

SUNSET

By

FRANK
MORISON

Scrantom's

Reading Club

The Sunset of the World! Such is the tremendous theme of this very unusual book.

Working in his tiny laboratory under the towering precipices of the Matterhorn, John Byford — a distinguished physicist — succeeds in establishing contact with one of the outer worlds of space. He learns something which fills him with profound disquiet and unrest. Returning late one night to the settlement, he discovers that his dream is shattered and the experiment forever at an end.

Meanwhile the attempt has been watched secretly by persons with sinister intent. There is money to be made quickly and upon a vast and unprecedented scale. At a critical moment, having effectively silenced the experimenter, they launch the Sunset scare upon the world with instantaneous and catastrophic effect.

The description of what happened during those eight days of social and political chaos is the subject of some of the most exciting chapters of the book. The action moves swiftly from the first warning ring of the telephone at Staines to the dramatic denouement under the dome of London's great Cathedral. Finally, the curtain is rung down upon a scene unforgettable by those who witnessed it.

And then a very curious and unexpected thing happens. Dismissing this earlier narrative in a few sentences the author, greatly daring, proceeds to *retell* the story from the secret and inner standpoint of the experimenter himself. Was John Byford right? Is life as we know it upon this planet the result of an accident—a sort of cosmic miscarriage—or has it a deeper and profounder significance?

You must read SUNSET. "Something very unusual in the world of fiction" . . . "A daring romance" . . . "A strange and exciting tale" . . . The drama holds the attention to the last sentence" . . . "A thrilling and original story" . . . "A brilliant fantasy." These are a few of the notable tributes in the English press to this new story by the author of "Who Moved the Stone?"



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Scrantom's

Reading Club

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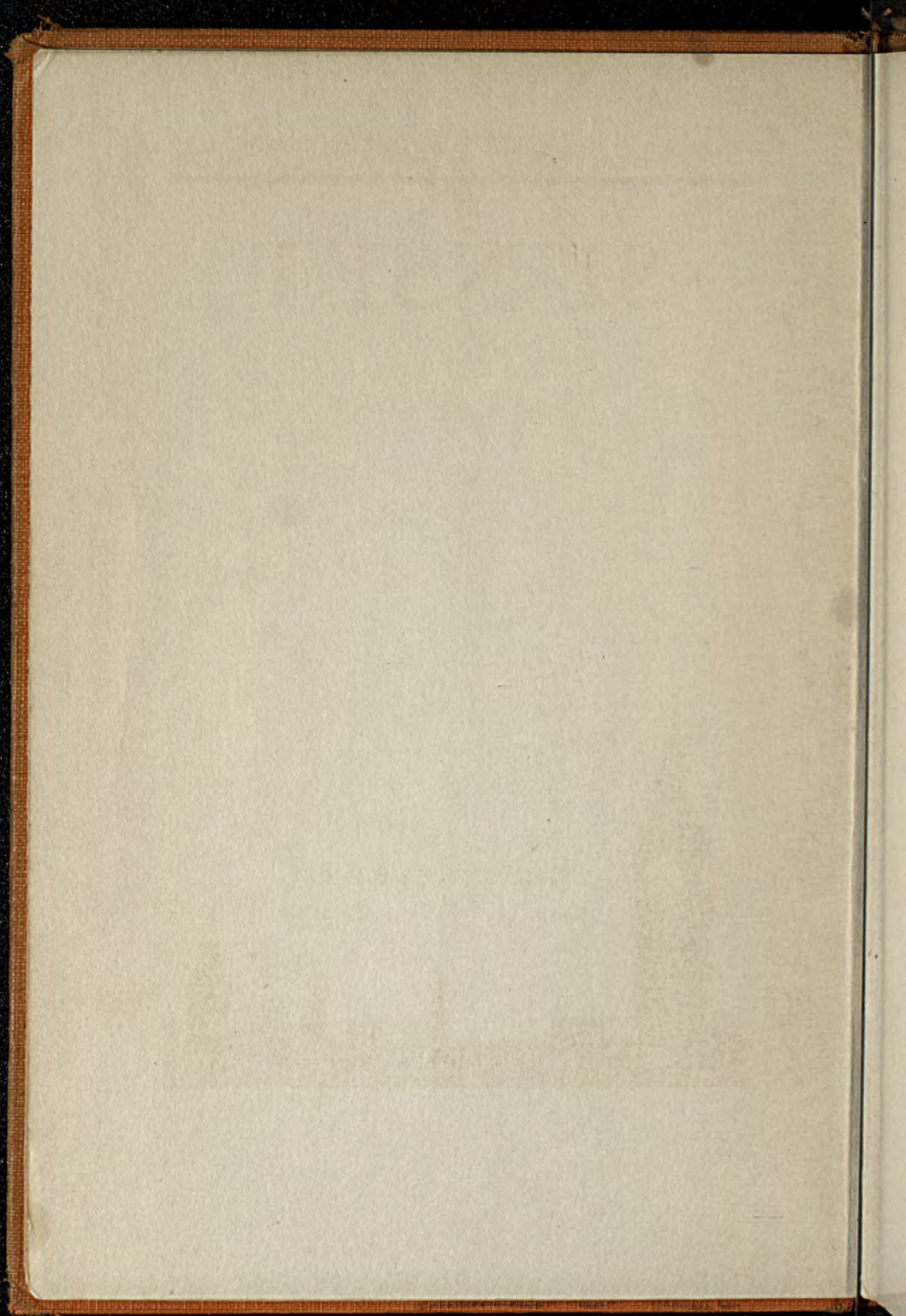
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SUNSET



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by
FRANK MORISON



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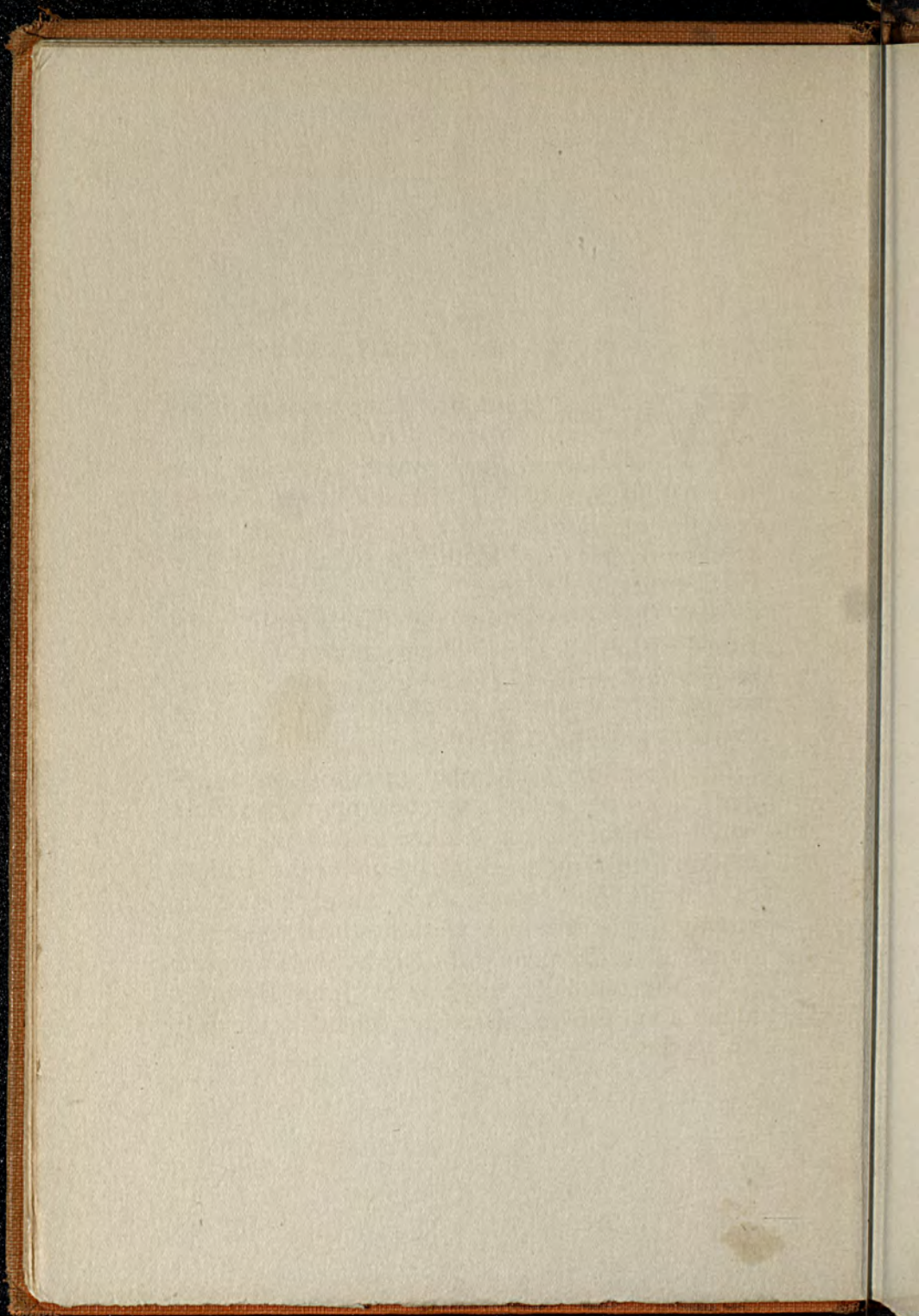
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“When the Sun sets, who doth not look for
night?”

Richard II, Act 2, Sc. 3.

“And behold . . . a great and strong wind rent
the mountains and brake in pieces the rocks
before the Lord; but the Lord was not in the
wind: and after the wind an earthquake; but
the Lord was not in the earthquake: and after
the earthquake a fire; but the Lord was not in
the fire: and after the fire a still small voice.”

I Kings, Ch. 19, vs. 11 and 12.



Foreword: By John Graham

WHEN THE news first came through from the Geneva station that John Byford, Fellow of the Royal Society and corresponding member of a dozen other learned societies in Europe, had been missing for some weeks from his usual haunts in Switzerland, few realized its significance.

Both the "Times" and the "Telegraph" published a brief paragraph the next morning. They were appreciative but uninforming. Apart from a passing tribute to Byford's "experimental work in a Swiss valley," there was no explicit reference to the settlement at Schwarzsee. Indeed, I do not recall any contemporary article which connected his disappearance with that modest little structure high up under the shadow of Hörnli. Yet it was that building and its strange contents which were destined to send a quiver of excitement through the world and to leave the indelible impress of John Byford's name upon the religious and scientific thought of our time.

By a curious chance, it is the writer's privilege to know more about what happened in that remote spot than any other person now living. It is a strange story. I am conscious that it will read more like a romance than a sober record of fact. But I shall try to tell it simply, piecing the events together in the order in which they occurred. If it should seem that I have laid undue stress upon certain commonplace features of the narrative, it is because they were not without significance in relation to the events which were to follow.

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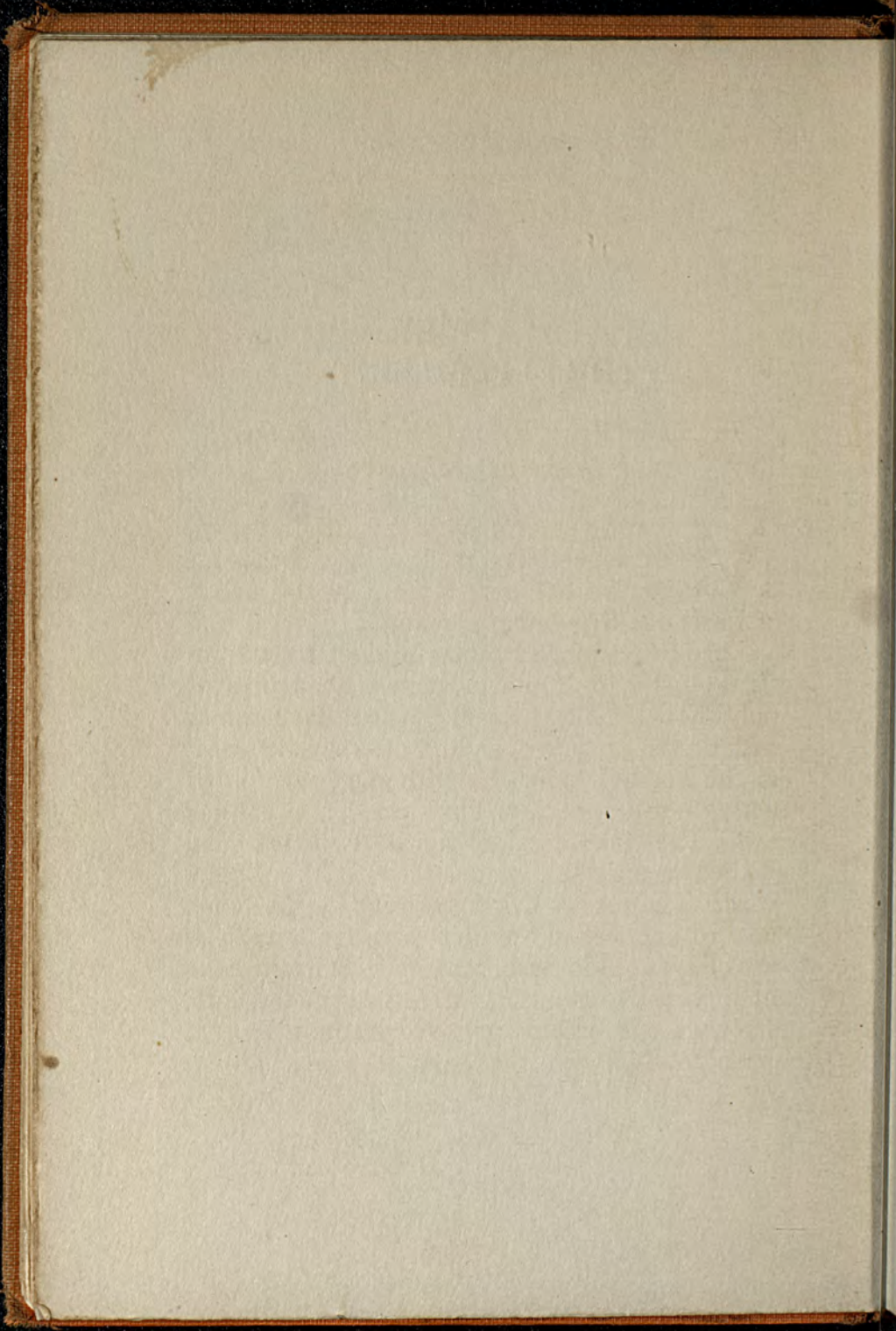
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BOOK I
THE EXPERIMENT



CHAPTER ONE

In Which John Byford Makes a Rather Curious Prediction

MY CONNECTION with this affair began, strangely enough, in a casual encounter with Harry Byford in the streets of Paris one September evening.

I had just come in by the afternoon train from Brussels, having some business with a firm of publishers the next morning. The usual summer rush of visitors was over, and after a quiet meal at the hotel, I went out with the intention of taking a solitary stroll. Paris was her usual gay self. The innumerable lights twinkled and flashed along the broad sweep of the Boulevards. The air, as ever, was rent by the harsh note of klaxons and by that peculiar screech as the crowded auto-buses came to a reluctant stand at the busy crossings. I turned off at the Café Brébant, and became involved in the throng of people which, in the early evening, always

seems to swirl and eddy at the lower end of the Rue du Faubourg Montmartre. I remember wondering whether to turn in for a couple of hours to the Palace Theater, where Grock was giving one of his amusing shows, when I ran suddenly into a young fellow who was carrying a rather ungainly parcel and also a few letters.

"Pardon, m'sieur," I exclaimed, stooping to pick up his hat which had been knocked off by the impact, but I suppose my accent betrayed me.

"You're English, aren't you?" he said.

"Yes." And I caught the glint of humor in his eyes.

"Then how the dickens does one post letters in this place?"

I laughed outright, for I realized that he too had encountered one of the minor Continental mysteries. Many a time I had wandered about the narrow streets of The Hague or Brussels trying to find a friendly receptacle for the urgent letter which must catch the night's post. But the modest little boxes which served this purpose always seemed so terribly elusive. It was simple enough, of course, when you knew the ropes, but the uninstructed visitor must often have wondered whether in those days the Con-

tinental nations took any real interest in postal facilities.

"There's a *boite aux lettres* hidden away very discreetly in the Rue Bergère," I volunteered, "but it's not cleared until past midnight."

He hesitated for a moment, as though in doubt.

"Are they urgent?" I inquired. "If so, let's drop your parcel at the hotel, and take them to the nearest *bureau de poste*. I have nothing to do for half an hour and will show you the way."

In this unceremonious fashion began a friendship which lasted eight years. We posted the letters and then, I remember, went for a long walk. The evening was fine and warm and we had actually reached the Trocadéro before I realized how far we had gone. He had been telling me in his own amusing and light-hearted way of his experiences as a medical student at Cambridge, his hobbies, his hopes of a future practice, and the thousand and one things of which a young fellow, brimful of life and energy, will sometimes speak to another just slightly his senior.

We came back by the Avenue Kléber, past the Arc de Triomphe, and down the long straight vista of the Champs Elysées. And then, just before we parted, I caught a glimpse of a

deeper and more serious side to his character. He was staying, it seemed, at a small hotel near the Boulevard des Capucines. We parted under the trees just opposite the Madeleine. The moon, now at the full, was bathing all that lovely façade with a soft and silvery light.

We stood for a few moments in silence, taking in the exquisite and unforgettable beauty of the scene. Then he turned, almost inconsequently, and said:

"Do you know what, to me, is the most impressive thing in Paris?"

"That?" I queried, looking across at the great columns and half expecting an affirmative reply.

"No," he said, "it's the Metro. Station underneath. You know how you come to it, the train clattering and thundering in from St. Lazare or Concorde. You get out . . . crowds of people hurrying to the staircases and the communicating tunnels. You seem to have come at last to the very hub and heart of Paris. And all the time the station walls shriek at you in great staring letters . . . MADELEINE . . . MADELEINE . . . MADELEINE. I can never avoid thinking how bewildered and frightened that little woman would be if she could come to it all suddenly and unprepared."

"What little woman?" I exclaimed in surprise.

"Mary Magdalene," he said simply.

I did not see Harry Byford again for some months. I was out when he called for the parcel the next morning and had left Paris by the evening. I often regretted, however, that we had not exchanged addresses, and more than once I had thoughts of writing to him through his father's club in London. Then, one afternoon in the late spring, I ran against him suddenly outside King's College in the Strand.

"Hullo, Graham," he said, greeting me cordially. "You will hardly believe it, but I was thinking of you that very minute."

"Why of me, in particular?"

He hesitated for a moment. "It's rather too long a story to tell here, but if you are not busy for half an hour and will come along with me, we will discuss it over a cup of tea."

I assented readily, and he led the way along the crowded Strand, turning in at the entrance to a famous hotel. A few moments later we were seated in a quiet corner of the spacious lounge where we could talk in comfort without being overheard.

We spoke for a little while about personal

matters. Then he took from his pocket a buff envelop containing a telegram, and laid the message on the table. It read as follows:

Please send immediately by quickest route gramophone records of nightingale and cuckoo, also *Oxyrhynchus* Sayings English translation and copy of Bible in French. Latter must be in clear Roman type, small pica or larger. If available include sound records of lion and puma. Address John Byford, Seiler's Hotel, Zermatt, urgent.

I read through this singular document twice, while Harry looked on with growing amusement. I suppose that my puzzled look betrayed my thoughts, for he broke in:

"I know it sounds odd, but the old man's too serious and careful a worker not to mean every word of it. I only had it this morning and I must get this curious assortment of objects away somehow by the night boat."

He took a pencil and began making a list.

1. Nightingale.
2. Cuckoo.
3. Lion.
4. Puma.

"These animal and bird studies," he said, "are fairly easy. I have already obtained some excellent records of the nightingale. The great cats and certain other wild animals it seems were

recorded at Regent's Park a month ago for the benefit of schools, and the Zylophone Company promise me a complete set this afternoon. But the cuckoo is elusive and has not yet been successfully recorded. This leaves us with the Oxyrhynchus Sayings and the French Bible. By the way, what *are* the Oxyrhynchus Sayings?"

I was able to help him here, because my uncle, Sir Edward Graham, was an acknowledged authority upon Egyptology, and had recently published a brief monograph upon the discoveries at Oxyrhynchus. I remembered the essential details clearly, since I had spent an interesting evening helping him to read and correct the proofs.

"The Oxyrhynchus Sayings," I said, "are widely believed to have formed part of a lost Gospel. They were discovered by Grenfell and Hunt in two fragments of Egyptian papyrus. They are mutilated and in places the meaning is not clear. The best English translation is by Professor Wheatley. You will have no difficulty in getting a copy from one of the booksellers who cater for students near the British Museum."

"That settles item five," he said, crossing it off the list. "There remains only the matter of the French Bible."

"That should not be very difficult," I began. "Surely . . ."

"It *should* not," he interrupted, "but it is. When you have known my father as long as I have you will realize that it is the little details that count. I have been caught that way before . . . makes you look such a confounded fool."

"What's the trouble?" I asked, listening with growing interest.

"It's the size of the type," he said. "Most Bibles are printed in what are called ruby or minion. The telegram distinctly says 'small pica or larger.' I made some inquiries in Paternoster Row this morning. They tell me it's extremely doubtful whether such an edition can be obtained in London. They suggested Paris. I thought, perhaps, you might help."

"Does the size of the print matter? Is your father short-sighted?"

"Not a bit of it. He has probably keener sight than most men of his age. But you can bet there is a reason for this large type and it's our business to send the book along without asking a lot of silly questions."

The reply was characteristic of Harry's implicit faith and interest in his father's work, of which I was to have many instances later.

"We might get a trunk call to Paris," I sug-

gested after a few moments. "I know a man at the Sorbonne who . . ."

At that moment a thought came into my mind which was destined in later years to have very great and far-reaching consequences. My cousin Ethel, Sir Edward's youngest daughter, had just returned from a finishing school at Liège. We had been fast friends from her earliest childhood, and I had met her the previous Tuesday as she stepped, very self-conscious and important, from the Continental train at Victoria. We had trouble with the porter over a large box, which, I understood, contained her books.

I motioned to Harry to wait while I went to the call-box. Fortunately Ethel was at home and answered the bell. I explained the situation briefly.

"I'm afraid not," she said, after thinking for a while, and then: "But wait a minute . . ."

About four minutes went by before I heard her voice again.

"I've got an old French Psalter, very dusty and tattered, which we used for plain-song in the seminary. It is in beautiful big type, and contains all the Psalms and Canticles. I am afraid the binding is not very good, but the pages are intact.

"Would you lend us this priceless relic for an indefinite period?"

"Certainly," she laughed back. "You are lucky. I nearly threw it away."

I went back to Byford and reported my partial success. He was not as pleased as I expected. "It may contain what he wants, or it may not. Anyhow, it's better than nothing."

He made as though to go, but by this time my curiosity was thoroughly aroused. "What is behind all this?" I asked. He leaned forward upon the table and I thought his face took on a more serious expression.

"I don't know, Graham," he said quietly. "My father has many interests and he doesn't talk until he's sure of his results. But twelve months ago he drew a big sum from the bank—almost as much as he possessed, apart from his royalties. He spent it in equipping a laboratory, high up in the Zermatt Valley, overlooking the Riffel Forest. He has been there practically ever since, apart from about two months in the winter which he usually spends with Professor Pirelli of the Milan Observatory."

