apparatus of my comfort. One cannot always be magnificent, but simplicity is always a possible alternative.

For the rest I laid in an eighteen-gallon cask of beer on credit, and a trustful baker came each day. It was not, perhaps, in the style of Sybaris, but I have had worse times. I was a little sorry for the baker, who was a very decent man indeed, but even for him I hoped.

Certainly if any one wants solitude, the place is Lympne. It is in the clay part of Kent, and my bungalow stood on the edge of an old sea cliff and stared across the flats of Romney Marsh at the sea. In very wet weather the place is almost inaccessible, and I have heard that at times the postman used to traverse the more succulent portions of his route with boards upon his feet. I never saw him doing so, but I can quite imagine it. Outside the doors of the few cottages and houses that make up the present village big birch besoms are stuck, to wipe off the worst of the

clay, which will give some idea of the texture of the district. I doubt if the place would be there at all, if it were not a fading memory of things gone for ever. It was the big port of England in Roman times, Portus Lemanis, and now the sea is four miles away. All down the steep hill are boulders and masses of Roman brickwork, and from it old Watling Street, still paved in places, starts like an arrow to the north. I used to stand on the hill and think of it all, the galleys and legions, the captives and officials, the women and traders, the speculators like myself, all the swarm and tumult that came clanking in and out of the harbour. And now just a few lumps of rubble on a grassy slope, and a sheep or two – and I. And where the port had been were the levels of the marsh, sweeping round in a broad curve to distant Dungeness, and dotted here and there with tree clumps and the church towers of old medical towns that are following Lemanis now towards extinction.

That outlook on the marsh was, indeed, one of the finest views I have ever seen. I suppose Dungeness was fifteen miles away; it lay like a raft on the sea, and farther westward were the hills by Hastings under the setting sun. Sometimes they hung close and clear, sometimes they were faded and low, and often the drift of the weather took them clean out of sight. And all the nearer parts of the marsh were laced and lit by ditches and canals.

The window at which I worked looked over the skyline of this crest, and it was from this window that I first set eyes on Cavor. It was just as I was struggling with my scenario, holding down

my mind to the sheer hard work of it, and naturally enough he arrested my attention.

The sun had set, the sky was a vivid tranquillity of green and yellow, and against that he came out black – the oddest little figure. He was a short, round-bodied, thin-legged little man, with a jerky quality in his motions; he had seen fit to clothe his extraordinary mind in a cricket cap, an overcoat, and cycling knickerbockers and stockings. Why he did so I do not know, for he never cycled and he never played cricket. It was a fortuitous concurrence of garments, arising I know not how. He gesticulated with his hands and arms, and jerked his head about and buzzed. He buzzed like something electric. You never heard such buzzing. And ever and again he cleared his throat with a most extraordinary noise.

There had been rain, and that spasmodic walk of his was enhanced by the extreme slipperiness of the footpath. Exactly as he came against the sun he stopped, pulled out a watch, hesitated.

Then with a sort of convulsive gesture he turned and retreated with every manifestation of haste, no longer gesticulating, but going with ample strides that showed the relatively large size of his feet – they were, I remember, grotesquely exaggerated in size by adhesive clay – to the best possible advantage.

This occurred on the first day of my sojourn, when my playwriting energy was at its height and I regarded the incident simply as an annoying distraction – the waste of five minutes. I returned to my scenario. But when next evening the apparition

was repeated with remarkable precision, and again the next evening, and indeed every evening when rain was not falling, concentration upon the scenario became a considerable effort.

"Confound the man," I said, "one would think he was learning to be a marionette!" and for several evenings I cursed him pretty heartily.

Then my annoyance gave way to amazement and curiosity. Why on earth should a man do this thing? On the fourteenth evening I could stand it no longer, and so soon as he appeared I opened the french window, crossed the verandah, and directed myself to the point where he invariably stopped.

He had his watch out as I came up to him. He had a chubby, rubicund face with reddish brown eyes – previously I had seen him only against the light.

"One moment, sir," said I as he turned. He stared. "One moment," he said, "certainly. Or if you wish to speak to me for longer, and it is not asking too much – your moment is up – would it trouble you to accompany me?"

"Not in the least," said I, placing myself beside him.

"My habits are regular. My time for intercourse – limited."

"This, I presume, is your time for exercise?"

"It is. I come here to enjoy the sunset."

"You don't."

"Sir?"

"You never look at it."

"Never look at it?"

"No. I've watched you thirteen nights, and not once have you looked at the sunset – not once."

He knitted his brows like one who encounters a problem.

"Well, I enjoy the sunlight – the atmosphere – I go along this path, through that gate" – he jerked his head over his shoulder —"and round—"

"You don't. You never have been. It's all nonsense. There isn't a way. To-night for instance—"

"Oh! to-night! Let me see. Ah! I just glanced at my watch, saw that I had already been out just three minutes over the precise half-hour, decided there was not time to go round, turned—"

"You always do."

He looked at me – reflected. "Perhaps I do, now I come to think of it. But what was it you wanted to speak to me about?"

"Why, this!"

"This?"

"Yes. Why do you do it? Every night you come making a noise —"

"Making a noise?"

"Like this." I imitated his buzzing noise. He looked at me, and it was evident the buzzing awakened distaste.

"Do I do that?" he asked.

"Every blessed evening."

"I had no idea."

He stopped dead. He regarded me gravely. "Can it be," he said, "that I have formed a Habit?"

"Well, it looks like it. Doesn't it?"

He pulled down his lower lip between finger and thumb. He regarded a puddle at his feet.

"My mind is much occupied," he said. "And you want to know why! Well, sir, I can assure you that not only do I not know why I do these things, but I did not even know I did them. Come to think, it is just as you say; I never _have_ been beyond that field... And these things annoy you?"

For some reason I was beginning to relent towards him. "Not annoy," I said. "But – imagine yourself writing a play!"

"I couldn't."

"Well, anything that needs concentration."

"Ah!" he said, "of course," and meditated. His expression became so eloquent of distress, that I relented still more. After all, there is a touch of aggression in demanding of a man you don't know why he hums on a public footpath.

"You see," he said weakly, "it's a habit."

"Oh, I recognise that."

"I must stop it."

"But not if it puts you out. After all, I had no business – it's something of a liberty."

"Not at all, sir," he said, "not at all. I am greatly indebted to you. I should guard myself against these things. In future I will. Could I trouble you – once again? That noise?"

"Something like this," I said. "Zuzzoo, zuzzoo. But really, you know—"

"I am greatly obliged to you. In fact, I know I am getting absurdly absent-minded. You are quite justified, sir – perfectly justified. Indeed, I am indebted to you. The thing shall end. And now, sir, I have already brought you farther than I should have done."

"I do hope my impertinence—"

"Not at all, sir, not at all."

We regarded each other for a moment. I raised my hat and wished him a good evening. He responded convulsively, and so we went our ways. At the stile I looked back at his receding figure. His bearing had changed remarkably, he seemed limp, shrunken. The contrast with his former gesticulating, zuzzoing self took me in some absurd way as pathetic. I watched him out of sight. Then wishing very heartily I had kept to my own business, I returned to my bungalow and my play.

The next evening I saw nothing of him, nor the next. But he was very much in my mind, and it had occurred to me that as a sentimental comic character he might serve a useful purpose in the development of my plot. The third day he called upon me.

For a time I was puzzled to think what had brought him. He made indifferent conversation in the most formal way, then abruptly he came to business. He wanted to buy me out of my bungalow.

"You see," he said, "I don't blame you in the least, but you've destroyed a habit, and it disorganises my day. I've walked past here for years – years. No doubt I've hummed.... You've made

all that impossible!"

I suggested he might try some other direction.

"No. There is no other direction. This is the only one. I've inquired. And now – every afternoon at four – I come to a dead wall."

"But, my dear sir, if the thing is so important to you—"

"It's vital. You see, I'm – I'm an investigator – I am engaged in a scientific research. I live—" he paused and seemed to think.

"Just over there," he said, and pointed suddenly dangerously near my eye. "The house with white chimneys you see just over the trees. And my circumstances are abnormal – abnormal. I am on the point of completing one of the most important – demonstrations – I can assure you one of the most important demonstrations that have ever been made. It requires constant thought, constant mental ease and activity. And the afternoon was my brightest time! – effervescing with new ideas – new points of view."

"But why not come by still?"

"It would be all different. I should be self-conscious. I should think of you at your play – watching me irritated – instead of thinking of my work. No! I must have the bungalow."

I meditated. Naturally, I wanted to think the matter over thoroughly before anything decisive was said. I was generally ready enough for business in those days, and selling always attracted me; but in the first place it was not my bungalow, and even if I sold it to him at a good price I might get inconvenienced

in the delivery of goods if the current owner got wind of the transaction, and in the second I was, well – undischarged. It was clearly a business that required delicate handling.

Moreover, the possibility of his being in pursuit of some valuable invention also interested me. It occurred to me that I would like to know more of this research, not with any dishonest intention, but simply with an idea that to know what it was would be a relief from play-writing. I threw out feelers.