"Is it something to do with Astronomy?" I asked.

"Well, I spent a couple of days with him at Lausanne last September. He gave me some let-

ters to post in Paris. You remember. One of them was to the 'Scientific American.' "

He opened his pocket-book and produced a cutting.

It was rather a long article, closely set in small type. It dealt in technical language with what the sub-editor of the magazine had described as "Some Cosmic Possibilities of Broadcasting." But there was one paragraph which attracted my notice because Harry had apparently underlined it in red.

We are on the eve [it said] of cosmic developments of vast moment. No man can predict with certainty what the immediate future will bring. But there are signs that the dawn is breaking already upon a new and almost unbelievable chapter in the world's history.

There was a ring of confidence in that quiet prediction which neither of us fully understood at the time. But the words were to come back to me several years later as we stood one stormy afternoon under the frowning precipices of the Matterhorn trying to discover how John Byford had spent his time during two of the last and most tragic days of his eventful life.

CHAPTER TWO

Stumbling upon Byford in the Depths of Space

IT HAS always seemed to me a very remarkable thing that, during those critical years when John Byford was conducting his singular experiments, comparatively few people should have realized that anything unusual was on foot.

This was partly due, no doubt, to the excessive caution which Byford himself exercised to prevent a premature leakage of the facts. I am told by the guides who make Zermatt their base for the ascent of the Matterhorn and the Monte Rosa range, that, while the hut at Schwarzsee and its associated buildings naturally attracted a certain amount of notice, the special character of their contents, and the uses to which they were being put, were not generally known. The greater part of the very delicate apparatus came up the valley by rail as far as Randa and

was there disentrained. The wooden cases, strongly protected against the weather, stood in the station for some days. Every evening, just as it was getting dusk, Byford would come down the road in a light car, and remove one of them. The next morning it would be safely within the hut.

Thus Zermatt village, with its colony of summer visitors, saw little of what was passing through. Byford himself was, of course, a well-known and familiar figure. Every morning during the season he could be seen about eleven o'clock taking his breakfast on the veranda of the hotel. It was known that he was a *savant* and a writer who, owing to some caprice, had chosen to work in a rather remote and inaccessible spot. Few people, outside the hotel, however, knew the late hour at which he invariably retired to rest, after walking the three miles from the spurs of Hörnli into the village.

Those who really did know something of what was going on, Byford placed under a seal of strictest secrecy. But there was one source of possible leakage which he could not circumvent. The fact that he used such an unusual wavelength for that early period, and transmitted, for the most part, at an hour when the average European listener was asleep, precluded any

message which he issued being picked up by a receiver in ordinary use. There was always the danger, however, that some more distant experimentalist, exploring by chance the profounder ranges of the ether, might pick up a transmission which, by its very bizarre character, would instantly attract notice and direct attention to his work.

This, in fact, actually did happen.

I have a letter before me now written by Frank Sillow, the well-known director of the Yerkes Physical Laboratory in America, in which he describes, rather amusingly, how he stumbled upon Byford in the very depths of space. I have called it a letter, but it is really a long and closely typed report. Much of it relates to matters which need not detain us here, but I will give a few typical passages for the reader's benefit.

The first indication I had [he writes] that something unusual was being attempted occurred in the spring of 1923. I was experimenting with a receiver of special sensitiveness in the band of vibrations between 30 and 60 meters. The atmospherics were bad and I had the greatest difficulty in detecting anything which might be described as an intelligible sound. I suppose I had been listening for about ten minutes without result, and was just on the point of giving up the test, when suddenly, in a lull of the general noise, I heard quite distinctly the words:

Cuck...oo, Cuck...oo, Cuck...oo

repeated three times and no more.

The whole thing was so clear and unexpected that my interest was naturally aroused, and I sat up till past midnight hoping to pick up the transmission again, but a violent storm in the neighborhood prevented anything more being done that night. When I returned to the experiment the following evening all was silent. This continued for twelve days, and then quite unexpectedly I encountered the same mysterious signals repeated six or seven times in sets of three. After that I lost the transmission entirely for several weeks.

I worried about this a good deal, trying night after night, whenever conditions were favorable, but without success. Then an evening came when a lucky chance again put me on the scent. We had been working hard at the laboratory for some weeks and I had been getting home rather late. My wife had an invitation to a supper and dance which was not expected to be over until about 2 A.M. I therefore arranged with her to work at the laboratory until midnight and to join her at the dance.

I finished the urgent work about ten thirty, and, having an hour to spare, decided to experiment further with the high-power set. Nothing happened for some time, and then I began to get signals, very faintly. There was a great deal of scratching and other extraneous noises, but after a while I was able to clear the signal and tune in. It was so quiet and faint as to be almost inaudible. Then it strengthened a little and I caught quite distinctly the words:

la table devant moi

Clearly the transmission was in French. I listened intently. More spluttering and crackling . . . then:

. . . oins ma tête d'huile

"Why in the name of fortune," I exclaimed, "should a man want to announce to the world toward midnight that some one is *anointing his head with oil?*" It seemed rather ridiculous . . . More atmospherics, then:

ma coupe est remplie

"Confound it," I ejaculated, "now his cup is overflowing!"

You can guess I was getting tremendously interested by this time, though I was beginning to have doubts as to the sanity of the mysterious experimenter. I continued the reception, however, because, despite their bizarre character, the words somehow seemed familiar. All was quiet for about four minutes, and then the surprise and the elucidation came. This time the whole passage was repeated:

L'Eternel est mon berger; je n'aurai point de disette.

It was the opening of the twenty-third Psalm. The passage which I had broken in upon five minutes earlier was verse five:

Thou spreadest a table before me in the presence of mine enemies. Thou anointest my head with oil. My cup runneth over.

I was really excited by now, and continued to listen intently, but although I waited for an hour I could get nothing further. Some weeks went by. Whenever I had a few minutes to spare I tuned in the set, but heard no further signs of the experiments until late one night in December. The air was frosty and there was no wind to speak of. Indeed, the conditions were better than they had been for

several weeks. There was, however, a lot of subdued crackling, alternating with mysterious howls. I adjusted the reaction dials several times, but could not get rid of these. Then suddenly they ceased, and I heard a far-off voice speaking very faintly. I could not catch the words, but a moment later there came through very distinctly a prolonged *roar*. It was very uncanny. It sounded exactly like the roar of a lion. It was repeated several times, and then ceased.

I have given these extracts from Sillow's report, because they show that in the earlier stages of the experiment, Byford was exposed to a very real danger from terrestrial interception and, had the true meaning of the signals been understood, its success would have been gravely imperiled. What nobody knew at the time, however, was that Byford was employing other means which did not lend themselves to casual interception, and that the really serious part of his work was conducted through that medium.

The world came very near to learning even that about two years later. It was during the early tests of television. The B.B.C. had closed down its ordinary program at eleven o'clock, and instead of the usual dance music was transmitting visual subjects for the benefit of advanced students of the technique. Photographs of His Majesty the King, Mr. Lloyd George, Mr. Ramsay MacDonald, and other well-known

and easily recognizable figures were being put through.

In a remote corner of Ayrshire, a dour Scot—by name, MacPherson—was taking the transmission with manifest pleasure and delight. When the Labor Premier's portrait appeared, he murmured fervently:

"Guid auld Mac. Ye are coming thru' grand the noo."

At that moment there was a flicker. The image of the statesman faded and disappeared. In its place . . . sparks . . . a sort of cloud passed over the screen . . . and then, rather indistinct and jerky, the following words appeared in a bold, flowing hand:

The fowls of the heaven; the beasts of the earth; the fishes of the seas; these are they that draw you . . .

MacPherson rubbed his eyes, and when he looked at the receiver again the vision was gone, and the kindly eyes of Mr. Philip Snowden were gazing into his. MacPherson was a devout member of the Presbyterian Kirk, but even he could not be expected to know that that transient sentence was an extract from the Oxyrhynchus Sayings, discovered on an Egyptian papyrus about twenty years before.

CHAPTER THREE

The Signal

CONSIDERING the peculiar nature of the valley, its inclosed character, and the abruptness with which it terminates against the tree-clad heights which are the Riffel Forest, it is remarkable that so few people are able to speak with certainty concerning John Byford's movements during the critical period with which this story is chiefly concerned.

But then, everything about Zermatt is deceptive and leads to a false sense of intimacy. The little train which waits for you at Visp, twenty miles down the valley at its junction with the Rhone, has a homely and unpretentious air. It is the sort of train you would take for such an unadventurous journey as that from Dulwich to Streatham Common. It gives no hint of the cavernous depths, threaded by a roaring torrent, which it will presently skirt, nor of the mighty sentinels of Alpine grandeur whose snow-clad

ridges will flank its course. Still less does it seem to say: "I will take you to the proud monarch who for centuries defied the utmost efforts of mankind and who, even in the hour of defeat, slew four of the seven men who scaled its precipitous rocks and trod its virgin snows."

After you leave Randa the deceptiveness increases, and when you step out of the train upon the tiny platform at Zermatt, you are in a pastoral scene, the snowy head of the Matterhorn seeming to smile and nod at you above the green slopes.

But this mood of placidity is but a mask worn upon the northward aspect of the Becca's lair. Put on your hardest boots, sling a knapsack over your shoulder, and set out toward those beckoning ravines. Then you shall learn something of the legend, the awful and solitary grandeur of this place—height piled upon height, from Platten to Staffel, from Staffel to Hörnli, from Hörnli to the snow shoulder and the glittering cliffs of the high summit. Little wonder that superstition hangs in the valley like a mist, and that men will speak of the feat which Byford accomplished during the last hours of his sojourn in the district, with awed voices and with bated breath.

It was in this magical and secluded spot, cut

off even from Zermatt by the great foothills which form the roaring gorge of the Viege, that John Byford chose to conduct his singular experiments. The site was peculiarly suited to his purpose. It lay just off the regular track followed by the guides and their parties ascending the Matterhorn by the popular Swiss route. You had to turn off abruptly at Schwarzsee and follow the mule path toward Staffel for a considerable distance before you came unexpectedly upon Byford's unpretentious group of buildings. Even upon the ascent to the peak itself, the main structure with its low slated roof and its roughly built cupola, remained for the most part invisible, cut off by the ridge of Hörnli. The climber had to be high up on the great eastern face of the mountain, nearing the snow shoulder, before the little settlement, greatly diminished by the distance, came into view.

It is this fact which explains why it was when, several years later, tragedy came to that lonely outpost, with its attendant fire and ruin, that Zermatt village slept through it all, unaware that anything unusual was taking place. There were no stragglers on the peak at the time and the inn at Staffel had closed its shutters for the night. Only one man knew enough of Byford's work and movements to have been of real as-

sistance, and he was seven miles distant upon the high ridge which leads to the summit of the Gabelhorn. That man was Franz Zweiler.

I have often sought to obtain from Zweiler a written account of his memories of those eventful years, but he confesses to no skill with the pen and I am compelled to give such isolated recollections as I have been able to extract from him.

Zweiler was by nature a rather taciturn man. Something of the silence of that remote and secluded spot had entered into his soul. Even his wife, who shared his rough mountain life and had brought up his two children, knew little of the thoughts that surged and battled in his mind through the long hours when he was away, engaged in difficult and perilous climbs among the peaks which engirt his beloved valley. For Zweiler was in the great succession to J. A. Carrel, Michel Croz, Bennen and Peter Taugwalder. He was famous as the most dependable guide to all that region, and fortunate was the visitor, bent upon some new track to one of the familiar summits, who secured his services.

Yet he could be strangely obstinate when the mood took him. One of his foibles was to

affect an invincible dislike toward the ordinary route to the summit of the Matterhorn by way of the northeastern ridge which overlooks Zermatt. He would take you that way if you paid his fee, but without enthusiasm. "Bah!" he would say, "it is work for children." The fixed ropes and the familiar footholds moved him to something approaching anger and contempt. But give him the hint that you were interested in such places as Carrel's Corridor or the ascent from Theodulhorn by way of the Breuiljoch and the precipitous and extremely dangerous Furgg shoulder, and the mountaineering spirit in him would spring into life. He would lead you with meticulous care and superb judgment over places from which other guides shrank.

Two incidents seem to have left an indelible impression upon Zweiler's mind. The first was his original chance meeting with Byford upon that difficult approach to the Matterhorn, the great Italian ridge.

Zweiler was returning from the summit in the late afternoon with a small party. They had descended the worst part of the peak and were approaching the Col du Lion when he observed a spare lithe man of about fifty years of age

negotiating the steep face of the rock at a point which is ordinarily avoided by trained climbers.

Zweiler's interest was aroused, for he knew that bit of rock and even under ideal conditions, and with proper tools and gear, it could be very dangerous. He watched the solitary climber making the slow and laborious ascent, drawing up after him a slack rope which seemed to give out interminably from a point upon a narrow ledge below. Once, when a precarious foothold gave way and sped downward, he thought the man must fall, but he held firm, and a few moments later gained the comparative security of a rocky platform.

Zweiler knew a daring feat when he saw one, and his interest was increased as he saw the lone climber drawing up after him a heavily padded sack, which must, he thought, contain some kind of instrument. But his trained and alert eye took in something else. The narrow ledge from which the climber had ascended terminated abruptly a few feet beyond the point where he had attacked the rock face. Even under favorable conditions and in a good light the return would be attended with great difficulty. The slightest miscalculation in the direction of the descent would bring him, not to the ledge, but to a sheer drop of several hundred feet. The situation was the

more perilous, since the temperature was falling rapidly; in an hour at most the ledge itself would be like a sheet of glass.

Leaving his party to arrange the details of their camp, Zweiler disappeared with several lengths of rope, and about twenty minutes later stood with Byford upon the little platform.

"You are a brave man, m'sieur," he said, approaching the climber with deference.

Byford was busily occupied fixing a rather massive tripod and did not at first appear to hear, but he turned a moment later and instantly recognized the guide.

"You're Franz Zweiler, aren't you?" he said, cordially extending his hand. "I'm glad to meet you. Is there anything that I can do for you? I would be very pleased—"

Zweiler broke into a merry peal of laughter, for he had a keen sense of irony.

"It is you, m'sieur, who needs help," he said.

"But why?" exclaimed Byford, screwing what seemed to be an equatorial mounting to the top of the tripod.

"You came up the face of the cliff and there is no other way down. It is very dangerous single handed. Complete your observations, m'sieur. I will wait for you. Then you go down with the aid of the rope. I will follow."

The words were courteously and modestly said, as befitted the man who spoke them.

"Go down!" exclaimed Byford in evident surprise, "but I am not going down—not yet at any rate." He proceeded to fix to the brass mounting a rather large and unusual type of camera. Zweiler sat down upon a projecting rock and watched the proceedings with growing interest. Presently Byford spoke:

"Zweiler."

"M'sieur?"

"You know this mountain pretty well?"

"It is true, m'sieur. I was born upon the slopes of the Becca and I do not leave him."

"Have you ever spent a night upon this ridge?"

"Many."

"What has impressed you most on a clear evening?"

"The stars, m'sieur. They are wonderful. You never see them in the valley as you do here . . . Myriads . . . I watch the Plough, and Cassiopeia, and in the springtime, what do you call him . . . Orion."

"Ah! You too then are a student of nature, Zweiler. Now you know why I do not go down to-night."

He proceeded to explore further the contents of the sack, while his companion sat in silence. Presently, he spoke again:

"You do not go, Zweiler, and your party waits."

"My party is safe, m'sieur, but you are not," said the guide. "It was madness to come up this cliff alone. It will be death to go down without the rope."

"But I have a rope. I give you my word I will fix it securely to the rock."

Zweiler made a gesture of impatience.

"Your rope is useless, m'sieur. It extends only to the ledge and you cannot disengage it. The path by which you came will be impracticable in the darkness."

"Then I will wait upon the ledge until the morning."

"For you, m'sieur," remarked the guide significantly, "the morning may never come."

Long afterwards Zweiler was to recall two scraps of this conversation for their prophetic significance in another and quite different connection . . . "it will be death to go down without the rope" . . . "then I will wait upon the ledge till morning."

But Zweiler was destined after all to be the

last down that treacherous bit of rock that evening. Even as they spoke the sun was setting in anger to the west of the frowning masses of the Gabelhorn. A thick bank of white mist was spreading ominously from Monte Rosa, obliterating the glaciers. Only the Matterhorn itself towered serenely into the darkening sky. It was no occasion to spend a night in that exposed and solitary place, and Byford was too humble and sensible a man not to listen to the earnest advice of one who, in that spot of all others, had the right and authority to speak.

From this rather unconventional beginning there developed a friendship which lasted throughout the ten years of Byford's sojourn in the valley. At first the simple mountaineer was apt to be shy and reserved in the presence of the older and more cultured man. But Byford combined a profound knowledge of many out-of-the-way subjects with a certain simplicity of character which made him a very delightful companion. More than once Zweiler accompanied him upon one of the long jaunts with which, particularly during the summer, he used to keep fit. Sometimes, when the weather was bad, Byford would drop into the little cottage at Jöst and spend the evening, laughing, talking,

recounting experiences, and listening to the guide's own modest but amusing accounts of his own exploits.

In this way he came to know Marthe, the little fifteen-year-old daughter of the simple mountaineer, and out of that acquaintance developed an incident which was destined to be memorable, for different reasons, in the lives of both men.

Marthe was a frail child who had inherited her father's spare form but lacked his stamina. Perhaps she would gain that some day, they said, but the passing months seemed to belie the hope.

One day she came in from the village complaining of pains in the head and great lassitude. They put her to bed, intending to send for the doctor from Zermatt the next morning, but by midnight she was delirious. Zweiler went in great trouble to find Byford. There was a telephone at the inn about a mile away and Byford put through a trunk call to Lausanne, for the best physician in the town to come by the next train. It proved, as Byford had feared, an acute case of enteric fever.

For seven terrible weeks Marthe hovered between life and death. The enforced starvation which is the inevitable sequel of that dread disease, the blocks of ice to arrest the internal

hemorrhage, the imperative necessity of avoiding even the slightest bodily movement reduced the little patient to a pale shadow even of her former self. If her father scarcely ever left her bedside, Byford never allowed a day to pass without spending an hour at the little cottage. He himself never gave up hope. "She will get better," he would say, "and then we will send her away to Italy. The spring sun will bring her round."

Slowly the illness came to its dread crisis, and on a certain evening in July, the physician, supported by the local *curé*, sat gravely at the bedside of the sick child. Byford had some urgent work to do at the hut that night and it was arranged that Zweiler should bring him the news as soon as the hour predicted by the doctor had passed.

The relief from the long ordeal came earlier than was expected. Marthe passed into a peaceful sleep about nine thirty. The physician bent over her for a few moments, listening to her breathing, and when he rose it was with a smile of triumph on his face. "She will live," he said shortly.

A light was shining brightly from the window of the little shack at Schwarzsee which looked across in the direction of Staffel, though the

other buildings were wrapt in darkness. The Diesel engine in the power-shed was silent, and the only sound that of the wind humming in the wires which were suspended from two rough masts on the roof of the shack.

Zweiler, checking his elation, paused at the door, lest he should disturb the experimenter at his work. All was silent within save for the measured ticking of the clock which drove the equatorial mounting of the siderostat which Byford employed on fine nights for astro-photography. Zweiler, listening intently, thought he could hear the tinkling of glass, followed by a splash of water. Then he gave three soft taps on the curtained window. There was a delay of a few moments, a chair was overturned and then Byford flung open the door. His face was flushed, and his eyes were blazing with excitement.

Had Zweiler understood, he would have been a proud man. At that moment he was unconsciously taking part in one of the really memorable episodes in the history of the world. For, a few seconds earlier, Byford, listening intently at the earphones of his instrument had heard faintly something which electrified him—*the call of the cuckoo, repeated thrice*, coming from the depths of space.

CHAPTER FOUR

The Missing Letter

AFTER THAT chance meeting in the Strand I did not see Harry Byford again for several years. He went north to Edinburgh to complete his studies and then spent some months reading advanced physics under Hauptmann of Jena. To widen his experience he accepted a temporary post as assistant to the Research Director of a famous electrical firm in Düsseldorf, and found time between these engagements to visit some of the leading laboratories both in France and America.

Throughout this period we contrived to correspond at fairly frequent intervals, and I have a batch of letters full of acute and amusing observations upon such diverse topics as the German *hausfrau* and the social and industrial conditions of the United States. Then suddenly, a letter came informing me of his acceptance of a post in London, and from that time onward

we were often in each other's company. His personality was a very engaging one, and our renewed acquaintanceship quickly ripened into a close friendship.

At my uncle's invitation we spent more than one pleasant week-end at Bishopscroft, Sir Edward's charming little estate near Godalming, in Surrey, where Ethel was now exercising her undoubted gifts as a hostess. Since her return from Belgium she had quietly and unostentatiously taken control, to the secret delight and admiration of her father, who was never happier than during the months they spent each year in that delightful spot.

Like Sir Edward himself, Ethel's tastes were simple but exacting. She loved the countryside, the open air, the luxury of well-kept lawns and a garden which could run riot with exotic blooms. She built a conservatory which added not a little to the amenities of the place, laid out with her own hands a Dutch garden, and competed with much success in local flower shows. She delighted, too, in outdoor games, and rescued the tennis lawn at Bishopscroft from the state of neglect and disrepair into which it had fallen.

It was not surprising, therefore, that Harry, who inherited much of his father's urbanity and

charm of manner, should have been a welcome visitor to the house. He played a fair game of tennis and Sir Edward, who kept much to his study, was not averse to the relaxation which came from occasional contact with younger and more virile minds.

It was during one of these visits that an incident occurred to which we attached little importance at the time, but which was destined later to have important consequences.

We had just come in from a hard game of singles on the courts in which Ethel had been narrowly defeated.

"Your game, Harry," she said, throwing herself on to the settee. "I never seem to win against you."

"I nearly lost," he replied modestly, "your volleying was splendid. You shall have your revenge after tea."

At that moment there was a knock at the door.

"I expect it's the postman," said Ethel. "You might see what he's brought, John. Mary has gone to the village."

I answered the knock and returned in a few moments with a rather bulky package.

"A parcel for you, Ethel," I said, examining the post-mark. "It looks intriguing . . . from somewhere in Italy."

"But I don't know a soul in Italy," protested Ethel. "It must be for Dad. He often has journals and things from Milan and Florence."

"The label distinctly says . . . Miss . . . Ethel . . . Graham . . . Bishopscroft . . . Surrey," I rejoined, mocking her emphatic manner. "Of course it's for you, and if you don't open it, I shall."

"Oh, very well," she laughed, and proceeded to untie the string.

We all stood round the table while the mysterious parcel was being unpacked. There were several wrappings of paper, one of which bore the label of a firm of well-known publishers in Florence. When the inner covering was torn away, there lay before us . . . a tattered book.

"Why, it's my old French Psalter," exclaimed Ethel excitedly. "I had almost forgotten it. What memories it brings back . . ."

"*A vos leçons, mesdemoiselles,*" she declaimed, mimicking her old tutor at Liège. "*Le Livre des Psaulmes. Commencez!*" And she danced across the room in joyous recollection of those earlier years.