He was quite willing to supply information. Indeed, once he was fairly under way the conversation became a monologue. He talked like a man long pent up, who has had it over with himself again and again. He talked for nearly an hour, and I must confess I found it a pretty stiff bit of listening. But through it all there was the undertone of satisfaction one feels when one is neglecting work one has set oneself. During that first interview I gathered very little of the drift of his work.

Half his words were technicalities entirely strange to me, and he illustrated one or two points with what he was pleased to call elementary mathematics, computing on an envelope with a copying-ink pencil, in a manner that made it hard even to seem to understand. "Yes," I said, "yes. Go on!" Nevertheless I made out enough to convince me that he was no mere crank playing at discoveries. In spite of his crank-like appearance there was a force about him that made that impossible. Whatever it was, it was a thing with mechanical possibilities. He told me of a work-shed he had, and of three assistants – originally jobbing

carpenters – whom he had trained. Now, from the work-shed to the patent office is clearly only one step. He invited me to see those things. I accepted readily, and took care, by a remark or so, to underline that. The proposed transfer of the bungalow remained very conveniently in suspense.

At last he rose to depart, with an apology for the length of his call. Talking over his work was, he said, a pleasure enjoyed only too rarely. It was not often he found such an intelligent listener as myself, he mingled very little with professional scientific men.

"So much pettiness," he explained; "so much intrigue! And really, when one has an idea – a novel, fertilising idea – I don't want to be uncharitable, but—"

I am a man who believes in impulses. I made what was perhaps a rash proposition. But you must remember, that I had been alone, play-writing in Lympne, for fourteen days, and my compunction for his ruined walk still hung about me. "Why not," said I, "make this your new habit? In the place of the one I spoilt? At least, until we can settle about the bungalow. What you want is to turn over your work in your mind. That you have always done during your afternoon walk. Unfortunately that's over – you can't get things back as they were. But why not come and talk about your work to me; use me as a sort of wall against which you may throw your thoughts and catch them again? It's certain I don't know enough to steal your ideas myself – and I know no scientific men—"

I stopped. He was considering. Evidently the thing,

attracted him. "But I'm afraid I should bore you," he said.

"You think I'm too dull?"

"Oh, no; but technicalities—"

"Anyhow, you've interested me immensely this afternoon."

"Of course it would be a great help to me. Nothing clears up one's ideas so much as explaining them. Hitherto—"

"My dear sir, say no more."

"But really can you spare the time?"

"There is no rest like change of occupation," I said, with profound conviction.

The affair was over. On my verandah steps he turned. "I am already greatly indebted to you," he said.

I made an interrogative noise.

"You have completely cured me of that ridiculous habit of humming," he explained.

I think I said I was glad to be of any service to him, and he turned away.

Immediately the train of thought that our conversation had suggested must have resumed its sway. His arms began to wave in their former fashion. The faint echo of "zuzzoo" came back to me on the breeze...

Well, after all, that was not my affair...

He came the next day, and again the next day after that, and delivered two lectures on physics to our mutual satisfaction.

He talked with an air of being extremely lucid about the "ether" and "tubes of force," and "gravitational potential," and

things like that, and I sat in my other folding-chair and said, "Yes," "Go on," "I follow you," to keep him going. It was tremendously difficult stuff, but I do not think he ever suspected how much I did not understand him. There were moments when I doubted whether I was well employed, but at any rate I was resting from that confounded play. Now and then things gleamed on me clearly for a space, only to vanish just when I thought I had hold of them. Sometimes my attention failed altogether, and I would give it up and sit and stare at him, wondering whether, after all, it would not be better to use him as a central figure in a good farce and let all this other stuff slide.

And then, perhaps, I would catch on again for a bit. At the earliest opportunity I went to see his house. It was large and carelessly furnished; there were no servants other than his three assistants, and his dietary and private life were characterised by a philosophical simplicity. He was a waterdrinker, a vegetarian, and all those logical disciplinary things.

But the sight of his equipment settled many doubts. It looked like business from cellar to attic – an amazing little place to find in an out-of-the-way village. The ground-floor rooms contained benches and apparatus, the bakehouse and scullery boiler had developed into respectable furnaces, dynamos occupied the cellar, and there was a gasometer in the garden. He showed it to me with all the confiding zest of a man who has been living too much alone. His seclusion was overflowing now in an excess of confidence, and I had the good luck to be the recipient.

The three assistants were creditable specimens of the class of "handy-men" from which they came. Conscientious if unintelligent, strong, civil, and willing. One, Spargus, who did the cooking and all the metal work, had been a sailor; a second, Gibbs, was a joiner; and the third was an ex-jobbing gardener, and now general assistant. They were the merest labourers. All the intelligent work was done by Cavor. Theirs was the darkest ignorance compared even with my muddled impression.

And now, as to the nature of these inquiries. Here, unhappily, comes a grave difficulty. I am no scientific expert, and if I were to attempt to set forth in the highly scientific language of Mr. Cavor the aim to which his experiments tended, I am afraid I should confuse not only the reader but myself, and almost certainly I should make some blunder that would bring upon me the mockery of every up-to-date student of mathematical physics in the country. The best thing I can do therefore is, I think to give my impressions in my own inexact language, without any attempt to wear a garment of knowledge to which I have no claim.

The object of Mr. Cavor's search was a substance that should be "opaque" – he used some other word I have forgotten, but "opaque" conveys the idea – to "all forms of radiant energy."

"Radiant energy," he made me understand, was anything like light or heat, or those Rontgen Rays there was so much talk about a year or so ago, or the electric waves of Marconi, or gravitation. All these things, he said, radiate out from centres, and act on bodies at a distance, whence comes the term "radiant energy."

Now almost all substances are opaque to some form or other of radiant energy. Glass, for example, is transparent to light, but much less so to heat, so that it is useful as a fire-screen; and alum is transparent to light, but blocks heat completely. A solution of iodine in carbon bisulphide, on the other hand, completely blocks light, but is quite transparent to heat. It will hide a fire from you, but permit all its warmth to reach you. Metals are not only opaque to light and heat, but also to electrical energy, which passes through both iodine solution and glass almost as though they were not interposed.

And so on.

Now all known substances are "transparent" to gravitation. You can use screens of various sorts to cut off the light or heat, or electrical influence of the sun, or the warmth of the earth from anything; you can screen things by sheets of metal from Marconi's rays, but nothing will cut off the gravitational attraction of the sun or the gravitational attraction of the earth. Yet why there should be nothing is hard to say. Cavor did not see why such a substance should not exist, and certainly I could not tell him. I had never thought of such a possibility before.

He showed me by calculations on paper, which Lord Kelvin, no doubt, or Professor Lodge, or Professor Karl Pearson, or any of those great scientific people might have understood, but which simply reduced me to a hopeless muddle, that not only was such a substance possible, but that it must satisfy certain conditions.

It was an amazing piece of reasoning. Much as it amazed and

exercised me at the time, it would be impossible to reproduce it here. "Yes," I said to it all, "yes; go on!" Suffice it for this story that he believed he might be able to manufacture this possible substance opaque to gravitation out of a complicated alloy of metals and something new – a new element, I fancy – called, I believe, helium, which was sent to him from London in sealed stone jars. Doubt has been thrown upon this detail, but I am almost certain it was helium he had sent him in sealed stone jars. It was certainly something very gaseous and thin. If only I had taken notes...

But then, how was I to foresee the necessity of taking notes?

Any one with the merest germ of an imagination will understand the extraordinary possibilities of such a substance, and will sympathise a little with the emotion I felt as this understanding emerged from the haze of abstruse phrases in which Cavor expressed himself. Comic relief in a play indeed! It was some time before I would believe that I had interpreted him aright, and I was very careful not to ask questions that would have enabled him to gauge the profundity of misunderstanding into which he dropped his daily exposition. But no one reading the story of it here will sympathise fully, because from my barren narrative it will be impossible to gather the strength of my conviction that this astonishing substance was positively going to be made.

I do not recall that I gave my play an hour's consecutive work at any time after my visit to his house. My imagination had other

things to do. There seemed no limit to the possibilities of the stuff; whichever way I tried I came on miracles and revolutions.

For example, if one wanted to lift a weight, however enormous, one had only to get a sheet of this substance beneath it, and one might lift it with a straw. My first natural impulse was to apply this principle to guns and ironclads, and all the material and methods of war, and from that to shipping, locomotion, building, every conceivable form of human industry.

The chance that had brought me into the very birth-chamber of this new time – it was an epoch, no less – was one of those chances that come once in a thousand years. The thing unrolled, it expanded and expanded. Among other things I saw in it my redemption as a business man. I saw a parent company, and daughter companies, applications to right of us, applications to left, rings and trusts, privileges, and concessions spreading and spreading, until one vast, stupendous Cavorite company ran and ruled the world.

And I was in it!

I took my line straight away. I knew I was staking everything, but I jumped there and then.

"We're on absolutely the biggest thing that has ever been invented," I said, and put the accent on "we." "If you want to keep me out of this, you'll have to do it with a gun. I'm coming down to be your fourth labourer to-morrow."