We laughed at her girlish vivacity, but Harry, who had taken the book from her, was turning it over with a perplexed air.

"It's strange that there is no acknowledg-

ment," he said at length. "I have never known my father return anything without at least a covering note. . . . But wait a minute. what's this . . . ?"

As he spoke a slip of paper fell out of the book and fluttered to the ground. Ethel picked it up.

"What a quaint drawing," she exclaimed, examining a rather crude picture of a landscape on which certain descriptive words were written in French and English. It was the sort of one-dimensional diagram that very young children delight to draw.

Thinking that the message might be on the other side, she turned it over, but with the exception of some rough calculations there was nothing save a few words hurriedly scribbled in pencil in the corner. They read: "The great couloir, Furgg arête, declination 31."

"What does it mean, Harry?" asked Ethel. "I am sure you can tell us."

But Harry seemed to avoid the question. "I should keep it," he said; "it may be important," and he slipped it back between the covers of the book. Nevertheless, when Ethel had retired to her room that night and Harry and I were enjoying a last pipe upon the veranda of the house, he returned to it again.

"It's strange about that book, Graham," he said.

"Why so?" I asked, wondering what had recalled it to his mind.

"The missing letter, I mean. It's not like him, that's all." And then after a pause: "Did I ever tell you about my mother?"

"No," I replied briefly, for he was clearly in a reminiscent mood.

"I never saw her, you know. She died when I was a few hours old. They were not expecting the event so soon, and Father was away in Edinburgh at the time. The doctor's wife reached him too late to catch the evening train. When he arrived the following morning, it was all over. . . . But my mother left a letter—written two days before. She seems to have foreseen what was coming, and according to all accounts those two loved each other to distraction. My old nurse, Phœbe, once told me that he was never the same man again. It seemed to stun him. He never forgave the doctors for not warning him earlier. He held that her life could have been saved, even at the cost of mine."

"Did it affect his attitude toward you personally?" I asked. I had sometimes speculated upon the reasons for John Byford's apparent reticence toward his son.

"Not a bit of it," he said. "No man ever had a more considerate father. But I'm told it changed him a good deal. Often, as a boy, I used to surprise him in his study, pacing the carpet, and talking softly to himself. 'Come in, Harry,' he would exclaim, checking himself suddenly, and then he would help me with my lessons, or, if the night was clear, he would get out the telescope and show me the rings of Saturn, or the moons and belts of Jupiter. We spent some glorious evenings, during the vacations, in the little observatory he built upon the lawn at Kingston."

He puffed away at his pipe in silence for awhile.

"But that isn't what I wanted to tell you," he continued. "Every year on the eve of my birthday, a mood of sadness seemed to come upon him. I suppose the associations were too strong. Invariably, he would wish me good night early and retire to his room, where he would sit writing until the morning. Long afterwards I learned accidentally how he occupied those lonely, midnight hours. *He wrote a letter to my mother.*

"I don't know that he consciously believed in her presence in the room, but it relieved him to set down in his own hand what he would have

said had she been there. The next morning he would come down his old self, and we would go for a long walk with the dogs through the Surrey lanes or, if the weather was bad, spend an interesting day at the engineering bench which adjoined the observatory. But that meticulous habit of writing upon the least occasion has remained with him. The returning of your cousin's book was, of course, a small matter, but he would be distressed at the thought of it being the occasion for an apparent discourtesy. It wasn't intended, I am sure," and his eyes sought mine anxiously, as though in apology.

"Don't give it another thought," I exclaimed, dismissing the matter as of no moment; "I will put it right with Ethel. Indeed, I should think she has forgotten it already."

And with that we put out the lights and went to bed.

Meanwhile events had been slowly developing elsewhere. Three years had passed since that memorable evening when Zweiler had broken in upon John Byford's seclusion at the settlement at Schwarzsee, and Marthe was now an active, healthy girl of eighteen.

Fortunately, the long drain upon her strength had left no ill-effects. She was still spare of

frame, with a sort of natural pallor, but Zweiler, who was deeply attached to his daughter, noted with satisfaction how well she braved the rigors of the Alpine winter. There had been some talk of sending her away for the worst months of each year to a relative in the South of France. But the local physician had advised otherwise. It's better to fight it out here," he said to Zweiler. "She has youth on her side, and her native air will do the rest." The doctor proved to be right. Marthe's love of the open mountain life and the invigorating breezes of the Swiss uplands had ultimately triumphed.

During this period, John Byford's interest in the little family seems to have increased rather than diminished. Zweiler was one of the few men in whom the experimenter unreservedly placed his trust, and whom he consulted frequently on practical questions. Almost invariably he acted upon his advice.

For example, a question arose one day concerning a small repair to the driving mechanism of the equatorial instrument which Byford used for astrophysical work. A cam in the escapement had snapped, rendering the timing apparatus useless. Byford thought of getting the village watchmaker to put it right. Zweiler, how-

ever, to whom he mentioned the project, negatived the proposal.

"Guggenheim, he is a good man," he said. "He knows his trade and would do what you want, but he *talks*. He would have to come here to make the repair. It would take, perhaps, two hours. Maybe, he would guess; maybe, not. But you do not want people who will talk in Zermatt."

Zweiler examined the delicate escapement closely. "It needs a very small drill," he said to Byford, "—smaller than you possess. I think I could borrow that from my brother at Stalden. Or, perhaps, we could remove the clock and take it to him."

In the end the guide's suggestion was adopted. The clockwork mechanism was carefully detached from its case, and Zweiler returned it three days later with the missing part replaced. "It is better so," he said, as he helped Byford to readjust the instrument. "The villagers are inquisitive people."

Byford returned these kindly services by little attentions, which greatly endeared him to the family. He rarely left the village without bringing back some trifling object which he could pass on unostentatiously to his friends. Sometimes, when visiting Milan or Geneva he would

buy a more expensive gift, such as a picture or some household article, which in his reserved and almost shy way he would induce them to accept.

And then, of course, there was the matter of the gramophone. During the long weeks when Marthe was convalescent, the time had hung heavily upon her hands. She lay in her little room looking across through the pine woods to the green masses above Platten, waiting for the days when she would be sufficiently recovered to take brief walks upon the mountain-paths she loved so well. She read and re-read the few books which the humble cottage boasted, but even these demanded a degree of concentration which the local physician was loath to permit.

Byford had the inspiration to rig up a short aërial, so that she could enjoy the music transmitted from the Geneva station, and as an additional source of entertainment he moved over the gramophone, for which now he had little use. In this way Marthe acquired a taste for classical and other music hitherto beyond her ken. It was always a source of keen delight to her when Byford, observing her growing interest, brought back a new rendering of some favorite piece by one of the famous orchestras of Berlin or Philadelphia.

Sometimes Byford, who had a catholic taste in such matters, would bring home a romance or some illustrated book of modern travel, to the secret joy of Marthe, who, in her brief, sheltered life, had seen little of the great world which lay beyond the snow-clad peaks which surrounded her native village.

So the months and years slipped pleasantly by, without serious event or incident, and then something happened to disturb the tranquillity of the little valley.

CHAPTER FIVE

Trouble at Schwarzsee

IT WAS Zweiler who first noticed that things were not well at the little settlement at Schwarzsee. For several weeks John Byford had been uncertain and erratic in his movements. His old zest for work seemed temporarily to have forsaken him. He no longer spent laborious nights at the hut. More than once Zweiler discovered him wandering aimlessly, as it seemed, amid the great wastes, or over the stony floor of the old Zmutt glacier. It was as though some deep problem had settled on his mind, and he was seeking its solution painfully amid the solitudes.

At first the guide attributed this change of mood to overwork. He had often warned Byford that he was unduly taxing his reserves. As the latter's visits to the cottage became less and less frequent, however, Zweiler grew anxious, and meeting the experimenter by chance one night

near the inn at Schwarzsee he challenged him boldly.

"You are not yourself, m'sieur," he said. "We have been expecting you almost daily."

Byford turned and laid his hand affectionately upon the guide's shoulder.

"Forgive me," he said, "if I seem to have neglected you of late. I have had much to occupy my thought. But you are coming my way? Let us go together."

Zweiler's spirits rose at this renewed protestation of friendship, and he gladly accompanied Byford along the winding track that led toward the settlement. They walked in silence for a few moments, and then Byford spoke:

"Zweiler! Do you believe in God?"

The question was unexpected. Byford did not often probe into the deeper and more sacred recesses of the guide's mind, but Zweiler answered him promptly.

"*Le bon Dieu*, He has been very good to me. . . . He gave me back my child."

Byford nodded in his grave and understanding way, and again they walked on in silence.

"You once spoke of the stars and their beauty, when viewed from yonder ridge. Do you ever look at them in the wintertime and see them cold, pitiless . . . and without mercy?"

"*Nature* is pitiless, m'sieur," countered the guide after a pause, "—the avalanche, the crevasse—these are indeed treacherous and show no mercy."

"But God made them, Zweiler."

"It is true, m'sieur. But God also gave the spirit which can defy and overcome them."

"Perhaps God *is* that spirit," commented Byford.

They had reached the gate of the settlement and Zweiler made as though to go on, but Byford pressed him to enter.

"You know something of my work, Zweiler," he said, as they stood in the little anteroom which adjoined the laboratory, and it seemed to the guide that a look of care and intense weariness was reflected in his face.

Zweiler nodded. "It is no affair of mine," he said. "You probe where, perhaps, *le grand Dieu* does not wish you to probe. Maybe, the answer is disquieting."

Byford did not reply immediately, though his eyes sought questioningly those of his friend.

"And if it were disquieting, what then?"

The guide thought for a moment. "We do not know everything, m'sieur," he said at length. "Often when I spend a night upon the great peaks I have moods of sadness. The world is

very still, and terrifying shapes seem to loom in the darkness. But it is I who imagine them. In the morning, when the sun rises, they are gone . . .”

“But suppose the sun did not rise, Zweiler?”

“Even if the sun did not rise, m’sieur, it would still be the will of God.”

There was something in the reply which seemed to impress Byford. He pushed open the door of the inner chamber in which he chiefly worked. “Come this way,” he said. “I have something to say to you.”

For a long time the two men sat in that inner room while the experimenter talked in low earnest tones. Zweiler listened to his story with growing amazement and concern. Then, crossing to the rough bench which ran along the side of the apartment, Byford put over a switch. There was a whirring sound, as of some delicate instrument swiftly rotating in its case, and the room was plunged in darkness. Neither spoke for some minutes.

A belated traveler passing that lonely spot about that time would have seen a flickering, as of some unsteady lamp playing upon the curtained windows. Presently, the sound ceased and the lights went on again.

When Zweiler emerged it was very late, and

the night sky was studded with stars. As he picked his way slowly across the pastures toward Staffel, he looked at the glittering constellations hanging above Platten, and they seemed to him pitiless. It was as though the shadow of some impending evil had begun to fall upon his mind. Marthe, who was sitting up and admitted him to the cottage, found him strangely silent and absorbed.

It must have been about two days after this incident that John Byford left his hotel one morning, shortly after breakfast, with the avowed intention of taking a brief holiday.

"I shall be away about three weeks," he said to the clerk. "If anything happens you can consult Zweiler. He will know what to do." He took with him a small portmanteau, sufficient to contain his modest requirements for the period of his absence.

He left Zermatt by the morning train for Visp, and with a cheery "good day" to the guard, who knew him well, boarded the express which was waiting in the station, bound for Domodossola on the Italian frontier. He made a brief call in Milan upon a firm of electrical engineers with whom he did business, and later in the afternoon caught the long-distance train

for Trieste. A traveler in antiques, whom he knew slightly, and who was going to Padua, accompanied him for part of the journey.

About a week went by. Zweiler was away, conducting an English party on the Dent Blanche, and Marthe had been alone in the cottage for some hours. Her mother had gone to St. Nicolas to visit a relative. Toward nine o'clock in the evening, Marthe had occasion to go out to fetch some tools which she had left in a neighboring shed earlier in the day. The sun had then set, but the air was sultry, and a storm was clearly brewing. She paused at the gate to watch the thick belt of heavy clouds which were rapidly spreading from over Monte Rosa.

Suddenly there was a flash of lightning, followed by a deafening peal of thunder, and for a few minutes the sky was rent by the vivid precursors of the storm. Marthe was about to return to the house when, in an interval between the flashes, she was surprised to see a glare of light beyond the distant fringe of trees. It seemed to come from the direction of Byford's settlement. Dropping her burden at the roadside she ran as quickly as she could through one of the forest paths to a point on the steep hillside which commanded a clear view across to Hörnli. It was as she feared. The whole of one end of Byford's

laboratory was alight, and under the influence of the strong wind which had sprung up, the flames were spreading rapidly.

Marthe was on the point of running to warn the occupants of the inn when the first heavy drops of the approaching storm began to fall, and a few seconds later the rain descended in torrents. She was ill-equipped for exposure to the tempest, and sheltered as best she could under the trees, watching the rain beating down and gradually extinguishing the flames. She stood thus, perhaps about a quarter of an hour, the rain having ceased, and fearing that her mother might return and be alarmed at her absence, she ran back to the house.

Meanwhile, the incident had also been witnessed by the guide Galdini, who was returning toward Zmutt from the direction of the glacier, but as he was not in a position to communicate with Zermatt, the village remained in ignorance of what had taken place until the following morning, when the Burgomaster and *chef-de-police* came upon the scene.

Marthe, who rose early and went to the settlement, found them poking about in the interior of the building, while a little knot of interested spectators, drawn from the neighboring hamlets, stood round and watched them curiously.

The damage was greater than she expected. Little remained of the main structure save the four walls, and the tangled remnants of Byford's equatorial which stood gaunt and blackened on its concrete base. The roof with its roughly built cupola had gone. Even the heavy door with its massive bolts had been wrenched from its hinges as by the force of some violent explosion.

Marthe noticed with surprise that while the whole area around the settlement was strewn with débris, the subsidiary buildings had escaped practically unharmed. This was the more remarkable since it was known that at one end of the store-room which adjoined the powerhouse Byford kept a good deal of inflammable material. Apparently the torrential rain following quickly upon the outbreak had severely restricted its extent.

It was generally assumed by the onlookers that Byford's settlement, which stood in a peculiarly exposed position in the direct track of the storm, had been struck by lightning, and the *chef-de-police*, who was busily engaged making voluminous entries in his note-book, appeared to take this view. The Burgomaster kept his own counsel. In the experimenter's absence, however, little could be done to assess the damage or to elucidate the cause. After hearing Marthe's

story and questioning her closely concerning the exact time of the occurrence, the two officials secured the outer gate with a heavy padlock and returned to Zermatt.

Late that night, Zweiler, who had returned with his party and had in the meantime visited the settlement, received an urgent summons to the Burgomaster's private room.

"Our friend has been unfortunate, Zweiler," said the latter as the guide entered.

Although Zweiler was ten years younger than the official they had much in common and shared each other's confidence. "Yes," he replied. "It was as we feared."

"They say it was *le foudre*," remarked the Burgomaster, looking quizzically at Zweiler over the rim of his glasses.

Zweiler shrugged his shoulders. "It may be as well that they should think that. Byford worked in secret and avoided publicity. An official inquiry at this moment might not be convenient."

The Burgomaster reflected. "Possibly you are right," he said at length. "You have been to the settlement, of course?"

"Yes."

"Did you mark anything unusual?"

"The ground was very wet, and many peo-

ple had since tramped over the inclosure."

"Yes! That fool Picard should have kept them outside the fence, but he could think of nothing beyond the storm."

He dropped his voice a little. "Did Byford have visitors of late?"

"Not since the occasion of which I told you."

"Was that after you had warned him of the danger?"

"Yes, he was inclined to be forgetful. and perhaps over-confident."

"You mean that he occasionally left the building . . . unattended?"

"Yes. He relied too much upon the natural seclusion of the place."

"Was it possible for the settlement to be entered without his knowledge?"

"In ordinary circumstances, no. The doors and windows were heavily barred against possible intruders. But of late, he was preoccupied and wandered much over the hillside, deep in thought. More than once during his absence I found the door open and the lights burning brilliantly within."

"Did he seem depressed or anxious when he left Zermatt?"

"No. He was unusually cheerful, and looked forward to a much-needed holiday and rest."

For some minutes the two men discussed the situation in quiet, earnest tones.

"Where is Byford now?" asked the Burgomaster. "We shall have to communicate with him."

Zweiler felt in his pocket and produced a slip of paper.

"He has been staying in the Tyrol, but by this time he will be on his way to England. He is due in London on Monday."

"Did he ask for letters to be forwarded?"

"No. He said that letters could wait, but urgent messages might be sent to him."

The Burgomaster took a sheet of paper and wrote a telegram requesting Byford to communicate with Zermatt at the earliest possible opportunity. He addressed it to the Travelers' Club, Pall Mall, S.W.1. Zweiler despatched the message on his way to Jöst.

But John Byford did not call for his correspondence on the following Monday at the Travelers' Club in London; neither did he return to Zermatt at the end of three weeks . . . From the moment he stepped from the little platform at Visp on to the train for Domodossola he seems to have passed in any effective or human sense from the knowledge of the valley.

CHAPTER SIX

Strange Rumors

NO ONE seems to know quite how or where the first vague rumors started which were to grow in a few short weeks to devastating proportions and shake the foundations of the world.

Harry Byford himself had it direct from a friend who had just crossed over from the Continent by the Hook to Harwich route. This friend had been in Berlin two days before. Having a few hours to spare, he had spent the evening witnessing a spectacular revue in one of the new theaters which had sprung up in the west end. The usual tableaux, interspersed with topical, if rather vulgar, sketches were being given. The whole thing reminded him rather of what he had once seen in the Moulin Bleu in Paris. Then in a drop scene between the acts an item was presented which deeply engaged his interest.

The scene was at first quite dark, with the exception of the upper part of a black cloth, covered with spangled stars. As the lights went by they revealed a grotesque caricature of a professor, with long, flowing hair, attired in a shabby black coat and trousers, and an incredibly ancient and battered silk hat. On the hat were stenciled in large white letters the words "Herr Byford."

This singular and amusing individual was seated at an instrument resembling a microphone, and was surrounded by a number of cut-out and painted figures, representing various kinds of familiar animals. On the other side of a curtain, hidden from the professor but clearly visible to the audience, sat a Mephistophelian figure of fun, also before a microphone.

Loud laughter from the audience greeted this exhibition, which was increased when the professor, who possessed a real gift of mimicry, proceeded to send through the microphone some surprisingly realistic imitations of the various animals. To these Mephistopheles replied, also through the microphone, but with the sound of a *different* animal. This led to some rollicking fun, until Mephistopheles, after simulating a particularly startling roar of a wild animal, thrust his head through a slit in the curtain

to the consternation of the professor. The curtain then came down upon the brief skit amid general merriment in all parts of the house.

Harry Byford's friend was mystified and made some inquiries of the man who sat next to him as to the meaning of the skit. It seemed that a brief paragraph about John Byford had appeared recently in the Berlin Press, and the humorous journal "Simplicissimus" had based a whole-page cartoon upon it which had greatly amused the town. The skit was a somewhat free development of the cartoon. Byford's friend had to leave Berlin the next morning, and although he hurriedly searched the files of the papers, he could not find the news item in question.

Almost simultaneously with this a South American news agency circulated a paragraph which was not taken very seriously at the time, but which most of the Brazilian and Argentine papers reproduced in small type.

STRANGE STORY FROM BERLIN

A very strange story is going the round of the Berlin papers. It is said that John Byford, the well-known English savant and writer, who has a wireless research station in Switzerland, has succeeded in establishing contact with one of the distant worlds of space. Details are lacking, but it is reported that the experiments are conducted by means of

animals. We advise our readers to attach no importance to these sensational reports.

In New York, however, where Byford's reputation as a scientist was considerable, the rumors were not treated with the levity characteristic of the Latin countries. No particular notice was taken of the paragraph in the general press, but in literary and scientific circles some uneasiness was felt.

This was reflected in a communiqué which appeared in the "Science Monitor" and was reproduced next day in leaded type on the front page of the "New York Times." The article, which was headed: "MYSTERY OF SECRET EXPERIMENTS IN SWITZERLAND," read as follows:

Much concern is felt in scientific circles regarding the movements of Prof. John Byford, F.R.S., who has been engaged for some years in a series of secret experiments in Switzerland. The precise nature of these experiments has never been disclosed, but it is believed in informed circles that their results, if successful, will mark an important advance in our scientific knowledge.

A short time ago the experimenter left Zermatt with the intention of taking a brief holiday, during which his laboratory containing some valuable instruments, was partially destroyed by fire. In view of the absurd rumors now being circulated, an official investigation seems to be called for. These grotesque and obviously untrue statements do no credit to the cause of science, and an authoritative statement of the true facts should be made without delay.

This sober and restrained statement in two of the most influential American papers attracted considerable notice. Yet there was still no news of Byford, nor any real prevision of the thunderbolt which was shortly to descend upon the world. The article did, however, have one effect. It caused Frank Sillow, to whose exhaustive report I have already referred in a previous chapter, to verify certain facts which later were to be of some significance.

Taken by itself, the article would probably have had little effect upon Sillow's mind. Byford's reputation as an experimentalist was, of course, well-known to him, and Sillow had once corresponded with him upon an obscure point in physics. He read the leader in the "New York Times," therefore, with personal interest. But, beyond speculating upon the singularity of the affair, it did not lead his mind anywhere.

By a curious chance, however, upon the afternoon in question, a wooden case arrived at his house containing some negatives for which he had cabled to Paris. These negatives were copies, specially prepared at his request, from originals taken with the famous Coudé equatorial of the Paris Observatory. The work of preparing the duplicates had been intrusted to the well-known optical firm of Schultze, of Gre-

nelle, who packed them with great care and despatched them direct to America.

Sillow, who had been looking forward to their arrival with great interest, unpacked the box immediately after dinner. The contents were heavily protected by shavings, which he removed before coming to the glass plates within. These were in cardboard boxes which, for further protection, were wrapped individually in sheets of paper torn from a German periodical. Sillow was so engrossed in the exquisite quality of the negatives that he paid little attention to the wrapping until his attention was suddenly arrested by the word "Byford." He opened out the wrapper and found it to be a page from "Simplicissimus." It contained the cartoon which had aroused attention in Berlin.

Sillow paused in his work and studied this curious document with growing astonishment. He could understand the caricature of the professor, for the German artists are fond of poking fun at the university don and at the official classes. It was the animals represented in the cartoon which perplexed him, until suddenly a throw-back of memory sent his mind coursing in a new direction.

Seizing his hat and taking his keys with him, he went across to the laboratory. In the corner

of his room stood a desk in the drawers of which he kept his "log books," the record of his researches for the past few years. He turned on the lights and settled down at the desk to search.

"It was the night of the dance," he reflected, and worked through several years' records without finding what he wanted. Then, toward the latter end of 1926, he found traces and steadily turned the leaves backward until he came upon the following entry:

July 11th. Experimenter X. Cuckoo Sound several times repeated. Time, 11:35 P.M. Reception interrupted by local storms.

Sillow sat for a few moments deeply engrossed in thought. "Nineteen twenty-six," he said quietly to himself. "It's strange we have not heard earlier, unless . . ."

He rose from his desk and went across to a book-shelf from which he took down a well thumbed volume by Professor Pirelli, of the National Observatory at Milan. At the end of the book was a table of figures printed opposite to the names of certain stars.