He seemed surprised at my enthusiasm, but not a bit suspicious or hostile. Rather, he was self-depreciatory. He

looked at me doubtfully. "But do you really think—?" he said. "And your play! How about that play?"

"It's vanished!" I cried. "My dear sir, don't you see what you've got? Don't you see what you're going to do?"

That was merely a rhetorical turn, but positively, he didn't. At first I could not believe it. He had not had the beginning of the inkling of an idea. This astonishing little man had been working on purely theoretical grounds the whole time! When he said it was "the most important" research the world had ever seen, he simply meant it squared up so many theories, settled so much that was in doubt; he had troubled no more about the application of the stuff he was going to turn out than if he had been a machine that makes guns. This was a possible substance, and he was going to make it! *V'la tout*, as the Frenchman says.

Beyond that, he was childish! If he made it, it would go down to posterity as *Cavorite* or *Cavorine*, and he would be made an F.R.S., and his portrait given away as a scientific worthy with Nature, and things like that. And that was all he saw! He would have dropped this bombshell into the world as though he had discovered a new species of gnat, if it had not happened that I had come along. And there it would have lain and fizzled, like one or two other little things these scientific people have lit and dropped about us. When I realised this, it was I did the talking, and Cavor who said, "Go on!" I jumped up. I paced the room, gesticulating like a boy of twenty. I tried to make him understand his duties and responsibilities in the matter — our —

duties and responsibilities in the matter. I assured him we might make wealth enough to work any sort of social revolution we fancied, we might own and order the whole world. I told him of companies and patents, and the case for secret processes. All these things seemed to take him much as his mathematics had taken me. A look of perplexity came into his ruddy little face. He stammered something about indifference to wealth, but I brushed all that aside. He had got to be rich, and it was no good his stammering. I gave him to understand the sort of man I was, and that I had had very considerable business experience. I did not tell him I was an undischarged bankrupt at the time, because that was temporary, but I think I reconciled my evident poverty with my financial claims. And quite insensibly, in the way such projects grow, the understanding of a Cavorite monopoly grew up between us. He was to make the stuff, and I was to make the boom.

I stuck like a leech to the "we" – "you" and "I" didn't exist for me.

His idea was that the profits I spoke of might go to endow research, but that, of course, was a matter we had to settle later.

"That's all right," I shouted, "that's all right." The great point, as I insisted, was to get the thing done.

"Here is a substance," I cried, "no home, no factory, no fortress, no ship can dare to be without – more universally applicable even than a patent medicine. There isn't a solitary aspect of it, not one of its ten thousand possible uses that will not

make us rich, Cavor, beyond the dreams of avarice!"

"No!" he said. "I begin to see. It's extraordinary how one gets new points of view by talking over things!"

"And as it happens you have just talked to the right man!"

"I suppose no one," he said, "is absolutely averse to enormous wealth. Of course there is one thing—"

He paused. I stood still.

"It is just possible, you know, that we may not be able to make it after all! It may be one of those things that are a theoretical possibility, but a practical absurdity. Or when we make it, there may be some little hitch!"

"We'll tackle the hitch when it comes." said I.

Chapter 2. The First Making of Cavorite

But Cavor's fears were groundless, so far as the actual making was concerned. On the 14th of October, 1899, this incredible substance was made!

Oddly enough, it was made at last by accident, when Mr. Cavor least expected it. He had fused together a number of metals and certain other things – I wish I knew the particulars now! – and he intended to leave the mixture a week and then allow it to cool slowly. Unless he had miscalculated, the last stage in the combination would occur when the stuff sank to a temperature of 60 degrees Fahrenheit. But it chanced that, unknown to Cavor, dissension had arisen about the furnace tending.

Gibbs, who had previously seen to this, had suddenly attempted to shift it to the man who had been a gardener, on the score that coal was soil, being dug, and therefore could not possibly fall within the province of a joiner; the man who had been a jobbing gardener alleged, however, that coal was a metallic or ore-like substance, let alone that he was cook. But Spargus insisted on Gibbs doing the coaling, seeing that he was a joiner and that coal is notoriously fossil wood. Consequently Gibbs ceased to replenish the furnace, and no one else did so, and

Cavor was too much immersed in certain interesting problems concerning a Cavorite flying machine (neglecting the resistance of the air and one or two other points) to perceive that anything was wrong. And the premature birth of his invention took place just as he was coming across the field to my bungalow for our afternoon talk and tea.

I remember the occasion with extreme vividness. The water was boiling, and everything was prepared, and the sound of his "zuzzoo" had brought me out upon the verandah. His active little figure was black against the autumnal sunset, and to the right the chimneys of his house just rose above a gloriously tinted group of trees. Remoter rose the Wealden Hills, faint and blue, while to the left the hazy marsh spread out spacious and serene. And then— The chimneys jerked heavenward, smashing into a string of bricks as they rose, and the roof and a miscellany of furniture followed. Then overtaking them came a huge white flame. The trees about the building swayed and whirled and tore themselves to pieces, that sprang towards the flare. My ears were smitten with a clap of thunder that left me deaf on one side for life, and all about me windows smashed, unheeded. I took three steps from the verandah towards Cavor's house, and even as I did so came the wind.

Instantly my coat tails were over my head, and I was progressing in great leaps and bounds, and quite against my will, towards him. In the same moment the discoverer was seized, whirled about, and flew through the screaming air. I saw one of

my chimney pots hit the ground within six yards of me, leap a score of feet, and so hurry in great strides towards the focus of the disturbance. Cavor, kicking and flapping, came down again, rolled over and over on the ground for a space, struggled up and was lifted and borne forward at an enormous velocity, vanishing at last among the labouring, lashing trees that writhed about his house.

A mass of smoke and ashes, and a square of bluish shining substance rushed up towards the zenith. A large fragment of fencing came sailing past me, dropped edgeways, hit the ground and fell flat, and then the worst was over. The aerial commotion fell swiftly until it was a mere strong gale, and I became once more aware that I had breath and feet. By leaning back against the wind I managed to stop, and could collect such wits as still remained to me.

In that instant the whole face of the world had changed. The tranquil sunset had vanished, the sky was dark with scurrying clouds, everything was flattened and swaying with the gale. I glanced back to see if my bungalow was still in a general way standing, then staggered forwards towards the trees amongst which Cavor had vanished, and through whose tall and leaf-denuded branches shone the flames of his burning house.

I entered the copse, dashing from one tree to another and clinging to them, and for a space I sought him in vain. Then amidst a heap of smashed branches and fencing that had banked itself against a portion of his garden wall I perceived something

stir. I made a run for this, but before I reached it a brown object separated itself, rose on two muddy legs, and protruded two drooping, bleeding hands. Some tattered ends of garment fluttered out from its middle portion and streamed before the wind.

For a moment I did not recognise this earthy lump, and then I saw that it was Cavor, caked in the mud in which he had rolled. He leant forward against the wind, rubbing the dirt from his eyes and mouth.

He extended a muddy lump of hand, and staggered a pace towards me. His face worked with emotion, little lumps of mud kept falling from it. He looked as damaged and pitiful as any living creature I have ever seen, and his remark therefore amazed me exceedingly.

"Gratulate me," he gasped; "gratulate me!"

"Congratulate you!" said I. "Good heavens! What for?"

"I've done it."

"You have. What on earth caused that explosion?"

A gust of wind blew his words away. I understood him to say that it wasn't an explosion at all. The wind hurled me into collision with him, and we stood clinging to one another.

"Try and get back-to my bungalow," I bawled in his ear. He did not hear me, and shouted something about "three martyrs-science," and also something about "not much good." At the time he laboured under the impression that his three attendants had perished in the whirlwind. Happily this was incorrect. Directly

he had left for my bungalow they had gone off to the public-house in Lympne to discuss the question of the furnaces over some trivial refreshment.

I repeated my suggestion of getting back to my bungalow, and this time he understood. We clung arm-in-arm and started, and managed at last to reach the shelter of as much roof as was left to me. For a space we sat in arm-chairs and panted. All the windows were broken, and the lighter articles of furniture were in great disorder, but no irrevocable damage was done. Happily the kitchen door had stood the pressure upon it, so that all my crockery and cooking materials had survived. The oil stove was still burning, and I put on the water to boil again for tea. And that prepared, I could turn on Cavor for his explanation.

"Quite correct," he insisted; "quite correct. I've done it, and it's all right."

"But," I protested. "All right! Why, there can't be a rick standing, or a fence or a thatched roof undamaged for twenty miles round...."

"It's all right—really_. I didn't, of course, foresee this little upset. My mind was preoccupied with another problem, and I'm apt to disregard these practical side issues. But it's all right—"

"My dear sir," I cried, "don't you see you've done thousands of pounds' worth of damage?"

"There, I throw myself on your discretion. I'm not a practical man, of course, but don't you think they will regard it as a cyclone?"