Sillow ran his finger down this list until it stopped at a particular line. "It can't be that," he said softly, "that would bring us to 1934," and he went back to his supper deeply perplexed, and pondering the matter in his mind.

But Sillow was much nearer the truth than he suspected. Had he known the date of Marthe's illness, he would have anticipated by about ten days an announcement which was to become memorable in human history.

CHAPTER SEVEN

Sir William Gray Receives a Message

I SUPPOSE that no one who was actually in London at the time will ever forget that momentous Sunday in July, when the first authentic news of Byford's discovery came through and set the wires of the international exchanges palpitating with a strange and unfamiliar thought.

It had been an exceptionally hot and brilliant week-end, and having nothing particular to keep me in town, I had motored down on Friday afternoon to the Country Club at Staines, of which I was one of the original members. This delightful retreat, nestling among the trees beside one of the most beautiful stretches of the Thames, possessed many attractions for the professional man engaged throughout the week in the hard glare and turmoil of the city. One could always be sure of some pleasant boating, or a game of tennis on the green courts. In the eve-

nings, too, as the sun sank slowly over the distant hills, there was the companionship of kindred minds, the interchange of thought and ideas—sometimes the sharp, if friendly, clash of opposite opinions.

Greatorex, whom I knew slightly, came down from Oxford on Saturday afternoon full of the latest heresies from that home of lost causes. He was joined by Pilchard of King's College, and later, when the last editions of the evening papers had gone to press, came Sir William Gray, the renowned and distinguished editor of the "Evening Globe." We were a happy party and, after supper, sat far into the night by the water's edge, smoking our pipes or cigars, and discussing, as such a party of men will, a diversity of things.

I remember that about midnight, just when we were thinking of turning in, the conversation ran into a little backwater of discussion about what Greatorex described as the "declining mentality" of the age.

"It's no good denying it, Gray," he was saying, "our brains are going the same way as our hair and our teeth. Your own contributor, the Dean, said so in an article the other day, and I thought it the truest thing he'd said for years."

"I don't agree with that, Greatorex," said Pil-

chard. "Think of the really original scientific work which is being done, the new generalizations, the comprehensive recasting in the realm of physics. Surely these things tell against your theory."

"Neither do I agree," broke in Sir William. "The average intelligence to-day is probably higher than it has ever been before. Look at . . ."

Greatorex stopped him abruptly.

"The average intelligence to-day," he said, "is unfortunately what the press makes it. There are still a few papers which treat men and women as intelligent creatures, but as for the popular papers with the big circulations . . ."

"Steady, Greatorex," laughed Pilchard, "you are getting on to dangerous ground."

"It may be dangerous, but Gray knows that what I'm saying is true. They have to think of their public and in the end the public gets what it deserves."

"What exactly do you mean by that?" interposed Sir William.

"I'll tell you," said Greatorex. "You newspaper men seem to have no sense of proportion. If a significant thing comes your way, you tuck it away on an obscure page, without comment or elaboration, while some perfectly fatuous

article by an obscure flapper on 'What is Sex Appeal?' or 'How I Look at Divorce' is given a front-page show."

"You're exaggerating there," said Sir William. "In any case we have to cater for all tastes, and the flapper's point of view may be quite as significant in its own way as the most memorable pronouncement by Jeans or Einstein. What you really mean, I suppose, and I am inclined to agree with you, is that the emphasis is sometimes misplaced. The news item with the sensational tag gets into the limelight, while something with far more ultimate significance to the reader is pushed into the background."

"That's true," replied Greatorex, "but my complaint is that the popular press, by its very insistence upon the pseudo-sensational, has lost its sense of true values. If something really big were to come through to-morrow, something epoch-making like Galileo's discovery at Florence—it would be overshadowed in nine out of ten papers by the ephemeral and the unimportant."

"It depends a good deal," said Sir William reflectively, knocking the ashes out of his pipe, "upon whether there was a *story* attaching to it."

And with that penetrating remark the discussion ended and we went to bed.

The sun rose the next morning in a cloudless sky and we spent the first half of the day reading on the veranda. We had just had lunch and were contemplating a lazy afternoon in one of the shady Thames backwaters, when the telephone bell rang furiously in the lounge without. Pilchard answered it and came back in a few moments with the message:

"You're wanted, Gray—the 'Evening Globe' coming through."

Sir William rose from his chair with a muttered protest, and went, cigar in hand, into the lounge. Through the open door we could hear snatches of the conversation.

"Hullo! Hullo!

"Yes, Gray speaking . . . Right, put him through . . . That you, Forster? . . . Yes . . . Yes. What? Come back now? . . . Oh, about forty minutes if the course is clear. But what's on?"

There was silence for a few moments. Forster was clearly elaborating the message. Then the quick staccato tones of Sir William began again:

"Send out an urgent call to the staff. Say we shall publish a full paper at eight o'clock to-

night. *No*, not a stop press—a full edition. Tell Miss Simpson to warn the Dean and Sir Robert that I shall be coming through at four o'clock. What's that? Sunday afternoon? Do 'em good, wake 'em up a bit. I must go for the car now. In the meantime, carry on."

The telephone receiver went on with a click, and Sir William reappeared, rather flushed and excited.

"Sorry, you fellows," he said. "I have to go. We're coming out with an issue this evening."

"What the devil for?" exclaimed Greateorex. "It's Sunday. Won't it wait till to-morrow?"

"It won't," replied Sir William, laconically. "And if you do happen to buy an 'Evening Globe' to-night, Greateorex," he added significantly, "you will be bitterly disappointed. There will be no article by 'Obscure Flapper' on Sex Appeal."

With that parting shot he went out, and a few moments later we saw his car flying down the road in the direction of Feltham.

CHAPTER EIGHT

The First News of the Discovery

WHEN Sir William Gray reached the offices of the "Evening Globe" after a record run from Staines, he found a situation much more complex and far-reaching in its ramifications than he had at first contemplated.

The great building was humming with activity. He could hear the clatter of the linotypes as he stepped from the car into the spacious vestibule, and when he entered his room Forster was waiting for him with a "make-up" of the paper already in an advanced state of preparation.

"I've left the big feature and the editorial to you," he said, "but the rest is shaping nicely. It is fortunate we collected those photographs some time ago. I couldn't possibly have got them in the time, and they're absolutely essential to this story." He handed the "make-up" to his Chief with pardonable pride.

Sir William turned it over thoughtfully and slowly with an approving eye. "You are getting the right atmosphere," he said. "Now for the story. Where is Telford's cable?"

Forster produced the document.

Several weeks before when the mysterious paragraphs about John Byford first began to appear, Sir William's quick sense had recognized their possibilities. He sent for John Telford, a man who spoke fluently a dozen European languages, and who had often been useful to his Chief in difficult missions and inquiries on the Continent.

"Take the first train to Paris," he said, "here is a letter to Delacroix of the French Foreign Office. He will give you introductions to the leading scientific men in Berne, Milan, and Athens. Go first to Zermatt and find where Byford has gone, then track him down and get his story. Our terms are £5,000 for the exclusive first rights of reproduction. Mind, I want the *whole* story."

Telford went, expecting to be away a week at the outside; but the week lengthened into a month with no news save laconic messages from places as widely apart as Berlin, Warsaw, and Bucharest.

Forster, who had been looking forward

eagerly to the anticipated scoop, and had spent much time in assembling secretly the necessary photographs and drawings, became increasingly uneasy and impatient.

Then, suddenly, on Sunday morning, the telephone exchanges of Europe quickened into life. The great trunk lines between the various countries became heavily engaged. Telford had to wait three hours before he could get his cable through. When it did arrive in London it was dated "Moscow, Sunday, 1:15."

It read as follows:

REGRET EXCLUSIVE RIGHTS IN BYFORD STORY SECURED BY RUSSIAN NEWSPAPER NOVOE VREMIE. PUBLISHING FIRST HALF TONIGHT, REMAINDER TUESDAY, EXPERIMENTER HAS DEFINITELY ESTABLISHED COMMUNICATION WITH CIVILIZATION IN CONSTELLATION LYRA. AUTHENTICITY OF RESULTS GUARANTEED BY PIRELLI OF MILAN. PUBLISH AND AWAIT FURTHER CABLE. AMAZING STORY COMING.

TELFORD

Sir William had already heard the text of this cable over the telephone at Staines.

"Anything more?" he asked.

"Not yet," replied Forster.

"Then ring the Dean and ask him if he is busy for a few minutes."

While he was waiting the editor applied himself to the telephone and spoke for ten minutes in quiet and serious tones to Sir Robert Stirling, the Astronomer Royal of Great Britain. As he put down the receiver, there was a knock at the door and a courtly and distinguished figure entered. It was the Rt. Rev. John Maclelland, holder of one of the most coveted posts in the gift of the Church of England, the deanery of St. Paul's. The Dean and Sir William had been undergraduates together at Oxford, and had maintained a close and intimate friendship ever since.

"Well, John, what do you make of it?" inquired the latter, for the Dean, at his request, had been shown the cable an hour earlier.

"As a man and a student of the sciences, I rejoice," the Dean replied. "It is a great thing to live in days like these. But as a minister of the Church I am anxious. These partial revelations, you know—"

Sir William looked across at his friend in some surprise.

"Yes," continued the Dean, "we are never prepared for them, and they unsettle the minds of people for a generation."

"But why should a great scientific achievement like this, the first authentic communica-

tion between the worlds of space, upset people?"

"It will," said the Dean with emphasis.

"I should have thought it would be highly interesting to know the course the creative processes have taken in a remote and different world."

The Dean leaned forward in his chair and his voice assumed a more intimate and serious tone.

"The Universe is a strange place, Gray—a very strange place—and we haven't even yet begun to plumb its possibilities."

Sir William suddenly sat upright in his chair.

"Do you mean that there may be a *sinister* side to this thing—seriously?"

"I do. Hasn't it occurred to you as rather significant that, since Byford is an Englishman, the news of so momentous a discovery should come to us from Russia? Does not that suggest anything to your mind?"

Sir William reflected for a moment. "I see what you mean," he said slowly. "The Soviet—Bezbozniz—the Anti-God campaign."

At that moment Forster put his head into the room. "Mason is waiting for the leader, sir," he said.

Sir William rose from his chair and went into

an adjoining apartment. For ten minutes he dictated in his quiet, even tones to his secretary. When he returned it was with a sheet of paper in his hand. He handed it without comment to the Dean:

WARNING

The "Evening Globe" has received from its Special Correspondent news of great and far-reaching import. We print the cable in another column.

No one can predict what consequences may flow from an event without parallel in the history of mankind. In a few hours further details will be available. We are on the eve of disclosures which may affect profoundly the very fabric of our knowledge.

We venture to warn our readers not to be carried away by first impressions or by exaggerated reports, but to await that fuller discussion and assessment which so resounding a scientific achievement deserves and will certainly receive.

The Dean read through the typescript and rose to go. "Yes," he said quietly, "I, too, will prepare my people for what is to come."

Somehow we could not rest after our companion had come, and following an early tea on the lawns the party broke up by mutual consent. Pilchard and I took the next train to town, while Greatorrex made plans to run his two-seater to Oxford.

On arriving in London I dropped into my

club for a few minutes. There was no particular excitement, though the absence of several prominent newspaper men had aroused comment. It was generally believed that there was something going on behind the scenes.

From Pall Mall I wandered aimlessly down the Strand and Fleet Street. I had thoughts of dropping into the offices of the "Evening Globe," but as the Dean was preaching at St. Paul's and it was nearly six fifteen, I decided to attend the cathedral.

The service was marked by all that quiet glory and impressiveness which characterizes evensong in a great cathedral. The subdued light from the western sky streaming through the stained-glass windows, the high-pitched voices of the choir, the resonant tones of the responses, the organ accompaniment, now lightly supporting the singers, now crashing forth, rolling and reverberating from the high dome—all these were a fitting prelude and setting to the simple, though earnest discourse which the Dean delivered from the pulpit.

Strangely enough, I do not recall his text, but in a few carefully chosen sentences he stressed the duties and responsibilities of Christian Citizenship. Then, the sermon over, he paused. The cathedral was very quiet. A hush fell upon the

vast congregation stretching down the nave as far as the western doors.

"I feel it my duty to tell you," he said, "that, during the last few hours, news has reached London of a momentous happening—a happening which may have incalculable effects upon our lives, and upon those of our children. I do not propose to read you the message since it involves many difficult questions, and will be published in full in to-morrow's papers. But before you go I want to read to you some words which some of us believe come from a higher and more authentic source."

He felt in his inner pocket for the well-thumbed copy of the Gospels which served as the mentor for his own private devotions. Amid a deep silence he read from St. Matthew's version the familiar story of the man who built his house upon the rock.

The words fell upon my own mind with a certain solemn and hitherto unsuspected sense of weight, especially the unforgettable ending of that story:

"... he shall be likened unto a foolish man who built his house upon the sand. And the rains descended, and the floods came and the winds blew and smote upon that house and it fell, and great was the fall thereof."

"I ask you," continued the Dean, "during the

critical days which are to come, to behave with a dignity consonant with our great Faith, remembering that He who created all things will reveal and explain all things in His own time and way."

As he knelt in the pulpit at the conclusion of this brief statement, the first sounds of the coming babel began to make themselves heard. The shrill voices of the newsboys vieing with each other as they raced up Ludgate Hill came through the half-open windows. There was a noise of running feet, and the sharp hooting of impatient taxis sweeping round the churchyard into Cannon Street and Cheapside. Then came the final hymn and Benediction, and as the organ pealed forth the opening passages of Bach's glorious Toccata and Fugue in F, the great congregation began slowly to disperse.

I was sitting near the southwestern pier, under the dome, and it took a few minutes to pass with the slowly moving throng to the western door. When at last I reached the steps, Fleet Street and Ludgate Hill seemed suddenly to have sprung into life. Newsboys were running here and there, dodging the growing evening traffic, and selling their papers as they ran.

I was fortunate in getting the last copy from a boy who had stationed himself at the foot of

the Queen Anne Memorial. A man tried to snatch it from me, so I slipped through Paternoster Row into Newgate Street and took a passing cab back to the Club.

On my way I hurriedly scanned the paper, but the first glance showed that it would demand closer study than I should be able to give to it in those few short minutes. Sir William had been as good as his word. Far and wide that night throughout the Home Counties and in many other places as well, it was known that something immeasurable in its consequences had happened. After countless centuries of silence, the Universe had spoken at last to the perceptive mind of man.

CHAPTER NINE

The Next Morning

I AM TOLD by my cousin Ethel that, when she came down to breakfast the next morning, she found her father in a state of quite unusual excitement.

Sir Edward had been engaged for some months upon a learned study of the early Coptic and Aramaic documents of the second and third centuries of the Christian era. The book was due for publication in the following spring, but at the request of the "Times" he was contributing a series of special articles giving the general results of his research. One of these articles was to appear during the week and he was expecting an advance proof for correction that morning.

To his surprise and annoyance it did not arrive, but he received by the morning post an urgent letter, dated shortly after midnight, asking for a brief account of the Oxyrhynchus Say-

ings, to be delivered to the editor by eight o'clock the same evening. The letter added that the article was required for a special supplement on the Zermatt experiments to be published the next morning.

Now Sir Edward was not a scientific man. He took but small interest in the vast physical changes which had overtaken the world within recent times. For years he steadily refused to have even a telephone in the house, on the ground that it provided a facile means for comparative strangers to break in upon his study. Broadcasting was his *bête noire*, much to the disgust of Ethel, who had secretly installed a portable set in her private room.

When, therefore, he learned that his unquestioned authority in his own chosen field was being sought in connection with certain obscure experiments in Switzerland he was in none too good a humor. What possible connection could there be between the Oxyrhynchus Sayings and these mad proceedings in a little shack at the foot of the Matterhorn? He had half a mind not to accede to the request. The "Times" of all papers, ought to know better.

After a rather curt and grumpy greeting to his daughter, he opened the "Times," propped it up against a convenient milk-jug, and settled

down to his bacon and coffee. Ethel was accustomed to these occasional outbursts of irascibility. She knew that the mood would soon pass, and having received by the same post a long and interesting letter from an old school friend at Liège she was occupied for some minutes and paid no attention to her father. There was much in this letter to recall pleasant memories of her adolescent years. It seemed that her friend had since married and was settled in a charming villa near Lake Como. The letter closed with an invitation which Ethel had already decided to accept.

In the meantime Sir Edward's bacon was untouched and his coffee was growing cold! There was something in the sober language of the "Times" leader which gripped and held his attention. It seemed that, after all, this was not the artificially created sensation of the popular press. These investigations were "significant." They would probably "have a profound effect upon the future of philosophy." They might even "lead to the recasting of some of the fundamental concepts upon which Christianity and the great historical religions are based."

To hail a passing ship in the immensities of space [continued the writer] is a memorable thing. But when that ship itself is in some kind of mortal trouble and distress

beyond human mending, then romance shades into tragedy; the discovery becomes a challenge to some of the deepest beliefs and presuppositions of our race. It is that challenge which Professor Byford has thrown into the world. It cannot go unanswered.

There was much more in the article to the same effect.

"Father!" exclaimed Ethel, looking up suddenly from her letter. "You haven't touched your breakfast!"

Sir Edward's mood of irascibility had gone. "I was interested, my dear, very interested. It is all so unexpected, and . . . er—disturbing."

"Is it about Harry Byford's father?"

"Yes. I heard rumors of this last night, but I did not think that—" He paused.

"That it could be of any real importance, I suppose," said Ethel archly. "That's just like you, Father. A man digs up a musty old papyrus from an Arab monastery and you think all the world ought to be interested, but when something really modern and exciting happens—"

"You mustn't be too severe on my archaeological studies, Ethel," interrupted Sir Edward, and he showed her the letter from the "Times."

"My word!" said Ethel, pretending to be impressed. "It must be important. I shall have to read the 'Times' this morning instead of merely

looking at the advertisements. But I hate these highbrow papers. They are usually so terribly serious."

Nevertheless, when Sir Edward had retired to his study to write his article, Ethel Graham did pick up the copy of the "Times" which he had left on the breakfast-table, and she did not put it down again for nearly two hours.

CHAPTER TEN

On Certain Phenomena in the Constellation Lyra

NO ONE would have believed that in the course of a few hours the work of a single individual could have occasioned such a far-reaching repercussion as that which followed the publication of Byford's famous Memorandum: "On Certain Phenomena in the Constellation Lyra."

Looking back now upon the whole amazing sequence of events it is clear that Byford originally wrote this Memorandum with a view to publication in one of the learned journals—possibly "Nature" or the "American Journal of Science." It is composed throughout in that vein of studied deference with which the modern scientist is accustomed to communicate his provisional conclusions to others.

But the press of the world was quick to perceive that in this mass of technical and other

data was embedded a story which appealed to, and would ultimately affect, every solitary individual on this planet. They tore the heart of the story out of its sober and formal setting and exhibited it to the public in all its scientific, philosophical, and romantic interest.

I have thought a good deal about this matter—how to convey it to the reader, succinctly and briefly, what it was that Byford attempted, and the strange tidings which he drew from the depths of space. It seems to me that I can do that best by quoting partly from the Memorandum itself and partly from the more outstanding and suggestive comments of the time. I have before me now a batch of cuttings running to many hundreds of columns. They deal with every conceivable aspect of the subject. It is not easy to choose between them. But I will try to select those which illustrate most vividly the varying points of view.

The reader must remember that Byford's Memorandum was originally published in *two parts*. The first part appeared on Sunday; the second, containing the now famous "postscript," on Tuesday. There was, therefore, a period of forty-eight hours during which the scientific and philosophical aspects of the affair had time to sink into the public mind, before the very grave

implications of the closing paragraphs became known or were fully realized. It is this fact which explains why in all the earlier articles in the press the note of extreme urgency or panic was absent. That was to come later when Telford's final and very dramatic cable came to hand.

There were three aspects of the affair which aroused the widest possible interest and to which the newspapers devoted a great deal of attention. The first was the very peculiar signal adopted by Byford with a view to attracting the notice of a possible listener in the distant worlds of space—the call of the cuckoo, repeated thrice at regular intervals of time.

Byford tells us that he originally chose this signal because of "its haunting and unfamiliar sound." Reasoning strictly along terrestrial lines, he argued that if it possessed that peculiar quality for us it would probably be "equally arresting in its incidence upon an alien ear." In this he was undoubtedly right, but there is a touch of the bizarre in his description of the means he devised for *repeating* the signal over long periods of time.

Wandering one day [he says] around the antique shops of Geneva, I discovered a cuckoo clock with a particularly penetrating and melodious tone. The rather elaborate case

was of no use to me, and the price asked by the dealer was high, but after some keen bargaining I carried off the works, carefully screwed to a rough wooden base, in triumph to Schwarzsee. In the end this saved me a lot of valuable time and labor.

Rather amusingly Byford describes how, sitting with his improvised clock before the microphone, he turned the hands until they pointed to the hour, when the cuckoo sound was clearly enunciated three times in succession. He then waited until the hand had moved one minute, when the operation was repeated. The internal mechanism of the clock was, of course, adjusted so that the striking did not exceed three.

In this way the signal was sent forth upon its long journey across space at absolutely uniform and mechanically determined intervals. This took place with unbroken regularity for one hundred and three nights.

There has been much speculation among later writers as to why Byford, who possessed a ready invention and an abundant supply of tools, did not rig up a simple arrangement for repeating the signal automatically.

Here we touch one of the secret springs of his character. It would have been easy enough, no doubt, to have constructed the device, and he has since told us that he toyed with the idea. But

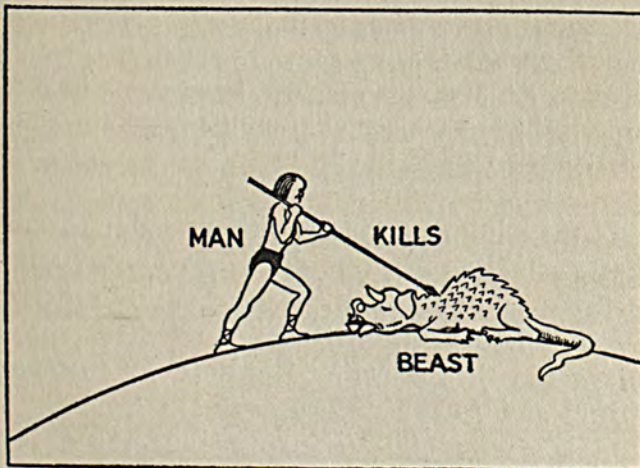
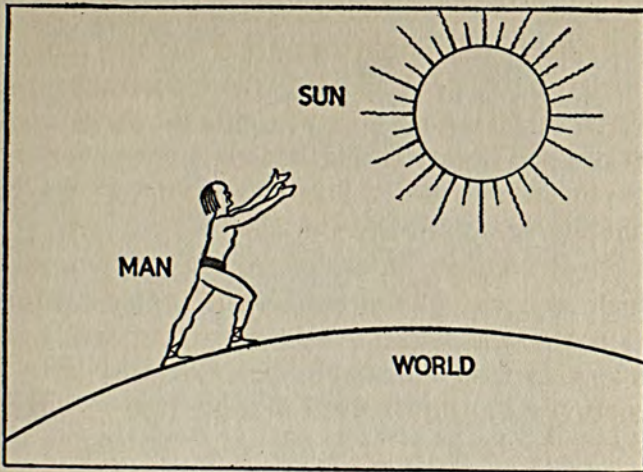
he seems to have had an instinctive dislike for the purely mechanical applied to the deeper aspects of his work. There was something of the Puritan in the austerity of his personal ideals. It pleased him to think that in sending even these preliminary signals, he was sending, as St. Paul once wrote to Philemon, his "very heart."