"But the explosion--"

"It was not an explosion. It's perfectly simple. Only, as I say, I'm apt to overlook these little things. Its that zuzzoo business on a larger scale. Inadvertently I made this substance of mine, this Cavorite, in a thin, wide sheet...."

He paused. "You are quite clear that the stuff is opaque to gravitation, that it cuts off things from gravitating towards each other?"

"Yes," said I. "Yes."

"Well, so soon as it reached a temperature of 60 degrees Fahrenheit, and the process of its manufacture was complete, the air above it, the portions of roof and ceiling and floor above it ceased to have weight. I suppose you know-everybody knows nowadays-that, as a usual thing, the air has weight, that it presses on everything at the surface of the earth, presses in all directions, with a pressure of fourteen and a half pounds to the square inch?"

"I know that," said I. "Go on."

"I know that too," he remarked. "Only this shows you how useless knowledge is unless you apply it. You see, over our Cavorite this ceased to be the case, the air there ceased to exert any pressure, and the air round it and not over the Cavorite was exerting a pressure of fourteen pounds and a half to the square in upon this suddenly weightless air. Ah! you begin to see! The air all about the Cavorite crushed in upon the air above it with irresistible force. The air above the Cavorite was forced

upward violently, the air that rushed in to replace it immediately lost weight, ceased to exert any pressure, followed suit, blew the ceiling through and the roof off....

"You perceive," he said, "it formed a sort of atmospheric fountain, a kind of chimney in the atmosphere. And if the Cavorite itself hadn't been loose and so got sucked up the chimney, does it occur to you what would have happened?"

I thought. "I suppose," I said, "the air would be rushing up and up over that infernal piece of stuff now."

"Precisely," he said. "A huge fountain--"

"Spouting into space! Good heavens! Why, it would have squirted all the atmosphere of the earth away! It would have robbed the world of air! It would have been the death of all mankind! That little lump of stuff!"

"Not exactly into space," said Cavor, "but as bad-practically. It would have whipped the air off the world as one peels a banana, and flung it thousands of miles. It would have dropped back again, of course-but on an asphyxiated world! From our point of view very little better than if it never came back!"

I stared. As yet I was too amazed to realise how all my expectations had been upset. "What do you mean to do now?" I asked.

"In the first place if I may borrow a garden trowel I will remove some of this earth with which I am encased, and then if I may avail myself of your domestic conveniences I will have a bath. This done, we will converse more at leisure. It will be wise, I

think"-he laid a muddy hand on my arm-"if nothing were said of this affair beyond ourselves. I know I have caused great damage-probably even dwelling-houses may be ruined here and there upon the country-side. But on the other hand, I cannot possibly pay for the damage I have done, and if the real cause of this is published, it will lead only to heartburning and the obstruction of my work. One cannot foresee everything, you know, and I cannot consent for one moment to add the burthen of practical considerations to my theorising. Later on, when you have come in with your practical mind, and Cavorite is floated-floated is the word, isn't it? – and it has realised all you anticipate for it, we may set matters right with these persons. But not now-not now. If no other explanation is offered, people, in the present unsatisfactory state of meteorological science, will ascribe all this to a cyclone; there might be a public subscription, and as my house has collapsed and been burnt, I should in that case receive a considerable share in the compensation, which would be extremely helpful to the prosecution of our researches. But if it is known that I caused this, there will be no public subscription, and everybody will be put out. Practically I should never get a chance of working in peace again. My three assistants may or may not have perished. That is a detail. If they have, it is no great loss; they were more zealous than able, and this premature event must be largely due to their joint neglect of the furnace. If they have not perished, I doubt if they have the intelligence to explain the affair. They will accept the cyclone

story. And if during the temporary unfitness of my house for occupation, I may lodge in one of the untenanted rooms of this bungalow of yours--"

He paused and regarded me.

A man of such possibilities, I reflected, is no ordinary guest to entertain.

"Perhaps," said I, rising to my feet, "we had better begin by looking for a trowel," and I led the way to the scattered vestiges of the greenhouse.

And while he was having his bath I considered the entire question alone. It was clear there were drawbacks to Mr. Cavor's society I had not foreseen. The absentmindedness that had just escaped depopulating the terrestrial globe, might at any moment result in some other grave inconvenience. On the other hand I was young, my affairs were in a mess, and I was in just the mood for reckless adventure-with a chance of something good at the end of it. I had quite settled in my mind that I was to have half at least in that aspect of the affair. Fortunately I held my bungalow, as I have already explained, on a three-year agreement, without being responsible for repairs; and my furniture, such as there was of it, had been hastily purchased, was unpaid for, insured, and altogether devoid of associations. In the end I decided to keep on with him, and see the business through.

Certainly the aspect of things had changed very greatly. I no longer doubted at all the enormous possibilities of the substance, but I began to have doubts about the gun-carriage and the patent

boots. We set to work at once to reconstruct his laboratory and proceed with our experiments. Cavor talked more on my level than he had ever done before, when it came to the question of how we should make the stuff next.

"Of course we must make it again," he said, with a sort of glee I had not expected in him, "of course we must make it again. We have caught a Tartar, perhaps, but we have left the theoretical behind us for good and all. If we can possibly avoid wrecking this little planet of ours, we will. But-there must be risks! There must be. In experimental work there always are. And here, as a practical man, _you_ must come in. For my own part it seems to me we might make it edgeways, perhaps, and very thin. Yet I don't know. I have a certain dim perception of another method. I can hardly explain it yet. But curiously enough it came into my mind, while I was rolling over and over in the mud before the wind, and very doubtful how the whole adventure was to end, as being absolutely the thing I ought to have done."

Even with my aid we found some little difficulty, and meanwhile we kept at work restoring the laboratory. There was plenty to do before it became absolutely necessary to decide upon the precise form and method of our second attempt. Our only hitch was the strike of the three labourers, who objected to my activity as a foreman. But that matter we compromised after two days' delay.

Chapter 3. The Building of the sphere

I remember the occasion very distinctly when Cavor told me of his idea of the sphere. He had had intimations of it before, but at the time it seemed to come to him in a rush. We were returning to the bungalow for tea, and on the way he fell humming. Suddenly he shouted, "That's it! That finishes it! A sort of roller blind!"

"Finishes what?" I asked.

"Space-anywhere! The moon."

"What do you mean?"

"Mean? Why-it must be a sphere! That's what I mean!"

I saw I was out of it, and for a time I let him talk in his own fashion. I hadn't the ghost of an idea then of his drift. But after he had taken tea he made it clear to me.

"It's like this," he said. "Last time I ran this stuff that cuts things off from gravitation into a flat tank with an overlap that held it down. And directly it had cooled and the manufacture was completed all that uproar happened, nothing above it weighed anything, the air went squirting up, the house squirted up, and if the stuff itself hadn't squirted up too, I don't know what would have happened! But suppose the substance is loose, and quite free to go up?"

"It will go up at once!"

"Exactly. With no more disturbance than firing a big gun."

"But what good will that do?"

"I'm going up with it!"

I put down my teacup and stared at him.

"Imagine a sphere," he explained, "large enough to hold two people and their luggage. It will be made of steel lined with thick glass; it will contain a proper store of solidified air, concentrated food, water distilling apparatus, and so forth. And enamelled, as it were, on the outer steel-"

"Cavorite?"

"Yes."

"But how will you get inside?"

"There was a similar problem about a dumpling."

"Yes, I know. But how?"

"That's perfectly easy. An air-tight manhole is all that is needed. That, of course, will have to be a little complicated; there will have to be a valve, so that things may be thrown out, if necessary, without much loss of air."

"Like Jules Verne's thing in A Trip to the Moon."

But Cavor was not a reader of fiction.

"I begin to see," I said slowly. "And you could get in and screw yourself up while the Cavorite was warm, and as soon as it cooled it would become impervious to gravitation, and off you would fly-"

"At a tangent."

"You would go off in a straight line-" I stopped abruptly. "What is to prevent the thing travelling in a straight line into

space for ever?" I asked. "You're not safe to get anywhere, and if you do-how will you get back?"

"I've just thought of that," said Cavor. "That's what I meant when I said the thing is finished. The inner glass sphere can be air-tight, and, except for the manhole, continuous, and the steel sphere can be made in sections, each section capable of rolling up after the fashion of a roller blind. These can easily be worked by springs, and released and checked by electricity conveyed by platinum wires fused through the glass. All that is merely a question of detail. So you see, that except for the thickness of the blind rollers, the Cavorite exterior of the sphere will consist of windows or blinds, whichever you like to call them. Well, when all these windows or blinds are shut, no light, no heat, no gravitation, no radiant energy of any sort will get at the inside of the sphere, it will fly on through space in a straight line, as you say. But open a window, imagine one of the windows open. Then at once any heavy body that chances to be in that direction will attract us-"

I sat taking it in.

"You see?" he said.

"Oh, I _see_."

"Practically we shall be able to tack about in space just as we wish. Get attracted by this and that."

"Oh, yes. That's clear enough. Only-"

"Well?"

"I don't quite see what we shall do it for! It's really only

jumping off the world and back again."

"Surely! For example, one might go to the moon."

"And when one got there? What would you find?"

"We should see-Oh! consider the new knowledge."

"Is there air there?"

"There may be."

"It's a fine idea," I said, "but it strikes me as a large order all the same. The moon! I'd much rather try some smaller things first."

"They're out of the question, because of the air difficulty."

"Why not apply that idea of spring blinds-Cavorite blinds in strong steel cases-to lifting weights?"

"It wouldn't work," he insisted. "After all, to go into outer space is not so much worse, if at all, than a polar expedition. Men go on polar expeditions."

"Not business men. And besides, they get paid for polar expeditions. And if anything goes wrong there are relief parties. But this-it's just firing ourselves off the world for nothing."

"Call it prospecting."

"You'll have to call it that.... One might make a book of it perhaps," I said.

"I have no doubt there will be minerals," said Cavor.

"For example?"

"Oh! sulphur, ores, gold perhaps, possibly new elements."

"Cost of carriage," I said. "You know you're not a practical man. The moon's a quarter of a million miles away."

"It seems to me it wouldn't cost much to cart any weight anywhere if you packed it in a Cavorite case."

I had not thought of that. "Delivered free on head of purchaser, eh?"

"It isn't as though we were confined to the moon."

"You mean?"

"There's Mars-clear atmosphere, novel surroundings, exhilarating sense of lightness. It might be pleasant to go there."

"Is there air on Mars?"

"Oh, yes!"

"Seems as though you might run it as a sanatorium. By the way, how far is Mars?"

"Two hundred million miles at present," said Cavor airily; "and you go close by the sun."

My imagination was picking itself up again. "After all," I said, "there's something in these things. There's travel-"

An extraordinary possibility came rushing into my mind. Suddenly I saw, as in a vision, the whole solar system threaded with Cavorite liners and spheres deluxe. "Rights of pre-emption," came floating into my head-planetary rights of pre-emption. I recalled the old Spanish monopoly in American gold. It wasn't as though it was just this planet or that-it was all of them. I stared at Cavor's rubicund face, and suddenly my imagination was leaping and dancing. I stood up, I walked up and down; my tongue was unloosened.

"I'm beginning to take it in," I said; "I'm beginning to take

it in." The transition from doubt to enthusiasm seemed to take scarcely any time at all. "But this is tremendous!" I cried. "This is Imperial! I haven't been dreaming of this sort of thing."

Once the chill of my opposition was removed, his own pent-up excitement had play. He too got up and paced. He too gesticulated and shouted. We behaved like men inspired. We were men inspired.

"We'll settle all that!" he said in answer to some incidental difficulty that had pulled me up. "We'll soon settle that! We'll start the drawings for mouldings this very night."

"We'll start them now," I responded, and we hurried off to the laboratory to begin upon this work forthwith.

I was like a child in Wonderland all that night. The dawn found us both still at work-we kept our electric light going heedless of the day. I remember now exactly how these drawings looked. I shaded and tinted while Cavor drew-smudged and haste-marked they were in every line, but wonderfully correct. We got out the orders for the steel blinds and frames we needed from that night's work, and the glass sphere was designed within a week. We gave up our afternoon conversations and our old routine altogether. We worked, and we slept and ate when we could work no longer for hunger and fatigue. Our enthusiasm infected even our three men, though they had no idea what the sphere was for. Through those days the man Gibbs gave up walking, and went everywhere, even across the room, at a sort of fussy run.

And it grew-the sphere. December passed, January-I spent

a day with a broom sweeping a path through the snow from bungalow to laboratory-February, March. By the end of March the completion was in sight. In January had come a team of horses, a huge packing-case; we had our thick glass sphere now ready, and in position under the crane we had rigged to sling it into the steel shell. All the bars and blinds of the steel shell-it was not really a spherical shell, but polyhedral, with a roller blind to each facet-had arrived by February, and the lower half was bolted together. The Cavorite was half made by March, the metallic paste had gone through two of the stages in its manufacture, and we had plastered quite half of it on to the steel bars and blinds. It was astonishing how closely we kept to the lines of Cavor's first inspiration in working out the scheme. When the bolting together of the sphere was finished, he proposed to remove the rough roof of the temporary laboratory in which the work was done, and build a furnace about it. So the last stage of Cavorite making, in which the paste is heated to a dull red glow in a stream of helium, would be accomplished when it was already on the sphere.

And then we had to discuss and decide what provisions we were to take-compressed foods, concentrated essences, steel cylinders containing reserve oxygen, an arrangement for removing carbonic acid and waste from the air and restoring oxygen by means of sodium peroxide, water condensers, and so forth. I remember the little heap they made in the corner-tins, and rolls, and boxes-convincingly matter-of-fact.

It was a strenuous time, with little chance of thinking. But one

day, when we were drawing near the end, an odd mood came over me. I had been bricking up the furnace all the morning, and I sat down by these possessions dead beat. Everything seemed dull and incredible.

"But look here, Cavor," I said. "After all! What's it all for?"

He smiled. "The thing now is to go."

"The moon," I reflected. "But what do you expect? I thought the moon was a dead world."

He shrugged his shoulders.

"We're going to see."

"Are we?" I said, and stared before me.

"You are tired," he remarked. "You'd better take a walk this afternoon."

"No," I said obstinately; "I'm going to finish this brickwork."

And I did, and insured myself a night of insomnia. I don't think I have ever had such a night. I had some bad times before my business collapse, but the very worst of those was sweet slumber compared to this infinity of aching wakefulness. I was suddenly in the most enormous funk at the thing we were going to do.

I do not remember before that night thinking at all of the risks we were running. Now they came like that array of spectres that once beleaguered Prague, and camped around me. The strangeness of what we were about to do, the unearthliness of it, overwhelmed me. I was like a man awakened out of pleasant dreams to the most horrible surroundings. I lay, eyes wide open,

and the sphere seemed to get more flimsy and feeble, and Cavor more unreal and fantastic, and the whole enterprise madder and madder every moment.

I got out of bed and wandered about. I sat at the window and stared at the immensity of space. Between the stars was the void, the unfathomable darkness! I tried to recall the fragmentary knowledge of astronomy I had gained in my irregular reading, but it was all too vague to furnish any idea of the things we might expect. At last I got back to bed and snatched some moments of sleep-moments of nightmare rather-in which I fell and fell and fell for evermore into the abyss of the sky.

I astonished Cavor at breakfast. I told him shortly, "I'm not coming with you in the sphere."

I met all his protests with a sullen persistence. "The thing's too mad," I said, "and I won't come. The thing's too mad."

I would not go with him to the laboratory. I fretted bout my bungalow for a time, and then took hat and stick and set out alone, I knew not whither. It chanced to be a glorious morning: a warm wind and deep blue sky, the first green of spring abroad, and multitudes of birds singing. I lunched on beef and beer in a little public-house near Elham, and startled the landlord by remarking apropos of the weather, "A man who leaves the world when days of this sort are about is a fool!"

"That's what I says when I heerd on it!" said the landlord, and I found that for one poor soul at least this world had proved excessive, and there had been a throat-cutting. I went on with a

new twist to my thoughts.

In the afternoon I had a pleasant sleep in a sunny place, and went on my way refreshed. I came to a comfortable-looking inn near Canterbury. It was bright with creepers, and the landlady was a clean old woman and took my eye. I found I had just enough money to pay for my lodging with her. I decided to stop the night there. She was a talkative body, and among many other particulars learnt she had never been to London. "Canterbury's as far as ever I been," she said. "I'm not one of your gad-about sort."

"How would you like a trip to the moon?" I cried.

"I never did hold with them ballooneys," she said evidently under the impression that this was a common excursion enough. "I wouldn't go up in one-not for ever so."

This struck me as being funny. After I had supped I sat on a bench by the door of the inn and gossiped with two labourers about brickmaking, and motor cars, and the cricket of last year. And in the sky a faint new crescent, blue and vague as a distant Alp, sank westward over the sun.

The next day I returned to Cavor. "I am coming," I said. "I've been a little out of order, that's all."

That was the only time I felt any serious doubt our enterprise. Nerves purely! After that I worked a little more carefully, and took a trudge for an hour every day. And at last, save for the heating in the furnace, our labours were at an end.

Chapter 4. Inside the Sphere

"Go on," said Cavor, as I sat across the edge of the manhole, and looked down into the black interior of the sphere. We two were alone. It was evening, the sun had set, and the stillness of the twilight was upon everything.

I drew my other leg inside and slid down the smooth glass to the bottom of the sphere, then turned to take the cans of food and other impedimenta from Cavor. The interior was warm, the thermometer stood at eighty, and as we should lose little or none of this by radiation, we were dressed in shoes and thin flannels. We had, however, a bundle of thick woollen clothing and several thick blankets to guard against mischance.

By Cavor's direction I placed the packages, the cylinders of oxygen, and so forth, loosely about my feet, and soon we had everything in. He walked about the roofless shed for a time seeking anything we had overlooked, and then crawled in after me. I noted something in his hand.

"What have you got there?" I asked.

"Haven't you brought anything to read?"