It is curious, however, to reflect that in the history books of the world, for untold centuries to come, one of the most memorable episodes in our planetary story will be associated with the picture of a gray-haired man, sitting in a rough shack in Switzerland, turning the hands of a rather dilapidated and apparently useless clock. Of such strange happenings is the romance of Science woven.

Hardly less romantic, however, was the method by which Byford overcame the real crux of his problem—the question of language and the medium of intercommunication. This point was discussed very interestingly by Colonel John Monday, of the B.B.C. Experimental Staff, in an article which appeared in the "Daily Express" on Tuesday morning.

At first sight [wrote this expert] it would appear almost impossible for a terrestrial observer to communicate with a distant world in such a way as to make himself immediately understood.

BYFORD'S VOCABULARY



This has always been the crux of the problem, not only from the standpoint of the scientific worker, but also from that of the writer of romance. Professor Byford has solved this problem in an absurdly simple way. He realized that the difficulties of language disappear if you can appeal through the eye (as in the silent cinema) instead of through the ear. The very amusing little pictures for example [previous page] are as intelligible to a Chinese or to a South American Indian as they would be to a schoolboy in Peckham or Hampstead. They speak a common language, and if to each object so depicted a verbal symbol is affixed the foundations are laid for an adequate vocabulary.

This, in fact, is what Professor Byford has done. By means of a photo-electric device, which anticipated by several years the more advanced work of Baird and others, the experimenter was able to transmit no fewer than three thousand of these simple and apparently childish drawings in the short space of about fifteen months, giving the verbal equivalent of each object in French and English. The labor involved by this method is, of course, immense, but its general practicability as a medium of inter-planetary communication is fortunately no longer in doubt.

It may interest the scientific reader to know that a selection of these drawings—now happily in the care of the Librarian of the South Kensington Museum—will be published shortly under the title of "The Zermatt Experiments: Visual and Aural Transmissions, 1932."

One of the biggest surprises of the experiment, however, was the unexpectedly short time

taken by the signals in crossing the abyss of space. This was much less than astronomers had hitherto considered possible, and in Tuesday's "Times" there was an interesting article by Sir Robert Stirling in which this question was discussed.

It appears that the measurement of the distance of the fixed stars calls for one of the most refined and difficult operations known to modern science. It consists of determining the extent of a very tiny displacement in the position of the star when seen from two widely separated points in the earth's orbit. It is, therefore, a problem in triangulation, in which the base of the triangle, some billions of miles long, is a straight line joining two points on the earth's elliptical path around the sun. The angle subtended by the apex of the triangle is known as the parallax of the star. A simple calculation will convert this into the required distance.

In the case of many of the brighter stars, this minute displacement has been observed and calculated very closely. It is known, for example, that Polaris, in Ursa Minor, is distant about 44 light-years from the earth. Sirius, one of the most brilliant stars in the northern hemisphere, lies at the intermediate distance of about $8\frac{1}{2}$ light-years, while the small star, Proxima Cen-

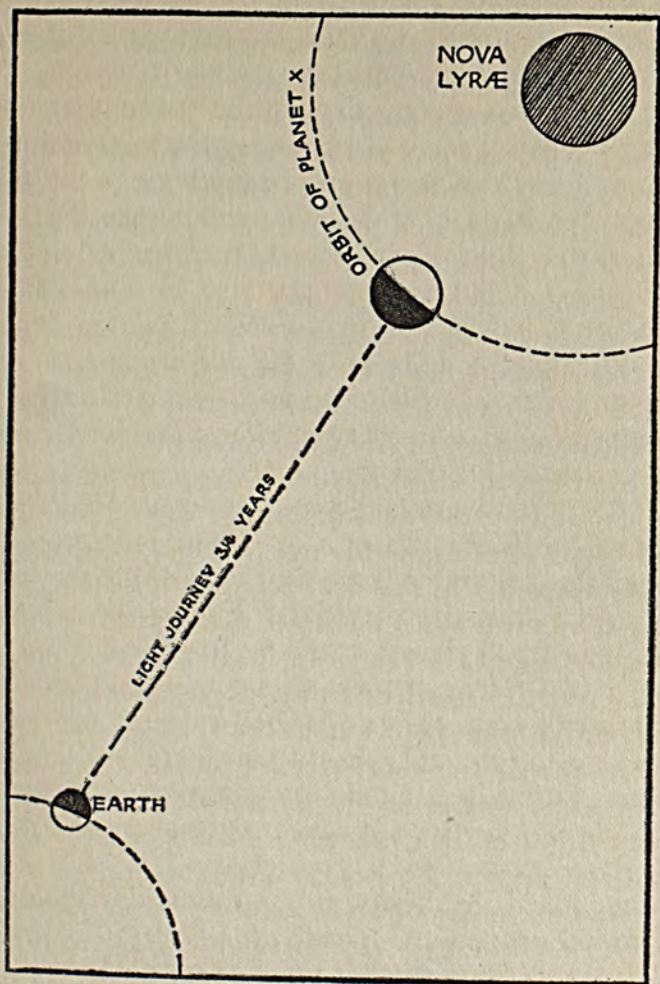
tauri, hitherto regarded by astronomers as our nearest neighbor in space, is situate at a distance of only $4\frac{1}{4}$ light-years.

The time actually taken by the Zermatt signals, after making due allowance for the known delay in their return, was just over three years and two months. Pirelli, of Milan, with whom Byford discussed this matter, came to the conclusion that the source of the messages must lie somewhere in the Constellation of the Lyre, and he identified it provisionally with the variable star Nova Lyræ, a small and excessively faint object situate about midway between Vega and its famous companion Delta Lyræ.

At first this was a case of pure conjecture, based upon the strength of the signal normally reaching its maximum about the time that Vega was crossing the meridian. Events have since proved it, however, to be an inspired, though very brilliant guess. As these pages go to press the news comes through that Schiller of Potsdam, using the new photographic method of determination, has obtained a parallax for Nova Lyræ, which agrees surprisingly closely with the Italian astronomer's prediction. Thus has another small but important fact been added to our knowledge of the Universe.

But of course the supreme interest of all that

THE NOVA LYRÆ SYSTEM



earlier revelation lay in the character of Byford's invisible collaborator and correspondent—that mysterious figure of the twilight whom throughout these memoirs he calls Nerina. I shall have occasion to describe that amazing and tragic partnership in some detail later in the book. It belongs to a phase of our subject which can only be discussed adequately in the light of the detailed evidence which I shall then give. But there was one feature of Byford's narrative which aroused the widest interest by reason of its dramatic and intensely human quality.

We must picture Byford, early in 1923, sitting in his tiny building at the foot of the Matterhorn, sending out that haunting, repetitive signal night after night for over a hundred nights. We must think of this ever-lengthening string of vibrations traveling outward through the ether of space—day after day, week after week, month after month—until one day, about three and a half years later, it fell upon the aërials of a very ancient building—a building older than the Pyramids, almost as old as Babylon itself. We must think of it awakening no response in the vast and apparently deserted hall within.

How many days passed before a lucky chance converted it into an audible sound will probably never be known. Byford himself thought that it

must have been at least ninety—so near did he come to complete failure—but in a graphic passage which has often since been quoted, he describes how Nerina, going by chance one night to the tunneled vaults of the great Temple of the Twin Pillars, heard for the first time that uncanny signal issuing from a recess in the vast and echoing hall above:

Cuck...oo, Cuck...oo, Cuck...oo

It was repeated three times and then ceased.

Had the matter ended there the course of terrestrial history might have been changed. But as she was retiring from that dark and forbidding hall with its great figures and monoliths of a past civilization, she heard something which alarmed her consumedly. It was a *voice*, speaking a language which she did not understand . . . followed by a kind of roar like the sound of the beasts in the distant forests.

Closing the doors hurriedly she ran to her dwelling. It was seventeen days—"precious days," as Byford himself puts it—before she ventured into that hall again.

And yet with all the tense drama which invested every line of that earlier narrative there was something yet to come which was more dra-

matic still. Though few realized it at the time, it was destined to bring in its train one of the worst panics in living memory, followed by a surge of consequences the end of which no man can possibly compute.

Alone among the earlier commentators, the Dean of St. Paul's seems to have had a vague prevision of its purport. Writing in the "Globe" on Monday evening after reading the full draft of Telford's cable, he said:

There is very much more behind these remarkable experiments than the desire to establish communication with the distant worlds of space. Professor Byford himself confesses it. There is not a word in all these amazing pages which dwells upon the wonder of the rare chance which has bridged the gulf of space. His mind is constantly elsewhere—probing, questioning, searching the distant galaxies for the answer to certain questions. And the replies to some of these questions may be other than we think.

The Dean's prediction proved to be right, though many anxious days were to pass before the world was tranquil enough to perceive its full significance.

CHAPTER ELEVEN

Telford's Third Cable

THE BOLT fell, as it were, out of the blue with all the startling suddenness of a thunder-clap.

It came in the form of a cable from Telford to Sir William Gray. It was in cypher, and arrived early on Tuesday afternoon. Forster, who was keeping open several columns of the paper, and had been on tenterhooks ever since lunch, tore open the envelop, rushed it to the decoding room, and a few minutes later the assistant editor and his chief were bending over the document.

It read as follows:

Final paragraphs of Byford Memorandum very alarming. Nerina now known to be last survivor of community wiped out by progressive increase in penetration of short-wave cosmic radiation. Messages ceased abruptly May 24th. Byford believes radiation to be corpuscular with a time lag of fifty-eight days. Allowing for reputed distance of Nova Lyræ, the earth will enter field of maximum intensity between midnight July 27 and August 1. Symptoms analogous

to prolonged exposure to gamma rays. Consult physicists concerning measures to be taken and warn hospitals and clinics everywhere. Message ends.

TELFORD

Sir William glanced significantly at Forster and then lifted his telephone receiver from its hook.

"Get me Sir John Horler and then Downing Street," he said shortly.

The bell rang. "Is that you, Horler? . . . Gray speaking . . . Cable in about the Zermatt affair. Take it down, will you? Got a pencil?"

He read the cable over slowly in his quiet modulated voice.

"What do you make of it?" . . . A pause. . . . Only what you expected! But, man, this is serious."

He lapsed into silence. Forster, standing at his elbow, could hear the deep tones of the great physicist vibrating in the instrument.

"Not so sure about the corpuscular theory," he was saying, "though it has its supporters. Millikan and Bowen have done a lot of work on these cosmic radiations. They exist all right. Very penetrating. Can't escape them even by going down a coal mine. If Byford is right, then . . ."

"Do you mean that the effect of the rays has been observed already?"

"Why, of course! The earth's atmosphere is saturated with them. Their quantum energy is terrific. Already, according to Cameron they are breaking up one and four-tenths atoms of air per cubic centimeter per second. And with a progressive increase in intensity the effect will be much greater. In fact, it's almost certain to be fatal."

"But what's this about a time lag?" interposed Sir William.

"That's the crux of the whole matter. If they are corpuscular the rays won't travel as fast as light or radio transmissions. If they did we shouldn't get any warning at all. The trouble would arrive simultaneously with the message. It's like an aëroplane racing a train, and, of course, in the end the plane wins."

"Can you give us an article on the time lag for to-night's paper? . . . Oh, just a popular article, describing how the thing works out . . . Right! I will expect it about six o'clock."

Sir William rang off. "Better clear another two columns," he said to Forster. "This story will want space."

As the assistant editor left the room he began

dictating to Miss Simpson in quick, nervous sentences.

"The news which we publish in another column is grave—perhaps the gravest in human memory . . ."

He paused. Somehow the balanced and impartial statement which he had visualized a few moments before would not come. This was no ordinary disaster which he was seeking to foreshadow. It was Death . . . death—silent, cosmic and unescapable, which was speeding across the infinity of space . . . perhaps it would be better not to be too explicit . . .

The bell rang again, and Sir William was engaged for some minutes in earnest conversation with the Prime Minister's private secretary at Downing Street. He turned the subject over, emphasizing in serious tones its ominous aspects. There were prolonged silences while the other pondered.

"We could hold off until to-morrow at any rate," Sir William was saying, "if that would help."

"Wait a minute," replied the other, his voice suddenly fainter, as though he had stepped away from the instrument. Three minutes went by and then the bluff voice of the Prime Minister himself came through.

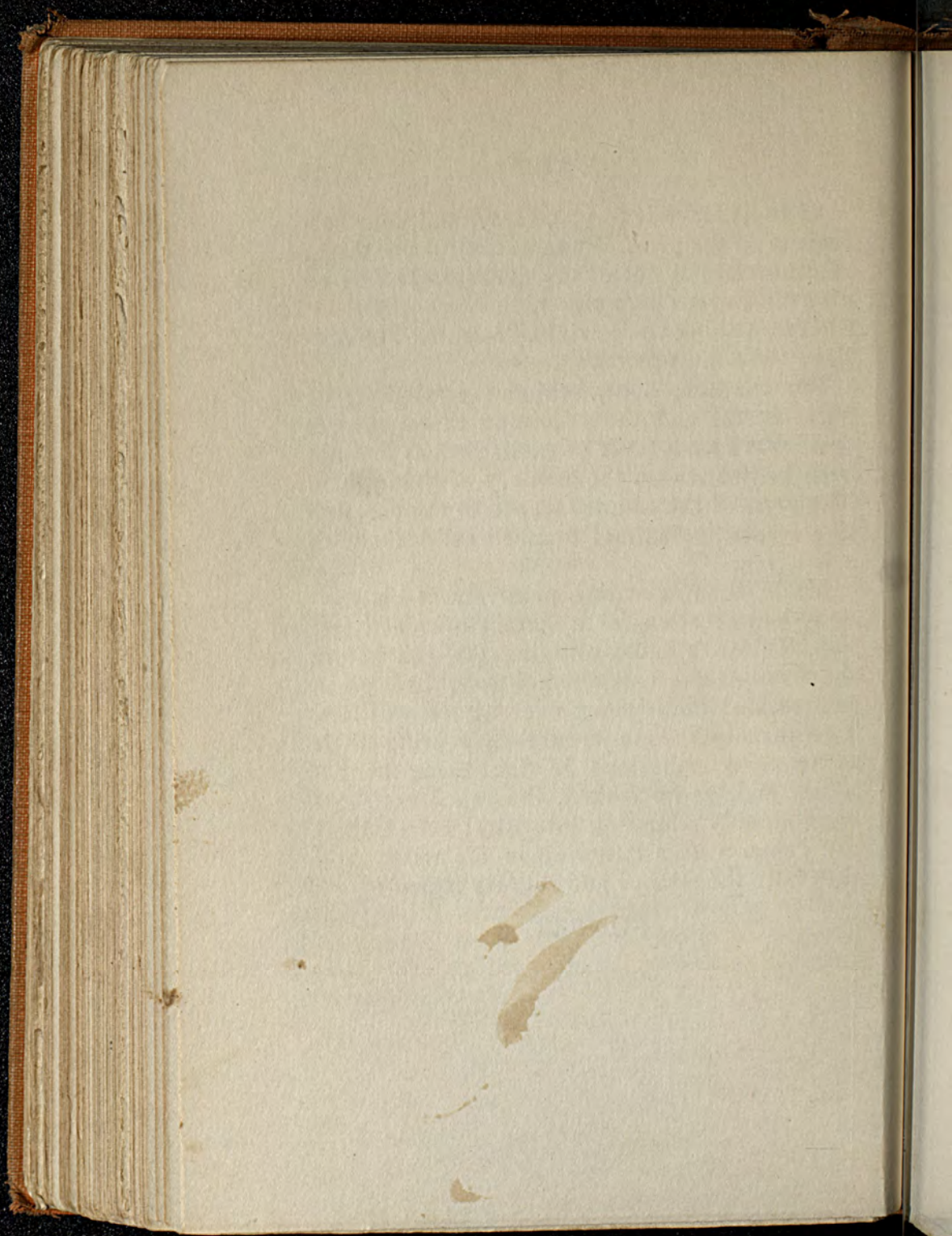
"I must leave it to you, Gray, and your colleagues on the press. We can't control this thing. A censorship is out of the question. It will be all over Europe to-morrow."

"Yes, I think you're right," assented Sir William. "We must go on."

For the next hour, behind the windows of Fleet Street and the adjoining thoroughfares there was such a fever of excitement as had not been known within the memory of living man. The press of the country leaped to the occasion like a sensitive animal branded suddenly with a hot iron.

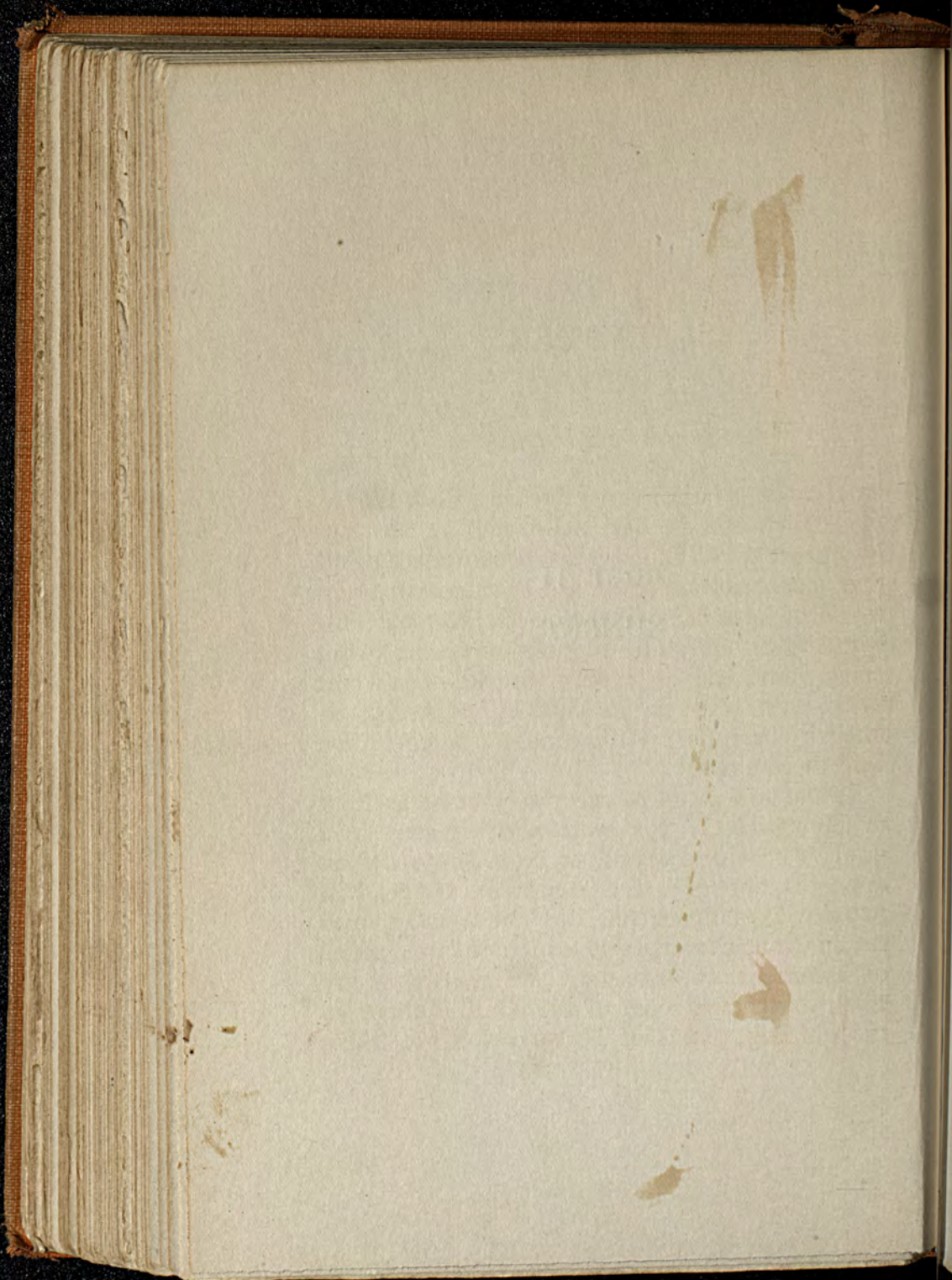
Sir William, standing pensively at his window, had occasion for a certain grim satisfaction. Telford's cable, slipping through before the Continental congestion began, had given him several hours' start over his competitors. The machines were even then roaring their monotonous undertone in the basement beneath, and, as he looked, the eager newsboys were already scattering into Fleet Street, their red contents bills fluttering in the wind. And they bore the strange and solitary legend:

SUNSET



BOOK II

SUNSET



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CHAPTER TWELVE

Sunset in Kingsway

IN A GREAT building overlooking Bush House, which stands like a sentinel at the approaches of Kingsway, was concentrated all that vast organization known to the commercial world of both hemispheres as the Hotspur Advertising Service. This organization, employing many hundreds of experts in their different fields, was famed for its stability, its wealth, its integrity and its far-reaching influence in the field of commerce.

It was not given to everybody to be a client of Hotspur's. If you were a rising man in a small way with a couple of retail shops and an appropriation of a few hundreds to spend in popularizing them, you did not usually enter the spacious portals from which one of a series of ascenseurs would carry you swiftly to the thickly carpeted room of Sir Keith Robertson, the guiding genius of Hotspur's. More likely

you went to one of the lesser agencies, where an enterprising "contact man" would talk earnestly in terms of market research, ratios, sales-compelling copy and all the strange jargon of his profession. But if you were the chairman of a great company, operating in millions, with £50,000 or so to spend upon an eight-weeks' campaign, then you were a prospective or even an honored client of Hotspur's. Their vast organization was at your service. They would buy space in the newspapers, snap up bargains for you on the railways or hoardings, design and create attractive schemes, organize your literature—in fact do everything which would put drive into your campaign and bring grist to your mill. And if Hotspur's did it you were usually right. They did not countenance or encourage failure. Their very name behind an advertiser's effort almost invariably spelt success.

It was about ten o'clock on Tuesday morning when an expensive limousine drew up silently and swiftly to the main entrance of Hotspur's and Sir Keith Robertson alighted. He had a big day before him. There was a conference with the Directors of the International Flight Corporation at eleven thirty; lunch with Lord Midhurst, the newspaper magnate, at one; a long series of minor appointments during the

afternoon; and, sandwiched between these, the supervision of a spectacular price-reduction scheme for Formby's Malt Extract, which was to be sprung unexpectedly upon the public and his client's competitors the following morning. The campaign had been prepared secretly in his office throughout the preceding week; the spaces in the papers were booked; the stereotypes and matrices containing the copy were ready. It only needed the final word from him to put the scheme in motion.

With a pleasant greeting to his secretary he removed his hat and coat and sat down before a pile of letters which lay already opened upon his desk. It was a miscellaneous assortment—here a contract note for a bill-posting scheme running to a few thousands; there instructions for fixing enamel plates in the principal railway stations of Brazil and Peru. Several of the longer letters were marked "confidential." Many trade secrets came to Sir Keith during the course of his business and he could be trusted to keep them.

He was in the middle of one of these letters when a knock came at the door and John Walters, the press manager of Hotspur's, entered.

"Good morning, Walters," said Sir Keith

cheerily, looking up over his *pince-nez*. "Anything urgent?"

"It's about the Formby Campaign, Sir Keith. We're inundated with offers this morning."

"Cheap spaces, you mean?" queried his chief.

"Yes. It's this Zermatt business, you know. Most of the papers are planning big issues for to-morrow. Both the 'Mail' and the 'Express' tell me they will run to twenty-four pages, and the other papers are following suit."

"What about the 'Times' and the 'Guardian'?" asked Sir Keith.

"They are producing special supplements. I can get a half-page facing the big feature, if it will help."

He handed across the table a list of papers, with the positions available in each.

Sir Keith reached for his receiver and spoke for a few moments on a direct line to Lord Belton, the chairman of Formby's.

"It will cost another twenty-five hundred pounds," he said, "but it's probably worth it. These issues will be kept. I was talking to Gray last night and he said that the big discovery is still to come. They're expecting it this afternoon . . . What's that? Competition of news interest?" . . . (he reflected for a moment) . . .

"Undoubtedly, but we can play up to the news in the copy. Something really topical. . . . Yes. I'm inclined to agree. I'll see to it."

He rang off and turned to Walters. "You can book the papers I have marked on the list. Tell them the copy may be late, say eight thirty, but they can use the standard wording for the Manchester and Scottish editions. Send in Mr. Thomson, will you, as you go out?"

"We want some topical copy for Formby's, Thomson," he said, when the literary director entered.

"What's the topic?"

"The Zermatt business. I understand that the big story is coming to-night. We must think this out carefully. Belton doesn't want anything sensational. Just good selling talk, with a topical interest."

Thomson reflected. "We might include photographs of the research laboratories—latest scientific methods—absolute purity—power of malt extract to increase bodily resistance, and so on."

"Yes, that's a possible line for experiment, but you may do better. Get busy and let me see some rough lay-outs. Remember, we have to be out by eight thirty."

So the morning wore on.

The business of Hotspur's, always a center of activity in the commercial world, proceeded as usual. Newspaper representatives, space-brokers, bill-posting contractors, printers, people with gadgets and devices of all kinds ascended and descended the ever-moving elevators. They were received with the courtesy that had made Hotspur's famous and, incidentally increased their power to clinch a close bargain.

Behind the glass doors which concealed the various offices and studios a diversity of operations was in progress. Photographers were focusing the latest products of Hotspur's many clients under cunningly contrived illumination for illustration in the press; rising artists just aspiring to the stage where their signatures to a sketch meant something, were devising posters and show-cards which would arrest the attention of the public; literary men from the universities were writing brochures, pamphlets, interviews and press "copy." In the great despatch departments, men and women were busily engaged packing blocks and matrices which a bevy of uniformed messengers would shortly carry to the press offices in Fleet Street and to the railway stations for the North. Below in a brilliantly lighted basement hefty warehousemen struggled with great bales of posters destined to carry the

message of Hotspur's clients to places as remote as Bargoed, Tipperary, or Penzance. Truly might this vast building with all its ceaseless and manifold activities be described as one of the nerve centers of the modern world.

It was about three-twenty in the afternoon when the first signs of something unusual became manifest. Miss White, the operator at the private switchboard of Hotspur's, noticed it, for it was her duty to plug through the incoming calls to the departments concerned. Sir Keith had only been in his room about ten minutes, having returned late from his lunch with Lord Midhurst, and already there were four or five urgent calls waiting on his line. She tried to relieve the congestion by offering to ring again when the line was clear, but the callers were insistent, and they were some of the biggest clients of the House.

Sir Keith was occupied for a long time with the first call, and when at last he hung up the receiver, she took the opportunity of having a word with him.

"There's a string of calls waiting for you, Sir Keith; they've all been holding on for some minutes, and are getting impatient. Will you take them now?"

"Put them through," said Sir Keith grimly.

But Miss White's difficulties were not over. In less than ten minutes all her incoming lines were engaged and she was compelled to put some of the less-important calls through to Mr. Walters.

"Hullo, hullo!" said Walters, answering the insistent ringing of his bell. "Hotspur's speaking . . . yes . . . yes . . . cancel next week's campaign? . . . It's going to be difficult. All the orders are placed, you know. Special positions we took a lot of pains to get. Still, if you insist, we'll see what we can do."

He jotted a note upon his pad and rang off.

Again the bell rang, and again. It was the same story. Cancel everywhere possible. Walters tried to reason and allay the panic, as Sir Keith himself was doing in the adjoining room, but without avail. The instructions were definite, imperative. The notes on Walters's pad were assuming formidable dimensions. During a brief respite he went in to consult his chief, only to find the same disquieting symptoms, but upon a bigger scale.

As the afternoon wore slowly on the magnitude of the thing became apparent. By five o'clock the cancellations amounted to a quarter

of a million pounds; by six thirty they had risen to £650,000.

The situation was grave—graver than Hotspur's had ever known before. Sir Keith was pretty certain that the morning's post would intensify it. He sent for his secretary. For two hours he dictated, and for two hours more the typewriter in his private room clicked away ceaselessly under its sound-proof case.

The sun had long since set and it was already dark when the letters were ready. Tired out by the day's exertions, and with a deep sense of foreboding, Sir Keith affixed his signature and descended to the street. He could hear the shrill cries of the newsboys far away down Aldwych toward the Strand. Above his head the massive bulk of Bush House stood out against the deepening blue of the starlit sky. And high above all shone Vega and the Constellation of the Lyre.

CHAPTER THIRTEEN

Sunset on the "Underground"

"**W**E CAN'T control this thing," the Prime Minister had said, and the truth of that remark was to become very apparent on Wednesday morning.

It was as though some gigantic cable had parted and the ship of human destiny had begun to drift perilously toward uncharted seas. Although Telford had secured for Sir William a clear lead of several hours over his rivals in Fleet Street, a very full version of the second half of the Byford Memorandum was available to the press in London by about nine thirty on Tuesday evening. The great dailies had ample time, therefore, to digest its contents and to present its conclusions to the public.

In justice to a very hard-worked and able profession it may be said at once that the handling of this difficult pronouncement at such short notice was very creditably done. Few journalists

could have foreseen that in the heart of a scientific report dealing mathematically, and often profoundly, with such questions as stellar parallax, short-wave radiations, and other concepts of modern astrophysics there would be embedded, not only a body of speculations of a fundamentally religious and ethical character, but a warning of the utmost gravity.

The more serious journals tried to preserve some sort of balance between these diverse and conflicting interests, but taking the popular press as a whole, the religious and scientific aspects of the affair were overshadowed completely by the emphasis given to the closing paragraphs, which were set out in heavy leaded type, under scare head-lines, in the big circulation papers.

One very popular journal devoted nearly half of the front page to a large-scale drawing showing the position of the Constellation Lyra in relation to the Solar System, with a series of circles marking the rapid advance of the invisible menace toward the earth. Similar drawings and photographs, designed to illustrate the gravity of the situation appeared in the illustrated papers. Thus, when the population of Greater London and the nearer counties came down to breakfast on Wednesday morning they were con-

fronted with the story in its most disquieting and alarming form.

I am told by a cousin who was living at Epsom at the time that there was a good deal of discussion on the crowded suburban trains. Elderly and reserved men, who normally sank into a corner of their first-class compartments and were thereafter absorbed in the columns of their favorite newspaper, became unexpectedly communicative.

"Serious business, this Zermatt affair," said a slightly deformed man (apparently a merchant) to my cousin who sat opposite to him.

"Yes. Anything in it, do you think?"

"Can't say. Personally I shouldn't be surprised. Whichever way it is, the newspapers will, of course, run it for all it is worth. That's only natural. But it will be bad for business while it lasts. Just when a recovery seemed to be in sight."

"Trade a bit depressed just at present, eh?"

"Yes, very," he said significantly, and relapsed into his paper.

His mind was still running on the affair, however, when the train came to a standstill at Victoria. He reached for his bag.

"Deucedly awkward," he remarked, "if By-

ford did happen to be right," and with that he stumped off toward the barrier.

It was noticeable at the great London termini that a brisk trade was being done in the late editions of the morning papers. People who had not seen the news, but who were vaguely disturbed by the conversations in the trains, purchased copies on alighting, and the stations presented the rather unusual spectacle of little groups of men standing about in twos and threes, discussing the matter before proceeding on their way.

In the meantime things were rapidly developing elsewhere.

The first authentic signs of a departure from the normal were observed in the office of the traffic controller of the Metropolitan and District Railways at Earl's Court Station. It was at the height of the morning "peak." The usual heavily-loaded trains consisting of six- and eight-car units had been running for over three hours, bringing the city workers from their homes in Hounslow, Kew, Brentford, Ealing, and the vast network of stations in the Western suburbs.

The clock on the office wall pointed to ten

past ten. According to daily precedent the volume of the traffic would now begin to fall off. Already at the terminal stations and dépôts, men were beginning to sign off at the end of their first shift. The long eight-car trains were being divided, and the surplus cars "stabled" in readiness for the evening "peak." Men who had been on continuous duty since five o'clock were being given their thirty-minutes' "meal relief." Others, having completed their duty, were traveling back as passengers to their home stations.

Ten minutes went by, and the controller looked anxiously at the moving indicators on the walls of his room. Although the moment for the subsidence of the traffic had passed, it seemed to be increasing. The headway between the trains, usually $1\frac{7}{8}$ minutes, was widening. The more distant trains were beginning to run late. There seemed to be a slowing up along the whole system.

Two bells rang almost simultaneously. The calls were from the traffic inspectors at Turnham Green and Ealing. The story in each case was the same. Exceptionally heavy loads of passengers passing through. Station platforms becoming overcrowded. The usual three-car trains inadequate to deal with it.

The controller grappled with his work. In

quick succession he spoke to the yard masters at the great dépôts. Partially dismantled trains were reassembled. Additional units were put on and eighteen tape machines clicked out messages to the principal stations on the route: "Peak service to be maintained until further notice."

There were an infinity of details to be adjusted. The trains from the more distant stations, already some minutes behind the time-table, were beginning to foul the regular service on the Inner Circle and had to be fitted in where they could. Reports of growing dislocation began to pour in, especially from Victoria, Charing Cross, and Cannon Street stations. It seemed that there was no possibility of the existing service carrying the traffic. Charing Cross with its two subsidiary stations was becoming a pandemonium.

The controller lifted a receiver and spoke to his opposite number in the control office of the London Electric Railways at Leicester Square.

"Better stop through bookings to our section for a time," he said, "we've got as much as we can carry."

"We've already done that," came the answer. "It's the same with us. Central London still running at peak pressure. Highgate, Edgware,

and Finsbury lines all running late. Never known anything like it before."

And the two men rang off to cope with the urgent and insistent calls which were descending upon them.

In the meantime crowds of some density were gathering in the center, particularly in Whitehall, Parliament Square and the neighborhood of the Abbey. At first the authorities were content to keep the throng of people moving, but as the day developed this was found to be impossible. For a time vehicular traffic between the Strand and Victoria had to be diverted to the Mall, while a body of mounted police cleared a lane through Whitehall. The Home Secretary, seeking to leave for the House at three thirty, found Downing Street impassable.

And yet, on the whole it was a silent multitude which on that first day pressed and thronged around the seat of Government. The disorderly elements which were shortly to emerge had not yet appeared. There was an air of suspense, of waiting for some significant pronouncement. Many found their way into the peace and quiet of the Abbey or of Westminster Cathedral. Many more stood respectfully along the wide footpath, and around the fountains of the Victoria Memorial watching the windows

of the Palace, as though unexpected strength radiated from the Royal presence. Toward evening the news went round that an emergency meeting of the Cabinet had been called and was sitting at Westminster.

That night the confusion and dislocation on the railways passed all precedent. My cousin, who went to Victoria about five fifteen in the hope of catching his usual train, got as far as Clapham Junction by eight thirty. He thought himself lucky when he reached Epsom shortly before midnight.

CHAPTER FOURTEEN

Sunset in the City

I SUPPOSE it will always remain somewhat of a mystery just how and where that insidious movement started which precipitated one of the worst financial panics on record, and threatened for a time to lay the very fabric of civilization in ruins.

Some of the keenest intellects in Europe have sought to indicate the exact point where blind consequences ended and the scheming of astute and far-seeing brains began. Where they have failed, no purely philosophical writer can hope to succeed. And yet, looking back now upon the whole amazing sequence of events, it is clear that the thing became unmanageable—and that at a very early stage—precisely because of those sinister and unsuspected elements.

By a curious chance the storm broke in the city at a moment when the industrial and financial barometer, after a period of acute depres-

sion, had just begun to indicate "set fair." I am told by a friend in close touch with the markets that, throughout the early hours of Monday morning, a confident and cheerful tone prevailed. Prices had been advancing steadily for some time; industry was obviously recovering; and several new ventures had recently appealed to public subscription with marked success. Moreover, money rates were moving on an upward curve and the demand for financial accommodation was keen.

It is true that a feeling of anxiety persisted in some quarters concerning the prospects of the approaching settlement, but this was discounted by cool observers in view of the buoyant tone of the market and the general optimism.

Meanwhile, the Byford story, as Fleet Street dubbed it, was the subject of comment everywhere.

"Deucedly interesting, I say," said Pettifer, the financial correspondent of the "Globe," taking his morning coffee in a crowded café off Throgmorton Street. . . . "Ingenious, too! Think of that fellow having the patience to turn the hands of a clock all those years on the off chance of the message getting through."

"What I can't understand," interrupted Johnson, a dapper little bank clerk from Lloyd's, "is how he kept track of the communications. Do you realize that six years had to go by between question and answer?"

"Some sort of diary, I suppose," replied Pettifer. "It *could* be worked, you know . . . Like playing chess by post with a man in Australia . . . Slow business, but it's done."

"I don't agree there, Pettifer," objected Johnson. "The analogy isn't sound. Your chess-player knows his opponent's reply before he makes the next move. Byford couldn't wait for that. It would have taken centuries."

"I know. That's what stamps the thing as so infernally thorough. He thought out all the gambits in advance and played them in succession."

"But what's the good of it all?" asked Baines, the realist of the party, dropping a lump of sugar into his coffee and stirring it vigorously. "Who cares twopence whether there are civilizations in space? There's no business end to that proposition. We can't sell 'em anything."

"Not even 'Kolomas'," said Pettifer, maliciously, looking at Baines amid general laughter. Koloma mining shares were a sore point with Baines.

"Not so sure about the business end, either," interjected a hard-bitten broker from the end of the table. "This boom ought to be good for the Radio sections. A bit out of the picture lately. This will bring them into the limelight."

"The newspapers are seeing to that," laughed Johnson. "Must be a god-send to some of them. Haven't seen the 'Evening Globe' so interesting for years."

"Yes, it *is* rather a good story," said Pettifer modestly, and after some more good-humored banter, the little party broke up and went about its respective avocations.

And yet, despite the prevailing optimism, a sense of something chilling and disturbing began to permeate the city as the day wore on. Pettifer, who had just come in from the precincts of the House, reported it to his editor about three o'clock.

"There's a big drive on somewhere," he said. . . . "I can't quite size it up. The jobbers say it's been going on all the morning. Not the weaker descriptions, either, but sound stocks put round discriminately, you know, to lessen the shock."

"What does Walters say?" queried the editor.

"He's a bit puzzled, too," replied Pettifer. "It is not as though the thing were confined to one

section. It began with Shells and Royal Dutch. They are both down several points already. Then Consols dropped to eighty-six. Unilevers are already below last week's level . . . but look at the tape, man . . . it speaks for itself . . . this thing's spreading."

The two men watched the little ribbon of paper as it unwound itself slowly from the machine. There could be no mistaking its purport. Exceptionally heavy selling was in progress somewhere, and with few buyers about, prices were slumping all round.

"Looks as though somebody is caught short for the settlement," said the editor. "Conversion Loan and Brazil Traction also down a point, I notice."

"There's a great deal more in it than that, I think," replied Pettifer. "This thing is being engineered. Somebody knows something that we don't. You might put out a feeler in Whitehall—particularly the Foreign Office. That Naval Treaty, you know, has never gone through. A lot of this selling, I am told, is inspired from the Continent."

"There may be something in that," replied the other. "I'll make some inquiries," and he reached for the telephone.

The editor spoke for a few minutes to a high

official in Whitehall, but the replies were non-committal and threw little light upon the main problem. There were no international or European complications to occasion disquiet. The political horizon was clearer than it had been for weeks. As for the Naval Treaty, it was true that there had been a slight hitch, but the negotiations were proceeding in the most amicable spirit. The official knew of nothing in the political sphere which would justify any sudden movement of apprehension or panic.

Pettifer waited to hear the result of this conversation, and then went out to investigate further on his own account.

In the House itself, however, and in the multitude of busy offices surrounding it, anxiety was growing. Jobbers and brokers alike began to ask what this persistent selling meant. The "shop" associated with a group of big industrials stepped in and took for a time the stock offered. There was a flicker of a rally. Then they withdrew to consider the situation and prices slipped rapidly to a new level.

The advices from Paris and Berlin told very much the same story, and all eyes were now turned upon New York. Would Wall Street step in and by firm buying at the reduced levels, help to restore the equilibrium? In some quar-

ters it was confidently predicted that they would, but, with the official opening it became evident that little help was to be expected from that quarter. New York seemed to be facing a crisis of its own. All the earlier cables reported an uneasy feeling coupled with substantial selling orders both on home and foreign account.

The Stock Exchange in London was profoundly relieved when closing time came. The "Street" stayed late in the hope of a last-minute rally from New York, but when this did not materialize, members went home puzzled and disquieted by what was taking place.

The next morning brought fresh hope and the promise of a recovery. The threatened interests were now thoroughly aroused. Plans had been hastily laid overnight, and with moderate buying in the depressed markets the tone steadily improved. Jobbers, thankful for the opportunity of reducing their commitments, were quoting much closer prices than on the day previously. Markings crept up slowly. The bears seemed to have retired from sight, and members went out to lunch feeling that at least the worst was over.

The hope proved, however, to be delusive.

According to Pettifer, who kept in close touch with the situation, the landslide began

about three o'clock with an urgent telephone instruction from a big industrial magnate in the north to dispose of his entire holding of Chartered and De Beers at the market. The brokers who received the message were frankly puzzled. Their client was not usually given to speculative operations. His instructions were generally very explicit, stating the exact limits within which he was prepared to buy or sell. On one occasion, owing to a sharp rise in the market they had exceeded his instructions by an eighth, and had received two days later a curt letter of protest in consequence.

The head of the firm put through a long-distance call and tried to reason with his client. "This isn't the time to unload a big parcel like yours," he said. "You're operating on a falling market. However carefully we try to place them it is sure to send them lower. My advice is to hold, at any rate for the present. They'll probably be back again in less than a week."

"Don't argue," came the irascible reply. "You're losing time. Go into the market and sell 'at best.'"

The broker replaced the receiver with an air of resignation, made a hurried note upon his pad, and went out. It was three o'clock.

The street, always busy and animated at this

time of the day, presented a somewhat unusual appearance. A newsboy standing at the corner of the Royal Exchange was selling copies of the "Evening Globe" to an excited crowd of buyers. People were pushing and struggling to get to the center of the throng, and then to get out again. The broker was fortunate in finding a colleague who had just emerged, breathless and hatless from the fray. The two men hastily scanned the front page and disappeared swiftly down Threadneedle Street in the direction of the House.

Meanwhile, the telephone bell was ringing furiously in the broker's office, as it was doing in a hundred other offices in Throgmorton Street and the surrounding thoroughfares.

The junior partner took the call. "It's absolute folly selling at a time like this," he was saying. "Throwing away good money! This thing will blow itself out." But his client was obdurate. "Haven't you seen the news?" he called back irritably. "To-morrow things will be worse! Sell now, while there's a chance."

So the minutes passed in a growing fever of excitement. All over London and the nearer counties the telephone exchanges, already working at high pressure, rose in a crescendo of clamor and insistence, stabbing relentlessly at

the city's financial heart. Fortunately, the official hour for the closing of business was at hand, but the attendance in the "Street" that night reflected pretty accurately the anxiety felt by all sections of the House. Pettifer, who haunted the precincts of Throgmorton Street and Capel Court long after the hour when he ordinarily returned to Brentford, came away with a premonition that the city was on the eve of one of the gravest crises in its long and checkered history.

Wednesday morning dawned against a dull and sunless sky, a fitting background to the gloom and apprehension of the House. It was pay-day on the Stock Exchange and rarely had a more anxious one been known. From ten o'clock onward members and clerks passed in and out of the House, their grave and subdued demeanor hinting plainly at the fears which were already spreading. Little business was done during the first three-quarters of an hour for, though few admitted it, one thought was in everybody's mind. At ten forty-five the hammer could commence, and none knew the extent to which even the biggest operators were involved.

Fortunately there was only one hammering during the morning—a small but respected

firm whose commitments in the International markets were considerable. Other and more important firms, however, were known to be in difficulties, and many brokers who had been told overnight that they must "wait a little," spent the morning hurriedly searching for additional loans to make up their shortage.

At noon the bank rate was advanced from $4\frac{1}{2}$ per cent to 6 per cent.

A great deal has since been written concerning a supposed conference said to have taken place between the Committee of the Stock Exchange and the Bank of England late on Tuesday night. The reader may take it that the story is a pure invention. I have it on the highest authority that no such meeting was held, and that the idea of interfering with the existing arrangements did not suggest itself to the Committee. In any case, the settlement having commenced had to be carried through. Any interference with it would have landed the House and the country in dire confusion.

There was, however, I learn from the same authoritative source, "as little price making as possible." Jobbers did all they could to accommodate their brokers. People compelled to sell were still able to do it at a price, but the price

was low enough to discourage bear selling effectively. Foreign selling was practically reduced to vanishing point. Orders from Continental Bourses generally received the stereotyped reply: "not dealing."

As the day advanced six more names came under the hammer—five brokers and a highly respected firm of jobbers. Much sympathy was expressed with these early victims of a crisis which, owing to its international and world-wide character, had passed temporarily out of control. Meanwhile, dealings between London and New York—normally the life blood of the two markets—were becoming increasingly difficult. Wall Street was practically isolated, owing to the dearth of sterling bills and the sharp movement of the Exchange against the dollar. That night, when the checks of the seven members came back from the Clearing-House, the gloomiest forebodings prevailed.

Thursday morning saw the crisis rising swiftly to its height. Sensation followed upon sensation. The bank rate jumped from 5 per cent to 8 per cent. Prices continued to tumble. Consols were below seventy, International securities were unsaleable almost at any price. The

money and bill-broking markets fell into the utmost confusion. The hammer, meanwhile, continued to fall mercilessly. Amid a stillness which could be felt the ominous words were heard: "Gentlemen, . . . has not complied with his bargains." The wildest rumors were in circulation, and many brokers waited in their offices until the news came through that checks had been duly cleared.

As the day advanced, messages from the Continent increased the general gloom. The Bank of France and the National Bank of Belgium swiftly increased their discount rates in sympathy with London. The Bourse Committee of Amsterdam, Berlin, and Rome notified suspension of all business. In New York the flag was still flying, but Wall Street was even then on the eve of one of the most sensational collapses of modern times.