"Good Lord! No."

"I forgot to tell you. There are uncertainties- The voyage may last- We may be weeks!"

"But-"

"We shall be floating in this sphere with absolutely no

occupation."

"I wish I'd known-"

He peered out of the manhole. "Look!" he said. "There's something there!"

"Is there time?"

"We shall be an hour."

I looked out. It was an old number of Tit-Bits that one of the men must have brought. Farther away in the corner I saw a torn Lloyd's News. I scrambled back into the sphere with these things. "What have you got?" I said.

I took the book from his hand and read, "The Works of William Shakespeare".

He coloured slightly. "My education has been so purely scientific-" he said apologetically.

"Never read him?"

"Never."

"He knew a little, you know-in an irregular sort of way."

"Precisely what I am told," said Cavor.

I assisted him to screw in the glass cover of the manhole, and then he pressed a stud to close the corresponding blind in the outer case. The little oblong of twilight vanished. We were in darkness. For a time neither of us spoke. Although our case would not be impervious to sound, everything was very still. I perceived there was nothing to grip when the shock of our start should come, and I realised that I should be uncomfortable for want of a chair.

"Why have we no chairs?" I asked.

"I've settled all that," said Cavor. "We won't need them."

"Why not?"

"You will see," he said, in the tone of a man who refuses to talk.

I became silent. Suddenly it had come to me clear and vivid that I was a fool to be inside that sphere. Even now, I asked myself, is it too late to withdraw? The world outside the sphere, I knew, would be cold and inhospitable enough for me—for weeks I had been living on subsidies from Cavor—but after all, would it be as cold as the infinite zero, as inhospitable as empty space? If it had not been for the appearance of cowardice, I believe that even then I should have made him let me out. But I hesitated on that score, and hesitated, and grew fretful and angry, and the time passed.

There came a little jerk, a noise like champagne being uncorked in another room, and a faint whistling sound. For just one instant I had a sense of enormous tension, a transient conviction that my feet were pressing downward with a force of countless tons. It lasted for an infinitesimal time.

But it stirred me to action. "Cavor!" I said into the darkness, "my nerve's in rags. I don't think—"

I stopped. He made no answer.

"Confound it!" I cried; "I'm a fool! What business have I here? I'm not coming, Cavor. The thing's too risky. I'm getting out."

"You can't," he said.

"Can't! We'll soon see about that!"

He made no answer for ten seconds. "It's too late for us to quarrel now, Bedford," he said. "That little jerk was the start. Already we are flying as swiftly as a bullet up into the gulf of space."

"I-" I said, and then it didn't seem to matter what happened. For a time I was, as it were, stunned; I had nothing to say. It was just as if I had never heard of this idea of leaving the world before. Then I perceived an unaccountable change in my bodily sensations. It was a feeling of lightness, of unreality. Coupled with that was a queer sensation in the head, an apoplectic effect almost, and a thumping of blood vessels at the ears. Neither of these feelings diminished as time went on, but at last I got so used to them that I experienced no inconvenience.

I heard a click, and a little glow lamp came into being.

I saw Cavor's face, as white as I felt my own to be. We regarded one another in silence. The transparent blackness of the glass behind him made him seem as though he floated in a void.

"Well, we're committed," I said at last.

"Yes," he said, "we're committed."

"Don't move," he exclaimed, at some suggestion of a gesture. "Let your muscles keep quite lax-as if you were in bed. We are in a little universe of our own. Look at those things!"

He pointed to the loose cases and bundles that had been lying on the blankets in the bottom of the sphere. I was astonished to see that they were floating now nearly a foot from the spherical

wall. Then I saw from his shadow that Cavor was no longer leaning against the glass. I thrust out my hand behind me, and found that I too was suspended in space, clear of the glass.

I did not cry out nor gesticulate, but fear came upon me. It was like being held and lifted by something-you know not what. The mere touch of my hand against the glass moved me rapidly. I understood what had happened, but that did not prevent my being afraid. We were cut off from all exterior gravitation, only the attraction of objects within our sphere had effect. Consequently everything that was not fixed to the glass was falling-slowly because of the slowness of our masses-towards the centre of gravity of our little world, which seemed to be somewhere about the middle of the sphere, but rather nearer to myself than Cavor, on account of my greater weight.

"We must turn round," said Cavor, "and float back to back, with the things between us."

It was the strangest sensation conceivable, floating thus loosely in space, at first indeed horribly strange, and when the horror passed, not disagreeable at all, exceeding restful; indeed, the nearest thing in earthly experience to it that I know is lying on a very thick, soft feather bed. But the quality of utter detachment and independence! I had not reckoned on things like this. I had expected a violent jerk at starting, a giddy sense of speed. Instead I felt-as if I were disembodied. It was not like the beginning of a journey; it was like the beginning of a dream.

Chapter 5. The Journey to the Moon

Presently Cavor extinguished the light. He said we had not overmuch energy stored, and that what we had we must economise for reading. For a time, whether it was long or short I do not know, there was nothing but blank darkness.

A question floated up out of the void. "How are we pointing?" I said. "What is our direction?"

"We are flying away from the earth at a tangent, and as the moon is near her third quarter we are going somewhere towards her. I will open a blind-"

Came a click, and then a window in the outer case yawned open. The sky outside was as black as the darkness within the sphere, but the shape of the open window was marked by an infinite number of stars.

Those who have only seen the starry sky from the earth cannot imagine its appearance when the vague, half luminous veil of our air has been withdrawn. The stars we see on earth are the mere scattered survivors that penetrate our misty atmosphere. But now at last I could realise the meaning of the hosts of heaven!

Stranger things we were presently to see, but that airless, star-dusted sky! Of all things, I think that will be one of the last I shall forget.

The little window vanished with a click, another beside it snapped open and instantly closed, and then a third, and for a

moment I had to close my eyes because of the blinding splendour of the waning moon.

For a space I had to stare at Cavor and the white-lit things about me to season my eyes to light again, before I could turn them towards that pallid glare.

Four windows were open in order that the gravitation of the moon might act upon all the substances in our sphere. I found I was no longer floating freely in space, but that my feet were resting on the glass in the direction of the moon. The blankets and cases of provisions were also creeping slowly down the glass, and presently came to rest so as to block out a portion of the view. It seemed to me, of course, that I looked "down" when I looked at the moon. On earth "down" means earthward, the way things fall, and "up" the reverse direction. Now the pull of gravitation was towards the moon, and for all I knew to the contrary our earth was overhead. And, of course, when all the Cavorite blinds were closed, "down" was towards the centre of our sphere, and "up" towards its outer wall.

It was curiously unlike earthly experience, too, to have the light coming up to one. On earth light falls from above, or comes slanting down sideways, but here it came from beneath our feet, and to see our shadows we had to look up.

At first it gave me a sort of vertigo to stand only on thick glass and look down upon the moon through hundreds of thousands of miles of vacant space; but this sickness passed very speedily. And then-the splendour of the sight!

The reader may imagine it best if he will lie on the ground some warm summer's night and look between his upraised feet at the moon, but for some reason, probably because the absence of air made it so much more luminous, the moon seemed already considerably larger than it does from earth. The minutest details of its surface were acutely clear. And since we did not see it through air, its outline was bright and sharp, there was no glow or halo about it, and the star-dust that covered the sky came right to its very margin, and marked the outline of its unilluminated part. And as I stood and stared at the moon between my feet, that perception of the impossible that had been with me off and on ever since our start, returned again with tenfold conviction.

"Cavor," I said, "this takes me queerly. Those companies we were going to run, and all that about minerals?"

"Well?"

"I don't see 'em here."

"No," said Cavor; "but you'll get over all that."

"I suppose I'm made to turn right side up again. Still, _this_ - For a moment I could half believe there never was a world."

"That copy of _Lloyd's News_ might help you."

I stared at the paper for a moment, then held it above the level of my face, and found I could read it quite easily. I struck a column of mean little advertisements. "A gentleman of private means is willing to lend money," I read. I knew that gentleman. Then somebody eccentric wanted to sell a Cutaway bicycle, "quite new and cost 15 pounds," for five pounds; and a lady

in distress wished to dispose of some fish knives and forks, "a wedding present," at a great sacrifice. No doubt some simple soul was sagely examining these knives and forks, and another triumphantly riding off on that bicycle, and a third trustfully consulting that benevolent gentleman of means even as I read. I laughed, and let the paper drift from my hand.

"Are we visible from the earth?" I asked.

"Why?"

"I knew some one who was rather interested in astronomy. It occurred to me that it would be rather odd if-my friend-chanced to be looking through come telescope."

"It would need the most powerful telescope on earth even now to see us as the minutest speck."

For a time I stared in silence at the moon.

"It's a world," I said; "one feels that infinitely more than one ever did on earth. People perhaps--"

"People!" he exclaimed. "No! Banish all that! Think yourself a sort of ultra-arctic voyager exploring the desolate places of space. Look at it!"