The news reached London after the Street market was over. A meeting of the Stock Exchange Committee was hurriedly called and sat until midnight. Disquieting as the foreign intelligence undoubtedly was, there was graver news at home. No fewer than seventeen members notified the Committee that if the House opened on Friday they would have to hammer themselves. A panic would undoubtedly have fol-

lowed, the full consequences of which no one could predict. As the clock of Bow Church struck twelve the fateful decision was made.

Pettifer, astir early the next morning, found the Street crowded as he had never seen it before. The entrances in Throgmorton Street and Capel Court were closely guarded by police, though clerks and other privileged persons were being admitted to the Checking Room to verify the previous day's bargains. On all the doors was posted the ominous notice: "The House will be closed until further orders."

CHAPTER FIFTEEN

Sunset in the Walworth Road

IT IS A STRANGE commentary upon our social and economic system that at a time when securities were falling on all sides, like leaves in an October wind, the prices of commodities and of the bare necessities of life were soaring beyond all precedent.

Nowhere was this fact more quickly observed or more bitterly resented than in the densely populated region of South London. It is this which explains why, when a purely fortuitous circumstance turned the whole area from Waterloo Station to the Bricklayer's Arms into a seething caldron of riot and discontent, the trouble spread swiftly to the great provincial cities in the north—to the Floodgate Street and Saltley districts in Birmingham, to Ancoats in Liverpool, and to the congeries of mean dwellings which abut upon the Tyne, the Forth, and the Clyde.

It was Thursday morning. Overlooking the swiftly moving traffic of the Walworth Road stood a great seven-story building, usually humming with activity—the headquarters and distributing center of Universal Food Supplies, Limited.

Not every one knew that behind four of the great chains of competing food shops throughout the country there existed this unifying center, controlling, directing, operating them all. It had not always been thus. The firms which constituted this giant organization had for many years worked independently, and fought out the issue in the busy market towns and shopping centers of the Kingdom. Then came the economic crisis, and the great wave of rationalization in its train. Wasteful competition had to be eliminated. Streets where there were five or six rival shops could be better served with three. It was cheaper to buy margarine by the thousand tons than by the hundred. The arguments, in fact, for coördination were unanswerable. There were a few noisy meetings with the shareholders, but in the end the controlling interests got their way, and Universal Food Supplies, Limited, came into being.

Sims, the timekeeper, sat in his little office just inside the workers' entrance in Joyner's

Row. The recording clock on the wall of the narrow corridor opposite pointed to eleven minutes past eight. On either side were tiers of metal discs, suspended upon hooks. Those on the left—about seven hundred—marked the presence in the building of those who had “clocked in.”

An unusually large number of discs, however, remained to be moved, and the fact was giving the timekeeper some concern. It was Sims's duty to send a list of the entries each morning to the works manager. Invariably he waited until eight-thirty, when the half-hour's grace allowed by the management expired. At eight twenty-five a little stream of workers presented themselves. From the recesses of his office Sims could hear the clock giving its melodious ring as each passed through in succession. Then the doors swung to with a dull thud, and the late-comers were gathered to the fold.

Sims settled down to mark the morning sheet, and his brows puckered as he scanned the heavy list of absentees. “Thursday morning, too,” he muttered to himself. “Mr. Johnson won't be any too pleased about this.” He thrust the printed sheet into an envelop and sent it up the lift to the manager's office.

Meanwhile, on the floors above, the executive was facing its own difficulties. The tea-packing rooms, especially, presented an unusual aspect. Thursday was the day when supplies usually went out to replenish the diminished stocks of over three thousand branches. It was always a day of intense and feverish activity. About fifty machines, each a replica of the others, and a marvel of mechanical ingenuity, weighed the tea into quarter- and half-pound lots, swiftly inclosed it in paper, affixed the outer wrapper and label, and delivered the finished packets upon a running gangway. It was a pretty sight and the weekly output of the machines was normally about two million packets.

This morning only about half the machines were working. In the tea-rooms alone over forty workers were absent. It was with great difficulty that Johnson, by skilfully pairing the trained with the inexperienced girls, was able to staff about twenty-seven machines.

Simultaneously, in another part of the great building, a situation of some complexity was developing. The buyers' room in particular—always a noisy apartment—was becoming the center of an economic struggle which was destined to have fateful consequences. For some days past the commodity markets had shown a

persistent tendency to move against the purchaser. Men who knew their way about the auction rooms and offices of Mincing Lane, Fenchurch Street, and Eastcheap reported that the visible supplies of the more important staples were mysteriously short. Quotations for spot deliveries, *ex* London store, first hardened and then embarked upon a definitely upward curve. Danish and Dutch butter, which had been a steady market at about £5 per hundredweight, rose in a few hours by thirty shillings. Siberian, Australian, and New Zealand shipments advanced in sympathy, while the home producers, not averse to exploiting the situation to their own advantage, raised their terms accordingly.

A similar tendency was manifest in other sections of the market. Bacon, eggs, lard, even canned fruits, were all realizing considerably more than the normal summer price. Thus it came about that, in the thousands of retail shops and small stores throughout the country the price of these commodities had been substantially marked up. That this was deeply resented, especially in the poorer districts, is now common knowledge. But few foresaw the swift consequences and the widespread social dislocation which was to flow from it.

The trouble seems to have begun in one of

the narrow thoroughfares connecting the Walworth Road with the maze of mean streets which lie behind it. A "market" was in progress, and a long row of costers' barrows lined the pavement, displaying a nondescript assortment of fish, fruit, and vegetables. A crowd of women, most of them very poorly clad, moved up and down the little street, alert for bargains—among them a frail, silver-haired woman, whose name, Mrs. Timms, by a curious chance, has since passed into history. She carried a well-worn purse gripped tightly in her hand, and her neat, but rusty black clothing betrayed a recent bereavement.

The thing happened so suddenly that even those most nearly concerned can only with difficulty recall the facts. It would seem that Mrs. Timms having purchased a small piece of fish, with a view to providing a nourishing but inexpensive meal for an invalid daughter, found herself short by several coppers of the unexpectedly high price asked by the dealer. She was well known and respected in the district, and after fumbling in her purse for a few moments, offered to come back with the difference later on.

"No, yer don't," declared the coster roughly, snatching the fish from her hand. "We've had

your sort before. You pay the price, or you don't get the goods." He slapped the parcel down on the corner of the barrow.

Mrs. Timms burst into tears.

It chanced that at that moment a neighbor of Mrs. Timms, a brawny carter from the local railway depot, was passing through the street. He forced his way through the crowd now gathering round the barrow.

"Hullo, mother!" he exclaimed. "What's the trouble?" And he stooped down while the sobbing woman briefly told her tale.

Briggs, the carter, acted with the promptitude and determination of his class. Seizing the disputed parcel, he thrust it into her hands.

"You go along, mother," he said. "I'll settle with him," and he strode up fiercely to the now interested proprietor of the barrow. Instead of producing, however, the small coins necessary to complete the transaction, he delivered to that worthy a resounding blow in the eye.

"Take that . . . and that . . . for yer d——d cheek."

A proceeding of this kind was not calculated to promote the amicable conduct of business in the market. Several of the other costers sided with their companion, and a stout woman, whose vegetable cart adjoined the fish barrow,

also entered the fray. A scuffle ensued in which the barrow was overthrown. There was a great deal of confused shouting as the struggle swayed this way and that, while the inevitable dogs, attracted by the fish, yelped and barked about the legs of the spectators.

"Go it, Jim," called out a wizened little porter, trying to squeeze his way through the press around the combatants. "Give him what for! Mrs. Timms is as good as 'im, any day."

"E's a profiteer! That's what 'e is!" shrieked a tall, angular woman from the edge of the crowd. "E deserves all he gets. Just let *me* get at 'im."

The stout woman emerged palpitating from the fray, her cheek bleeding, her blouse torn, and her hair disheveled. She pushed her way to the interior of a little huckster's shop to effect repairs and to recover her breath.

But the police whistles were now blowing shrilly in the Walworth Road, and the crowd realizing their opportunity began to make a rush for the other barrows. A certain amount of looting began at isolated points down the street, which the costers were powerless to prevent. When the police arrived the whole market was in an uproar. The roadway was congested with a dense throng, struggling indiscriminately

round the overturned barrows. Free fights were in progress at a dozen different points, accompanied by shouts of "Down with the profiteers," and other less printable epithets of execration and derision. Finding it impossible to make progress, the police, now reinforced by a contingent from the local station, charged the crowd, batons in hand, forcing it steadily and remorselessly along the thoroughfare.

In the light of what happened subsequently, this is now seen to have been a grave tactical error. The whole market should have been surrounded and by the effective closing of the exits the principal offenders should have been arrested. The police maneuver had precisely the opposite effect. It expelled a turbulent mob, now thoroughly out of hand, by every passage, court and side turning into the maze of streets beyond the arches, one of the most disaffected regions in South London. Instead of isolating the poison, it spread it to the main arteries.

Within ten minutes the fatal effect of this policy became manifest. Some of the more ardent spirits, raiding a builder's yard for planks and poles, led a motley crowd of excited men and youths down East Street into the Walworth Road, while the police, unsuspecting this sudden movement, were still busy patrolling the now

deserted market a hundred yards away. An ugly rush was made across the road; a tram-driver jammed on his brakes just in time, and to the sound of shattering glass the end of a scaffold pole went through the window of Thompson's grocery store opposite. The crowd surged into the shop, looting whatever was in sight, while reinforcements poured steadily down from the surrounding thoroughfares.

It was a mere accident that a comparatively innocent trader was chosen for the first assault. There were worse offenders than Thompson's, but their turn was to come swiftly.

Within half an hour the battle was raging along the whole length of the Walworth Road. I am told by a shopkeeper whose premises narrowly escaped complete destruction that within a few minutes the tramway system became utterly demoralized. Buses and traffic from the south had to be diverted to the Tower Bridge or stopped altogether. The open space before the Elephant and Castle became impassable.

But worse was to follow. No one seems to know exactly how the insurgents achieved their object. Sims is quite certain that no unauthorized person entered by the little passage in Joyner's Row. There are those who assert that the outrage was perpetrated by some one already

within the building; others that it originated in the petrol store at the back of the premises. The truth concerning that matter will probably never be known.

What is certain is that to the dense crowd surrounding the Elephant, and stretching far up the Waterloo Road, suddenly came fear. Above the noise of the distant rioting, the hooting of motor horns, and the clatter of horses, as the mounted police sought, ineffectually, to clear the crossing, came the sound of insistently clanging bells.

"Clear the way! Clear the way!" shouted the police, as the engines careered madly down the narrow lane of people which broke before them. For one brief moment it looked as though nothing could avert disaster. The driver of the foremost tender pulled up just in time. The narrow neck of the Walworth Road was choked with vehicles waiting the opportunity to cross toward the bridges.

Beyond, great clouds of smoke were rising into the morning air. The miscalculation in the street market had brought its own terrible retribution. Amid a scene of indescribable panic and confusion the great building of Universal Food Supplies, Limited, was going up in flames.

CHAPTER SIXTEEN

Sunset at Chequers

SO THE PANIC and its attendant riot and disorder began to spread in ever-widening circles.

If this book were in any sense a detailed history of what has since been called the Great Shadow it would be necessary to extend its scope considerably. We should have to take into account, not only the wide ramifications of Byford's discovery throughout Europe and America, but its repercussion in such distant and more primitive countries as China and Peru. That history may, indeed, some day be written, but since other and graver matters await us, I have thought it best to limit this brief description to incidents of which I have some personal knowledge.

Among these is an episode concerning which a great deal of misconception exists. I mean the now famous conference at Chequers, when one

of the most distinguished scholars of the day confounded the scientists by putting his finger upon a peculiarity of Byford's Memorandum, which had hitherto escaped notice.

Nestling in a little hollow high up among the Chiltern Hills lies the historic mansion of Chequers: once the proud home of the de Chekers and the Hawtrey families; now, by a famous bequest, the retreat in perpetuity of "overworked Prime Ministers." For its deep peace, its unspoiled beauty, and its glorious views over some of the most romantic country in the South, Chequers stands almost unmatched among the stately homes of England.

You can approach it in several ways. From Wendover and Butler's Cross a sharp turn of the Missenden road brings you in a few moments to the ancient entrance, long disused, but reconstructed during the Great War by the aid of German prisoners. From here it is but a short drive to the noble forecourt, with its great tulip-tree overshadowing the leaden figure of Hygeia.

Or if you should chance to come from the direction of Princes Risborough, you can enter the park by the Great Kimble Lodge, whence the road climbs steeply through one of the densest and most luxuriant growths of box-trees

in the country. On your left rises Cymbeline's Mount with its remains of the ancient "Castle" in which Caractacus is said to have been born in 4 B.C. Nearer to the house lies Beacon Hill, and beyond, the loftier eminence of Coombe Hill, from which a vista is obtained which includes Salisbury and, on a clear day after rain, the tops of the distant Welsh mountains.

It was to this quiet and secluded spot that the Prime Minister of Great Britain retired after an exhausting and enervating week. He was sick to death of the administrative details of Downing Street—the incessant conferences, the midnight meetings with the press, the swift succession of Orders in Council by which a confused and bewildered Cabinet sought to buttress a social order sinking visibly and palpably into chaos.

To his clear and penetrating mind only one thing could arrest the panic which was now spreading swiftly through the country, and that lay in the frank facing of the facts. Of what use the proclamation of martial law and the reading of the Riot Act, when faith and mutual trust, the very foundations of national discipline were shaken? He was determined upon two things.

The first was to get in touch, if possible, with John Byford. The second was to rally the nation by a resounding appeal, shirking none of the issues which the now famous Memorandum had raised. With this object in view he summoned to his aid, late on Friday afternoon, a group of men whose achievements were outstanding, not in the political, but in the scientific, religious and journalistic spheres.

I have seen it suggested somewhere that apart from the Prime Minister, this informal conference consisted only of three persons—Sir Robert Stirling, the Astronomer Royal; the Archbishop of Canterbury; and Professor Baxter of Cambridge University. The writer of that article was very gravely misinformed. As a matter of fact, John Telford and Sir William Gray were present throughout the whole interview, while later in the evening, the Burgomaster of Zermatt, through the mediation of the British Foreign Office, made an unexpected and dramatic contribution.

The conference was held in the Great Hall, and the party was seated at a large table beneath the oaken screen upon which hangs Rembrandt's famous painting "The Mathematician."

There was something symbolic, perhaps, and

appropriate in that—the dark, bearded figure of the philosopher, compasses in hand, looking down serenely upon the penciled diagram; the boy, his brows knit, intent and absorbed; the terrestrial globe, the few books, the simple furnishing, all testifying to the fidelity and vigor of the master's brush. And yet the scene below was one not less worthy of the painter's art.

The Prime Minister sat a little apart, his chair placed sideways that he might the better hear what was being said. On his left sat the Archbishop of Canterbury, an impressive figure keen and alert; on his right, Baxter of Cambridge and Sir Robert Stirling. Across the table, facing the Archbishop, sat Telford and Sir William Gray, the former a little restless and ill-at-ease. Such, at least, is his own vivid recollection of the scene.

For some time, after the Prime Minister's formal opening, Sir Robert Stirling and Professor Baxter were engaged in animated debate. Telford, whose knowledge of contemporary physics was slight, found some difficulty in following the trend of this discussion. A great deal was said about the relative characteristics of the *beta* and the *gamma* rays, and their effect upon the tissues of the living body. The names of Millikan and others were frequently mentioned, and

every now and then there would be a reference to a mysterious growth known as the jimson-weed.

Telford had not the slightest idea what the jimson-weed might be or why it was so called. But to the two scientists it seemed to be of profound importance.

The Prime Minister, himself a mathematician and a keen student of the sciences, followed this discussion with rapt attention, breaking in from time to time to elucidate a point or to draw a reply. It was one of these interruptions which revealed to Telford the serious drift and meaning of the discussion.

The behavior of the jimson-weed had again been under discussion when the Prime Minister interposed a question.

"Assuming Byford's major thesis to be correct," he said, "that there is a progressive increase in the penetration of these rays, what will be the immediate result?"

"Sterility in the first instance," replied Baxter. "Unquestionably sterility. You remember Byford hinted at that. The reproductive capacity will be the first of the inner biological fortresses to fall."

"Sterility!" echoed the Prime Minister.

"Universal, you mean . . . every kind of life?"

"Certainly, that is precisely the menace of these high-frequency radiations. Their wavelength is so short that they attack and break up the minutest structures known to science. The genes, for example . . ."

"Is that going on at present . . . already?"

"To a lesser extent, yes. Millikan has calculated that cosmic radiation is even now breaking up two atoms of air per cubic centimeter every second. That means trillions of billions over the whole surface of the earth. The same is true of the atoms composing the body cells. No one knows the damage these radiations are already causing. Many of the obscurer organic diseases, for example, which are so prevalent to-day might be due to them. There was a long article in the 'Lancet' by Horler only the other day pointing out the gravity of the matter and urging the importance of wider research."

"Then the effects of an appreciable increase in the volume and penetration of such rays reaching the earth would be very rapid?"

"Yes, very rapid and serious."

"Would you say fatal?"

"I should say fatal to all but the lowliest forms of life within a very few days."

"Is there no means of screening or mitigating the effects of the rays?"

"That's the trouble. They will go through your screen like light through a pane of glass. There is no screen close enough to stop them. They penetrate sixteen feet of lead as easily as the Röntgen rays will go through paper."

"Horler said the other day," interposed Sir William, "that you can't escape them even by going down a mine. Is that true?"

"Unfortunately it is. Experiments have been made at various depths below the earth's surface, but the rays have invariably penetrated to the place of observation."

"Then you regard the situation, from a scientific standpoint, as hopeless?"

"If Byford is right, yes."

The Archbishop, who had been listening closely to this discussion, his head resting upon his hand, here interposed:

"But is Byford right," he said, "or rather, does the document before us represent his considered conclusions?"

Telford, whose interest had been firmly held by the earlier exchange of arguments, looked at the Primate in some surprise. If a bombshell had exploded in the Hall it could hardly have occasioned him greater astonishment. The

Prime Minister, however, whose calm was imperturbable, signaled to his distinguished colleague to proceed.

The Archbishop adjusted his glasses, his fine presence and clear-cut features standing out in sharp focus against the casement beyond.

"I have devoted a good deal of time to the study of Mr. Byford's Memorandum," he said. "It is of extraordinary interest and bears the marks of a very sincere and cultivated mind. But I cannot help feeling that there is something about the Memorandum, and especially the postscript, which calls for further explanation."

"In what respect?" asked the Prime Minister, who was now listening with close attention.

"In the first place, the mathematical workings upon which the prediction itself is based are not given. That is, perhaps, not remarkable, since Byford clearly contemplates the publication of a full and detailed account of his work elsewhere. He may have felt it of urgent importance to issue his warning without delay."

"Particularly," suggested Sir William, "as the document is obviously a brief résumé, intended for the popular press."

"I agree," replied the Archbishop. "I would not stress the point were there not certain ver-

bal peculiarities of the postscript which, to say the least, are arresting."

"Are you speaking of the English translation, sir?" asked Telford, "or the original?"

"I am speaking of the original. It was my privilege as a student to spend a few months in the Ukraine, when I acquired a working acquaintance with the Slavonic languages. I have maintained my interest in the literature ever since, and the thing struck me as soon as the copies of 'Novoe Vremie' came to hand."

"Do you suggest," asked the Prime Minister, "that there is a material difference between the postscript and the rest of the Memorandum?"

The Archbishop drew from his pocket some newspaper cuttings taken from the pages of "Novoe Vremie." He laid them upon the table.

"Perhaps Mr. Telford will help me here," he said, and the two men bent over the closely printed columns while the Archbishop, armed with a blue pencil, proceeded to put a mark against certain words.

Telford, deeply interested, followed him closely.

"How many do you make it?" inquired the Primate.

Telford counted the marks. "Thirty-two," he said briefly.

The Archbishop, now reveling in what, to him, was clearly a familiar and congenial task, had, however, not yet finished. Taking a pen from the table and dipping it in the ink, he proceeded to work through the document again, marking certain other words in blue-black.

"How many is that?"

"Seventeen," replied Telford, for the first time beginning to see the drift of the investigation.

The other members of the conference, whose interest by this time was thoroughly aroused, crowded round the two men.

"We have been making a test," said the Archbishop, sitting back in his chair, "—a test which is frequently applied by critics to certain parts of the New Testament. Mr. Telford will confirm, I think, that the word СОЗВЕЗДИЕ, translated 'constellation,' occurs no fewer than thirty-two times in the body of the text."

Telford nodded his assent.

"What does the Slavonic word itself signify?" asked Sir Robert Stirling.

"It signifies a grouping or configuration of stars. Its sense is very accurately rendered by our word 'constellation.'"

"You mean that it is the word ordinarily used by educated Russians in that sense."

The Archbishop gave his assent.

"Now you would have thought," he continued significantly, "that having correctly rendered the word 'constellation' no fewer than thirty-two times in the body of the text, the writer of the document, by sheer force of habit, would have continued to employ it in the post-script. But it is not so. The very curious words ГРЪИИИА ЗВЕЗД, meaning 'star-cluster,' are used in its place. And the same variation occurs in the case of the word 'radiation,' which occurs seventeen times in the text and once in the post-script."

"What conclusions do you draw," said the Prime Minister, "from this very interesting demonstration?"

The Archbishop leaned forward in his chair and his face assumed an unusually serious expression. He spoke with quiet emphasis.

"Having regard to certain things which have happened in this country and throughout the world during the past week," he said, "I think it is of vital importance that we should get in touch with John Byford without delay. Those workings must be produced."

"I think we are all agreed upon that," commented Sir William drily, "but the problem is—"

At that moment a door opened noiselessly, and a messenger entered with an envelop bearing the Foreign Office stamp. It was marked "Urgent: for the immediate attention of the Prime Minister."

It contained a narrow slip of paper on which were typed these words:

Burgomaster Zermatt requests immediate attendance of John Telford. Tragedy feared. Wire hour of arrival by return if possible.

The Prime Minister read the message and passed it to the others. "Inform Whitehall," he said to the messenger, "that Mr. Telford will leave here by fast car for London in half an hour. Let them make all needful arrangements for the journey."

There was silence for a few moments after the messenger had withdrawn.

"It is very close in here," said the Prime Minister. "Let us go out upon the terrace," and he led the way through the South Garden Hall toward the sunken garden.

It was getting dusk now, and the night breeze had thrown a bar of dark cloud across the setting glory of the sun. Below was gold and fiery crimson, and above a fantasy of amazing richness shading into blue.

The shadows fell apace and it was very quiet, save for the call of a bird in a great yew-tree and the distant rumble of an express-train passing through Wendover, loaded with troops, on its way to Leicester.

CHAPTER SEVENTEEN

Sunset at St. Paul's

IT WAS ETHEL who described to me the scene in St. Paul's Cathedral on that memorable Sunday evening—the Sunday following the informal conference at Chequers.

I can see her now very clearly, her eyes alight with animation, as she recalled in her own vivid phraseology an experience unforgettable alike in its contrasts and in its unexpected and bewildering dénouement. Indeed, I can still feel something of the thrill which came to me from her simple and unaffected narrative.