He waved his hand at the shining whiteness below. "It's dead-dead! Vast extinct volcanoes, lava wildernesses, tumbled wastes of snow, or frozen carbonic acid, or frozen air, and everywhere landslip seams and cracks and gulfs. Nothing happens. Men have watched this planet systematically with telescopes for over two hundred years. How much change do you think they have seen?"

"None."

"They have traced two indisputable landslips, a doubtful crack, and one slight periodic change of colour, and that's all."

"I didn't know they'd traced even that."

"Oh, yes. But as for people-!"

"By the way," I asked, "how small a thing will the biggest telescopes show upon the moon?"

"One could see a fair-sized church. One could certainly see any towns or buildings, or anything like the handiwork of men. There might perhaps be insects, something in the way of ants, for example, so that they could hide in deep burrows from the lunar light, or some new sort of creatures having no earthly parallel. That is the most probable thing, if we are to find life there at all. Think of the difference in conditions! Life must fit itself to a day as long as fourteen earthly days, a cloudless sun-blaze of fourteen days, and then a night of equal length, growing ever colder and colder under these, cold, sharp stars. In that night there must be cold, the ultimate cold, absolute zero, 273 degrees Centigrade, below the earthly freezing point. Whatever life there is must hibernate through that, and rise again each day."

He mused. "One can imagine something worm-like," he said, "taking its air solid as an earth-worm swallows earth, or thick-skinned monsters-"

"By the bye," I said, "why didn't we bring a gun?"

He did not answer that question. "No," he concluded, "we just have to go. We shall see when we get there."

I remembered something. "Of course, there's my minerals, anyhow," I said; "whatever the conditions may be."

Presently he told me he wished to alter our course a little by letting the earth tug at us for a moment. He was going to open one earthward blind for thirty seconds. He warned me that it would make my head swim, and advised me to extend my hands against the glass to break my fall. I did as he directed, and thrust my feet against the bales of food cases and air cylinders to prevent their falling upon me. Then with a click the window flew open. I fell clumsily upon hands and face, and saw for a moment between my black extended fingers our mother earth-a planet in a downward sky.

We were still very near-Cavor told me the distance was perhaps eight hundred miles and the huge terrestrial disc filled all heaven. But already it was plain to see that the world was a globe. The land below us was in twilight and vague, but westward the vast gray stretches of the Atlantic shone like molten silver under the receding day. I think I recognised the cloud-dimmed coast-lines of France and Spain and the south of England, and then, with a click, the shutter closed again, and I found myself in a state of extraordinary confusion sliding slowly over the smooth glass.

When at last things settled themselves in my mind again, it seemed quite beyond question that the moon was "down" and under my feet, and that the earth was somewhere away on the level of the horizon-the earth that had been "down" to me and my kindred since the beginning of things.

So slight were the exertions required of us, so easy did the practical annihilation of our weight make all we had to do, that the necessity for taking refreshment did not occur to us for nearly six hours (by Cavor's chronometer) after our start. I was amazed at that lapse of time. Even then I was satisfied with very little. Cavor examined the apparatus for absorbing carbonic acid and water, and pronounced it to be in satisfactory order, our consumption of oxygen having been extraordinarily slight. And our talk being exhausted for the time, and there being nothing further for us to do, we gave way to a curious drowsiness that had come upon us, and spreading our blankets on the bottom of the sphere in such a manner as to shut out most of the moonlight, wished each other good-night, and almost immediately fell asleep.

And so, sleeping, and sometimes talking and reading a little, and at times eating, although without any keenness of appetite,¹ but for the most part in a sort of quiescence that was neither waking nor slumber, we fell through a space of time that had neither night nor day in it, silently, softly, and swiftly down towards the moon.

¹ It is a curious thing, that while we were in the sphere we felt not the slightest desire for food, nor did we feel the want of it when we abstained. At first we forced our appetites, but afterwards we fasted completely. Altogether we did not consume one-hundredth part of the compressed provisions we had brought with us. The amount of carbonic acid we breathed was also unnaturally low, but why this was, I am quite unable to explain.

Chapter 6. The Landing on the Moon

I remember how one day Cavor suddenly opened six of our shutters and blinded me so that I cried aloud at him. The whole area was moon, a stupendous scimitar of white dawn with its edge hacked out by notches of darkness, the crescent shore of an ebbing tide of darkness, out of which peaks and pinnacles came glittering into the blaze of the sun. I take it the reader has seen pictures or photographs of the moon and that I need not describe the broader features of that landscape, those spacious ring-like ranges vaster than any terrestrial mountains, their summits shining in the day, their shadows harsh and deep, the gray disordered plains, the ridges, hills, and craterlets, all passing at last from a blazing illumination into a common mystery of black. Athwart this world we were flying scarcely a hundred miles above its crests and pinnacles. And now we could see, what no eye on earth will ever see, that under the blaze of the day the harsh outlines of the rocks and ravines of the plains and crater floor grew gray and indistinct under a thickening haze, that the white of their lit surfaces broke into lumps and patches, and broke again and shrank and vanished, and that here and there strange tints of brown and olive grew and spread.

But little time we had for watching then. For now we had come to the real danger of our journey. We had to drop ever closer to the moon as we spun about it, to slacken our pace and watch our

chance, until at last we could dare to drop upon its surface.

For Cavor that was a time of intense exertion; for me it was an anxious inactivity. I seemed perpetually to be getting out of his way. He leapt about the sphere from point to point with an agility that would have been impossible on earth. He was perpetually opening and closing the Cavorite windows, making calculations, consulting his chronometer by means of the glow lamp during those last eventful hours. For a long time we had all our windows closed and hung silently in darkness hurling through space.

Then he was feeling for the shutter studs, and suddenly four windows were open. I staggered and covered my eyes, drenched and scorched and blinded by the unaccustomed splendour of the sun beneath my feet. Then again the shutters snapped, leaving my brain spinning in a darkness that pressed against the eyes. And after that I floated in another vast, black silence.

Then Cavor switched on the electric light, and told me he proposed to bind all our luggage together with the blankets about it, against the concussion of our descent. We did this with our windows closed, because in that way our goods arranged themselves naturally at the centre of the sphere. That too was a strange business; we two men floating loose in that spherical space, and packing and pulling ropes. Imagine it if you can! No up nor down, and every effort resulting in unexpected movements. Now I would be pressed against the glass with the full force of Cavor's thrust, now I would be kicking helplessly in a void. Now the star of the electric light would be overhead,

now under foot. Now Cavor's feet would float up before my eyes, and now we would be crossways to each other. But at last our goods were safely bound together in a big soft bale, all except two blankets with head holes that we were to wrap about ourselves.

Then for a flash Cavor opened a window moonward, and we saw that we were dropping towards a huge central crater with a number of minor craters grouped in a sort of cross about it. And then again Cavor flung our little sphere open to the scorching, blinding sun. I think he was using the sun's attraction as a brake. "Cover yourself with a blanket," he cried, thrusting himself from me, and for a moment I did not understand.

Then I hauled the blanket from beneath my feet and got it about me and over my head and eyes. Abruptly he closed the shutters again, snapped one open again and closed it, then suddenly began snapping them all open, each safely into its steel roller. There came a jar, and then we were rolling over and over, bumping against the glass and against the big bale of our luggage, and clutching at each other, and outside some white substance splashed as if we were rolling down a slope of snow....

Over, clutch, bump, clutch, bump, over....

Came a thud, and I was half buried under the bale of our possessions, and for a space everything was still. Then I could hear Cavor puffing and grunting, and the snapping of a shutter in its sash. I made an effort, thrust back our blanket-wrapped luggage, and emerged from beneath it. Our open windows were just visible as a deeper black set with stars.

We were still alive, and we were lying in the darkness of the shadow of the wall of the great crater into which we had fallen.

We sat getting our breath again, and feeling the bruises on our limbs. I don't think either of us had had a very clear expectation of such rough handling as we had received. I struggled painfully to my feet. "And now," said I, "to look at the landscape of the moon! But-! It's tremendously dark, Cavor!"

The glass was dewy, and as I spoke I wiped at it with my blanket. "We're half an hour or so beyond the day," he said. "We must wait."

It was impossible to distinguish anything. We might have been in a sphere of steel for all that we could see. My rubbing with the blanket simply smeared the glass, and as fast as I wiped it, it became opaque again with freshly condensed moisture mixed with an increasing quantity of blanket hairs. Of course I ought not to have used the blanket. In my efforts to clear the glass I slipped upon the damp surface, and hurt my shin against one of the oxygen cylinders that protruded from our bale.

The thing was exasperating-it was absurd. Here we were just arrived upon the moon, amidst we knew not what wonders, and all we could see was the gray and streaming wall of the bubble in which we had come.

"Confound it!" I said, "but at this rate we might have stopped at home;" and I squatted on the bale and shivered, and drew my blanket closer about me.

Abruptly the moisture turned to spangles and fronds of frost.

"Can you reach the electric heater," said Cavor. "Yes-that black knob. Or we shall freeze."

I did not wait to be told twice. "And now," said I, "what are we to do?"

"Wait," he said.

"Wait?"

"Of course. We shall have to wait until our air gets warm again, and then this glass will clear. We can't do anything till then. It's night here yet; we must wait for the day to overtake us. Meanwhile, don't you feel hungry?"

For a space I did not answer him, but sat fretting. I turned reluctantly from the smeared puzzle of the glass and stared at his face. "Yes," I said, "I am hungry. I feel somehow enormously disappointed. I had expected-I don't know what I had expected, but not this."

I summoned my philosophy, and rearranging my blanket about me sat down on the bale again and began my first meal on the moon. I don't think I finished it-I forget. Presently, first in patches, then running rapidly together into wider spaces, came the clearing of the glass, came the drawing of the misty veil that hid the moon world from our eyes.

We peered out upon the landscape of the moon.

Chapter 7. Sunrise on the Moon

As we saw it first it was the wildest and most desolate of scenes. We were in an enormous amphitheatre, a vast circular plain, the floor of the giant crater. Its cliff-like walls closed us in on every side. From the westward the light of the unseen sun fell upon them, reaching to the very foot of the cliff, and showed a disordered escarpment of drab and grayish rock, lined here and there with banks and crevices of snow. This was perhaps a dozen miles away, but at first no intervening atmosphere diminished in the slightest the minutely detailed brilliancy with which these things glared at us. They stood out clear and dazzling against a background of starry blackness that seemed to our earthly eyes rather a gloriously spangled velvet curtain than the spaciousness of the sky.

The eastward cliff was at first merely a starless selvedge to the starry dome. No rosy flush, no creeping pallor, announced the commencing day. Only the Corona, the Zodiacal light, a huge cone-shaped, luminous haze, pointing up towards the splendour of the morning star, warned us of the imminent nearness of the sun.

Whatever light was about us was reflected by the westward cliffs. It showed a huge undulating plain, cold and gray, a gray that deepened eastward into the absolute raven darkness of the cliff shadow. Innumerable rounded gray summits, ghostly

hummocks, billows of snowy substance, stretching crest beyond crest into the remote obscurity, gave us our first inkling of the distance of the crater wall. These hummocks looked like snow. At the time I thought they were snow. But they were not-they were mounds and masses of frozen air.

So it was at first; and then, sudden, swift, and amazing, came the lunar day.

The sunlight had crept down the cliff, it touched the drifted masses at its base and incontinently came striding with seven-leagued boots towards us. The distant cliff seemed to shift and quiver, and at the touch of the dawn a reek of gray vapour poured upward from the crater floor, whirls and puffs and drifting wraiths of gray, thicker and broader and denser, until at last the whole westward plain was steaming like a wet handkerchief held before the fire, and the westward cliffs were no more than refracted glare beyond.

"It is air," said Cavor. "It must be air-or it would not rise like this-at the mere touch of a sun-beam. And at this pace...."

He peered upwards. "Look!" he said.

"What?" I asked.

"In the sky. Already. On the blackness-a little touch of blue. See! The stars seem larger. And the little ones and all those dim nebulosities we saw in empty space-they are hidden!"

Swiftly, steadily, the day approached us. Gray summit after gray summit was overtaken by the blaze, and turned to a smoking white intensity. At last there was nothing to the west of us but

a bank of surging fog, the tumultuous advance and ascent of cloudy haze. The distant cliff had receded farther and farther, had loomed and changed through the whirl, and foundered and vanished at last in its confusion.

Nearer came that steaming advance, nearer and nearer, coming as fast as the shadow of a cloud before the south-west wind. About us rose a thin anticipatory haze.

Cavor gripped my arm. "What?" I said.

"Look! The sunrise! The sun!"

He turned me about and pointed to the brow of the eastward cliff, looming above the haze about us, scarce lighter than the darkness of the sky. But now its line was marked by strange reddish shapes, tongues of vermillion flame that writhed and danced. I fancied it must be spirals of vapour that had caught the light and made this crest of fiery tongues against the sky, but indeed it was the solar prominences I saw, a crown of fire about the sun that is forever hidden from earthly eyes by our atmospheric veil.

And then-the sun!

Steadily, inevitably came a brilliant line, came a thin edge of intolerable effulgence that took a circular shape, became a bow, became a blazing sceptre, and hurled a shaft of heat at us as though it was a spear.

It seemed verily to stab my eyes! I cried aloud and turned about blinded, groping for my blanket beneath the bale.

And with that incandescence came a sound, the first sound that had reached us from without since we left the earth, a hissing and rustling, the stormy trailing of the aerial garment of the advancing day. And with the coming of the sound and the light the sphere lurched, and blinded and dazzled we staggered helplessly against each other. It lurched again, and the hissing grew louder. I had shut my eyes perforce, I was making clumsy efforts to cover my head with my blanket, and this second lurch sent me helplessly off my feet. I fell against the bale, and opening my eyes had a momentary glimpse of the air just outside our glass. It was running-it was boiling-like snow into which a white-hot rod is thrust. What had been solid air had suddenly at the touch of the sun become a paste, a mud, a slushy liquefaction, that hissed and bubbled into gas.

There came a still more violent whirl of the sphere and we had clutched one another. In another moment we were spun about again. Round we went and over, and then I was on all fours. The lunar dawn had hold of us. It meant to show us little men what the moon could do with us.

I caught a second glimpse of things without, puffs of vapour, half liquid slush, excavated, sliding, falling, sliding. We dropped into darkness. I went down with Cavor's knees in my chest. Then he seemed to fly away from me, and for a moment I lay with all the breath out of my body staring upward. A toppling crag of the melting stuff had splashed over us, buried us, and now it thinned and boiled off us. I saw the bubbles dancing on the glass above.

I heard Cavor exclaiming feebly.

Then some huge landslip in the thawing air had caught us, and spluttering expostulation, we began to roll down a slope, rolling faster and faster, leaping crevasses and rebounding from banks, faster and faster, westward into the white-hot boiling tumult of the lunar day.

Clutching at one another we spun about, pitched this way and that, our bale of packages leaping at us, pounding at us. We collided, we gripped, we were torn asunder-our heads met, and the whole universe burst into fiery darts and stars! On the earth we should have smashed one another a dozen times, but on the moon, luckily for us, our weight was only one-sixth of what it is terrestrially, and we fell very mercifully. I recall a sensation of utter sickness, a feeling as if my brain were upside down within my skull, and then-

Something was at work upon my face, some thin feelers worried my ears. Then I discovered the brilliance of the landscape around was mitigated by blue spectacles. Cavor bent over me, and I saw his face upside down, his eyes also protected by tinted goggles. His breath came irregularly, and his lip was bleeding from a bruise. "Better?" he said, wiping the blood with the back of his hand.

Everything seemed swaying for a space, but that was simply my giddiness. I perceived that he had closed some of the shutters in the outer sphere to save me-from the direct blaze of the sun. I was aware that everything about us was very brilliant.

"Lord!" I gasped. "But this--"

I craned my neck to see. I perceived there was a blinding glare outside, an utter change from the gloomy darkness of our first impressions. "Have I been insensible long?" I asked.

"I don't know--the chronometer is broken. Some little time.... My dear chap! I have been afraid..."

I lay for a space taking this in. I saw his face still bore evidences of emotion. For a while I said nothing. I passed an inquisitive hand over my contusions, and surveyed his face for similar damages. The back of my right hand had suffered most, and was skinless and raw. My forehead was bruised and had bled. He handed me a little measure with some of the restorative--I forget the name of it--he had brought with us. After a time I felt a little better. I began to stretch my limbs carefully. Soon I could talk.

"It wouldn't have done," I said, as though there had been no interval.

"No! it _wouldn't_."

He thought, his hands hanging over his knees. He peered through the glass and then stared at me.

"Good Lord!" he said. "No!"

"What has happened?" I asked after a pause. "Have we jumped to the tropics?"

"It was as I expected. This air has evaporated--if it is air. At any rate, it has evaporated, and the surface of the moon is showing. We are lying on a bank of earthy rock. Here and there bare soil

is exposed. A queer sort of soil!"

It occurred to him that it was unnecessary to explain. He assisted me into a sitting position, and I could see with my own eyes.

Chapter 8. A Lunar Morning

The harsh emphasis, the pitiless black and white of scenery had altogether disappeared. The glare of the sun had taken upon itself a faint tinge of amber; the shadows upon the cliff of the crater wall were deeply purple. To the eastward a dark bank of fog still crouched and sheltered from the sunrise, but to the westward the sky was blue and clear. I began to realise the length of my insensibility.

We were no longer in a void. An atmosphere had arisen about us. The outline of things had gained in character, had grown acute and varied; save for a shadowed space of white substance here and there, white substance that was no longer air but snow, the arctic appearance had gone altogether. Everywhere broad rusty brown spaces of bare and tumbled earth spread to the blaze of the sun. Here and there at the edge of the snowdrifts were transient little pools and eddies of water, the only things stirring in that expanse of barrenness. The sunlight inundated the upper two thirds of our sphere and turned our climate to high summer, but our feet were still in shadow, and the sphere was lying upon a drift of snow.

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