In one sense it was a strange and unfamiliar London which formed the setting of one of the most impressive services ever held within those historic walls. You must forget the atmosphere of almost uncanny stillness which on a normal Sunday wraps the sleeping streets east of Ludgate. In its stead, you must think of a London noisy and clamorous with unaccustomed

sounds—a city which recalled strangely its own echoes when, nearly three centuries earlier, the Fire burned its way from the Old Bridge to the Liberties, and men ran hither and thither wondering where this unprecedented conflagration was to cease.

Indeed, the parallel with that earlier disaster was much closer than it seemed, for the reckless folly which had fired the great building in the Walworth Road did not stop at that solitary manifestation. It spread to other and more congested places in the city—to the great warehouses adjoining the Tower and to the densely crowded river frontage facing the Temple. Further northward, a really alarming outbreak which started on Friday evening near Smithfield Market and the Charterhouse, burned its way eastward as far as Cripplegate.

Two of these very serious and disastrous fires, though greatly restricted in extent, were still burning on Sunday evening when Ethel set out from the West End to attend the cathedral. She hailed a passing taxi in Oxford Street, with the intention of alighting at the northeastern corner of the Churchyard, but the driver declared that, from St. Bartholomew's Hospital to Cheapside, the street had been roped off by the police, and

was being used for parking reserve engines from the suburbs. Ludgate Hill and Cannon Street were also temporarily under repair. The best he could do, he said, was to put her down at Blackfriars.

As they sped along the Embankment my cousin noticed a crowd of several hundreds of people, lining the parapet, watching the fire tugs of the Thames Conservancy playing a stream of water into the smoking ruins opposite.

Ethel dismissed the taxi at the foot of Water Lane and walked up the narrow street to St. Paul's Churchyard. Entering the cathedral by the western door she was surprised to find the nave already uncomfortably full. A sidesman, with some difficulty, found her a seat in the north transept, but, by the time the service commenced, it was clear that the capacity of the great building was being taxed to the uttermost.

At first, Ethel found it difficult to concentrate her thoughts. Her attention was much distracted by extraneous sounds which floated in through the half-open windows. She could hear very distinctly the undertones of movement in the affected regions near by—the harsh sound of the pneumatic drills working in Cannon Street, the

occasional whistle of the police, the clang of a gong as a tender or escape came or went.

It was not until the lesson was reached that her attention was riveted by the vast sea of faces, and the quiet though resonant tones of the Dean, reading with a certain studied emphasis that immortal passage from the Hebrew Scriptures: the Prologue to the Book of Job:

There was a man in the land of Uz whose name was Job, and that man was perfect and upright, and one that feared God and eschewed evil. And there were born unto him seven sons and three daughters. His substance also was seven thousand sheep, and three thousand camels, and five hundred yoke of oxen, and five hundred she asses, and a very great household; so that this man was the greatest of all the men of the east.

"I never realized before," said Ethel, describing her impressions, "with what consummate dramatic skill the writer of the Prologue has achieved his purpose. You remember how, in the story, poor old Job had to suffer a series of shattering misfortunes, designed to shake and if possible to destroy his faith. The *action* in the case of each of these disasters has to take place, so to speak, 'off stage,' yet the consequences must fall swiftly and cumulatively upon him. The writer achieves that without taking Job himself,

even for a single instant, out of the center of the picture. I think it is very wonderful."

"Yes," I replied, with the professional writer's interest in a question of pure literary technique. "It is the device of the *runners* which does it."

"I suppose it is," answered Ethel, "and yet it seems to me that the chapter reaches its greatest height of drama in the closing sentences. You know how the story goes, the runners coming up in swift succession and telling their separate tales of tragedy and woe. The impact upon Job is *terrific*, and when it is all over you expect to find him groveling and utterly broken in the dust. But it is not so. I shall never forget the impression of moral grandeur which the Dean contrived to convey to his reading of the closing passage:

Then Job arose, and rent his mantle, and shaved his head, and fell down upon the ground and worshipped. And said, Naked came I out of my mother's womb, and naked shall I return thither; the Lord gave, and the Lord hath taken away; blessed be the name of the Lord . . . In all this Job sinned not nor charged God foolishly.

When the Dean had returned to his stall after this impressive reading, Ethel found herself wondering whether he would select his text

from the same chapter. She even speculated as to the precise verse that he would choose. She was counting, however, without one of the most original and resourceful preachers of the day, for when, a few minutes later, the Dean addressed himself from the pulpit to the vast congregation, he did so with squared shoulders and a certain look of defiance in his eyes. And the text was taken, not from the first, but from the thirteenth chapter of the Book of Job:

Hold your peace, let me alone, that I may speak, and let come on me what will . . . Though he slay me yet will I trust in him.

“Though he *slay* me, yet will I trust”—that was the theme of a sermon which will long be remembered for its fine and moving irony, its contempt for merely physical or material danger, its supreme indifference to all but the deeper and spiritual phenomena of life.

There was no direct or explicit reference to the calamities which had fallen upon the world during the preceding week, nor to that greater calamity which was still to fall. As the Dean's voice echoed through the vast cathedral it seemed to Ethel that there came to that hushed audience a consciousness that, somehow, *calamities did not matter*. The physical Universe, vast,

mysterious and incomprehensible—seemed to shrink and recede into a sort of shadowy and unsubstantial background and a mightier and more significant fact loomed in its place. It was the indomitable, the unconquerable spirit of mankind.

Ethel felt the very fibers of her being tautening as the preacher, rising to the height of his great theme, told again the ageless story of man's rise and triumph in the world—his slow emergence from the level of the beasts; his growing consciousness of the deep and sacred things; his love of life, yet, in moments of the direst peril and emergency, his contempt of death. "Whence came that spirit," asked the preacher, "save from some Greater Spirit, enthroned secure in the Eternities, beyond the reach of contingency or the accidents of time?"

So the brief address came to its quiet and impressive climax. In a few simple words, and with just a hint of tremor in his voice, the man whose reputation as a scholar and a scientist had traveled far beyond the confines of his own church, declared his own unalterable faith in God. And this thought, in a curious and premeditated way, dominated the rest of the service.

The Dean had arranged that the sermon should follow the singing of *Deus Misereatur*,

so that on this particular occasion it might precede the Apostles' Creed. He wanted the emphasis to be upon that. If this were indeed to be the last service held within those historic walls, he wanted that triumphant Credo to go forth with a sort of resounding defiance to the world. As the choir turned eastward and the clear voices of the cantors led the intoning of that ancient formula, Ethel heard and marveled. Time seemed to slip backward. It was like the chanting of a million Christians from the past. She lost herself in a sort of reverie, pondering upon the solemnity and wonder of that hour, from which she was only recalled by the now distant voice of the Dean reading the third Collect:

"Lighten our darkness we beseech thee, O Lord, and defend us from all the perils and dangers of this night, for the sake of thine only Son, our Lord and Saviour, Jesus Christ."

The service was over. The Benediction had been given, and the solemn procession from the altar had already passed behind the screen, when there occurred one of those rare happenings into which is sometimes compressed all the drama of the centuries. A verger appeared noiselessly from the South transept and handed to the Dean

a folded slip of paper. The clergyman's brows lifted in astonishment as he read the hurried message, and he stood for a moment, as though hesitating. Then he turned to the vergers: "The organist, quickly," he whispered, and he gave a message of two words.

By this time the majority of the congregation had risen from their seats and were making their way painfully and slowly toward the exits. A few, realizing that it would take some time to empty the cathedral, remained seated. Among these were Ethel, and an aged, gray-haired woman who, unable any longer to restrain her emotions, was weeping silently. She was not the only one in that vast audience whose eyes, now that the mental stimulus was gone, were wet with tears.

The organist was playing a soft and lovely improvisation upon one of Chopin's haunting themes in B flat minor. So quiet were the strains that Ethel could hear quite plainly the movement of the trackers as the melody rose and fell in the distant chambers of the instrument. Then, suddenly, the thing happened which set her heart racing, and sent the blood pulsating through her veins.

Abruptly, the haunting and plaintive melody ceased. There was an instant of almost intoler-

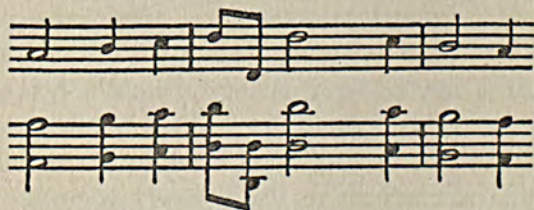
able silence, and four familiar and tremendous chords rang out:



and then
again



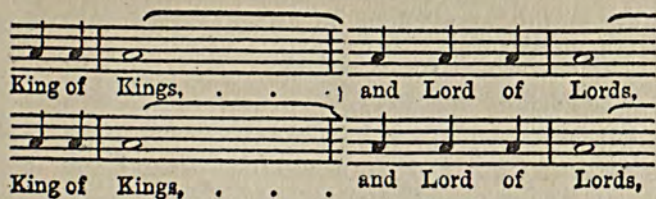
It was the opening of the Hallelujah Chorus! The retiring congregation stood spellbound as the majestic theme worked up to its first climax. The deep thunderous tones of the diapason were speaking now, heightened by the tuba:



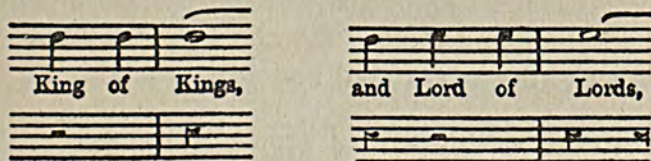
“For the Lord God Omnipotent reigneth.” It was as though a trumpet rang out imperiously to the furthest limits of the nave. The lovely coda followed: “The Kingdom of this world is become the Kingdom of Our Lord and

of his Christ, and He shall reign for ever and ever."

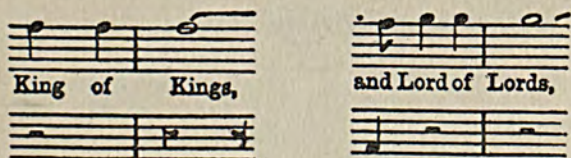
Again the tuba gave the note:



Then answering its own echoes, the organ announced defiantly the same exultant theme upon a higher note:



Higher, and again yet higher:



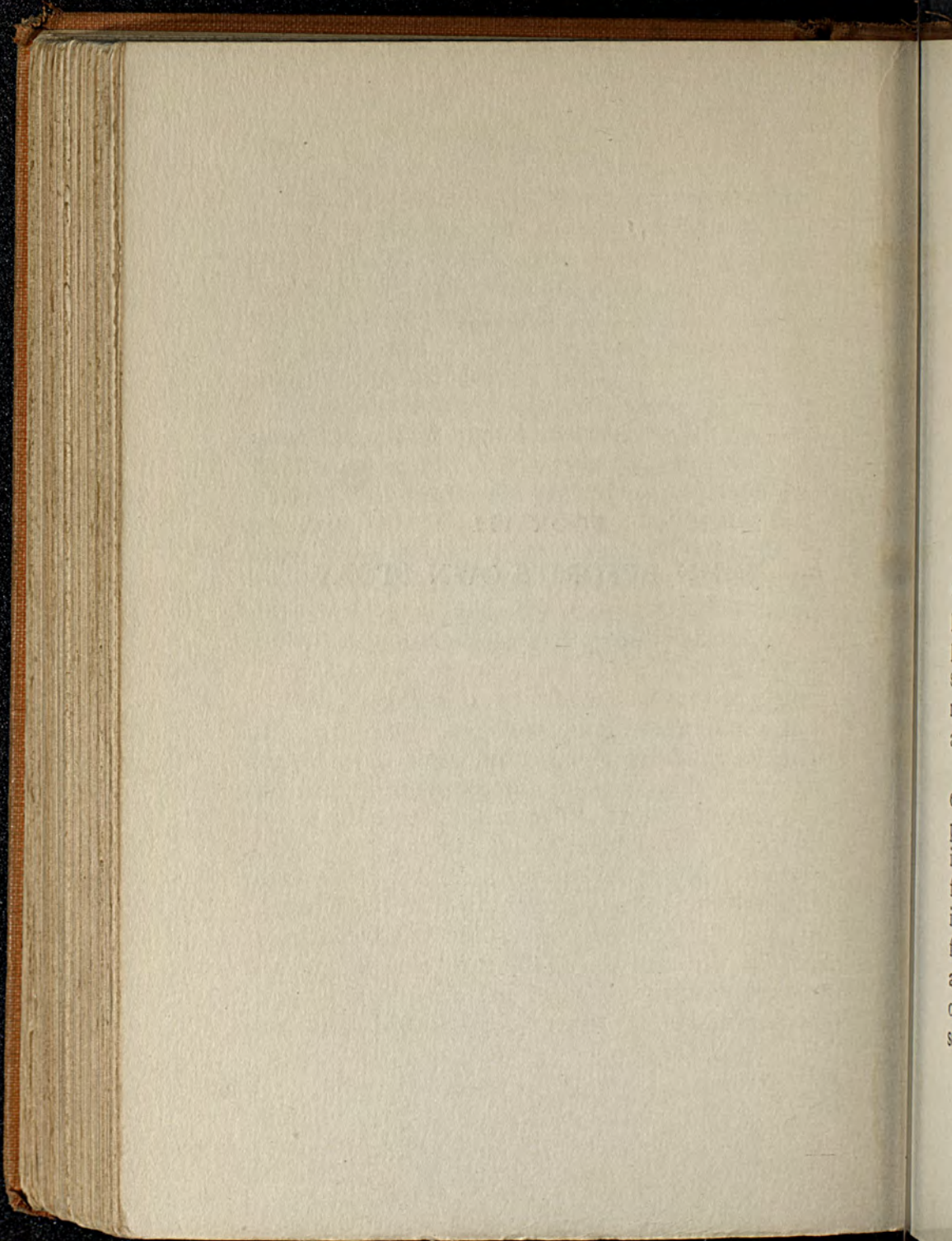
The silvery note hung in the air, insistent, to the accompaniment of those jubilant and recurring chords.

The organist, now lost to everything save the genius of Handel, was playing like a man inspired. Sound seemed to be coming from every corner of the vast building as the majestic passage rolled on: "And He shall reign . . . and He shall reign . . . for ever and for ever . . . for ever and for ever."

So the triumphant Chorale came to its triumphant end. I do not wonder that Ethel was thrilled, as never in her life she had been thrilled before. And yet, as she said, the most welcome sound of all had still to come. For, as the last thunderous echoes of that final "Hallelujah" reverberated and died away into the lofty dome, she could hear the church bells of London ringing out a glad and joyous peal.

The Archbishop of Canterbury was right after all. There *was* something about the post-script to Byford's Memorandum which called for further investigation.

BOOK III
JOHN BYFORD'S OWN STORY



CHAPTER EIGHTEEN

The Averted Face of God

ALL THAT is now past history. Within a very few hours the panic blew itself out, as such panics almost invariably do. The fever of excitement abated; the whirling eddies projected from the political and financial whirlpool expended themselves. Men found themselves going about their normal avocations, much as they had done before the great cloud arose to darken the horizon.

If the reader is concerned solely with the external trappings of events—the so-called pageant of history—then in that sense the story is told. I have little to add which cannot be found in the standard works of reference and in the contemporary press. But if he has a mind for another and a different kind of adventure—an adventure to which the foregoing is but the overture, a vivid sort of preface—then I have something to say which I think will hold his

interest. For in the pages which remain I propose to tell the secret and inner history of that amazing experiment of which these complex happenings were but the outward and visible sign. And, in one sense, that inner story is the more significant, the more deeply and profoundly interesting.

I have before me now the intimate and private diaries of John Byford, recovered, as I shall describe later, from that strange resting-place in which he deposited them on the night before his death. I doubt very much whether they were ever intended for publication. In places they are too stark, too obviously the unguarded expression of a mind that wrote for the sake of its own secret quiet and mental rest. It has been no easy task to decide whether to make public what was clearly written for the experimenter's eye alone.

And yet on the whole my course is clear. Byford's experiment belongs indubitably to history, and the world has a right to know all that can properly be told about an event which is, in its own special and peculiar way, unique. I shall try to tell the story very simply, avoiding undue citation from the documents which in the present case would be merely tedious.

I do not think there can be any doubt that

when John Byford first conceived the idea of his very curious experiment, he had lost for the time being his faith in any sort of intellectual or moral governance of the Universe.

It was not that, essentially, he was an irreligious man. Rather the reverse. He came from a fine old Puritan stock with a long social tradition and a reputation for a rigid sort of piety. But John Byford's religion took the form of an unswerving loyalty to truth, and, since science was his field, truth to him was chiefly a question of the evidence. He saw no point in a blind and unreasoning adherence to dogma when the facts pointed the other way, and certain facts, just about that time, were impressing him profoundly.

I do not know when it was that his peculiar obsession with the fact of *miscarriage* in the Universe first began to take hold upon his mind. Harry, himself, thought that it was quite early. He had a vivid recollection of certain incidents, common enough, perhaps, in the average suburban garden, but which none the less left a painful impression on his mind.

They were living at Kingston at the time, where Byford had a somewhat rambling house adjoining the river. Harry's mother was then dead, and his father used to spend much of his time working in a little study which com-

manded a view of the lawn and the roughly built observatory which housed the larger of Byford's two instruments. This was a six-inch equatorial with a particularly fine objective by Grubb, and often on a clear evening, Byford would take the boy's arm and wander down to the building, talking in that inimitable style of his about the wonders and the immensities of space. Harry learned to divide many of the more difficult of the double stars, and it was always a period of joy to him when Jupiter, Saturn, or even the moon were well placed for observation.

Byford was a great lover of animals and birds—especially birds. He kept a cat and a dog, the latter an amusing little fox-terrier which never failed to accompany them upon their week-end jaunts into the country round about Kingston and Esher. But birds, with their strange calls and their brilliant plumage, were an unfailing source of interest to Byford.

Every evening, after his frugal meal, he would spread crumbs for them and refill with his own hands the little bowl of water which always stood in the center of the lawn for their refreshment and delight. And then sometimes tragedy would come of that.

Usually it would be getting dusk, the tall hydrangea bushes casting a deep shadow over

the edge of the lawn. Byford would be writing in his study, when suddenly there would be an agitated flutter of little wings and a succession of sharp, piercing cries for help. He would rush out, for every second counts when a tiny heart is hammering itself out in pain and terror. Sometimes he would save it, and would bring the little bird into the house, and soothe and comfort it, until a few minutes later it would fly out to the sweet night air and its home. Sometimes, however, he would be too late, and would return a few minutes later, flushed and angry, declaring that it was "that damned cat" which had wrought this abomination. And it was characteristic of the man that he used the term, not so much from a natural desire to relieve his feelings, but because, to him, in the strictest theological sense, the cat *was* damned which could perpetrate such a perfidy. For Byford knew that the birds came for the crumbs which he himself spread for them.

Then came a phase when Byford's mind seemed to be ranging in a new and unexpected direction. There is an immense volume of correspondence among his papers dealing with certain peculiarities of the planet Saturn and the mysterious body of asteroids which lie between the earth's orbit and that of Jupiter. He seemed

to be deeply interested in the accidental element, the element of misadventure in these formations. And, curiously enough, the thing which *led up* to that was an event which caused a good deal of discussion at the time—the disaster to the *Titanic*.

The reader will perhaps recall the peculiar circumstances connected with that tragedy. The *Titanic*, at that time the largest and most luxuriously appointed vessel in the world, left Southampton Water at 11 p.m. on a certain Wednesday evening on her maiden voyage to America. At first everything went well. The sea was relatively calm and a record crossing seemed to be assured. Shortly before midnight, however, on the third day of the voyage, the ship struck an iceberg, a glancing blow from which stripped off the bilge practically from end to end. Such life-boats as were available were immediately lowered and filled with passengers, but three hours later the great vessel went down, carrying with her nearly fifteen hundred persons.

The impression created upon the public mind by this appalling disaster was one of consternation and dismay. A Royal Commission was appointed to investigate its causes, and to apporportion, if possible, the blame. The Commission

found that the ship was traveling at an excessively high speed, having regard to the danger of floating ice at this particular season of the year. The captain was personally absolved from negligence, but the Commission held that extra look-outs should have been kept. Incidentally, the life-boat accommodation was condemned as hopelessly inadequate, and it is due to the deep impression left by this disaster that the present stringent precautions were introduced. Finally, it came out in evidence that another steamer saw the lights of the *Titanic* and could have pushed her way through the icefield and rescued most of those on board.

Thus one of the most memorable tragedies in the history of the sea was decently interred, its lessons recognized and acted upon, and its details forgotten.

But not so with Byford. His mind seemed to be prospecting in difficult and obscure waters.

“In all these elaborate inquiries” (he wrote in his diary) “into the causes of human disaster no mention is ever made of the real villain of the piece—in this case the iceberg itself and the forces which swept it into the path of the *Titanic*. Why do we make so marked an exception of these silent partners to the tragedy?”

Clearly because we are thinking of them as part of a *machine*—very wonderful no doubt in the complexity of its movements, but as strictly mechanistic as that larger sidereal phenomenon to which it belongs. But *is that machine itself susceptible of miscarriage?*”

There was Byford's question staring him plainly in the face and it continued to do so for many, many months. He became impressed with the thought that things could go wrong in directions where, perhaps, we had not expected them to go wrong, and with his keen scientific brain he began prospecting for the evidence.

I have already mentioned his singular preoccupation with the planet Saturn and the asteroids. Among his letters there is an amusing correspondence with no less an authority in the realm of physics than Sillow himself, in which Byford thrusts playfully at a popular foible.

There is a great deal of sentiment wasted [he wrote] upon those monstrous appendages, the so-called rings of Saturn. Boisterous best-sellers acclaim them as the most beautiful object in the heavens. Even sober physicists speak of their “exquisite tracery.” I don't deny that they are very attractive when seen under suitable conditions through a good telescope, like fungi and many poisonous growths. I have often admired them in that sense. But, fundamentally, they are a fraud, a miscarriage, like a still-born child, or,

worse still, an abortion. If the rings are but the debris of a planet which ventured disastrously within Roche's limit, and was exploded for its pains, what useful purpose can they serve? Why idealize a futile and catastrophic stream of dust?

In the same half-humorous mood Byford tilted at the great belt of tiny bodies which science affirms has taken the place of an erstwhile planet in the vast space between Mars and Jupiter. And yet, for all his playfulness, Byford was really intensely serious. He was clearly arrested by these seeming evidences of miscarriage in the Universe. Already he had begun to ask a question which was to loom very large at a later period of his life: "*How far does this thing reach?*" And he was beginning to realize that what we call misadventure was, perhaps, not limited to the terrestrial sphere, but reached outwards incalculably to the infinities of space.

And then something happened which set his mind working furiously in a new and unexpected direction.

CHAPTER NINETEEN

The "McIlroy" Correspondence

I NEVER quite understood what it was that finally tipped the scale, and set Byford definitely on the road which led to Zermatt, until Telford and I discovered among his papers a little batch of letters, carefully tied up with blue ribbon, and marked on the outside: "Correspondence with Miss Enid McIlroy."

In the corner of the package, written in red ink and in Byford's own hand, was the rather strange indorsement: *The Singular Case of the Doomed Rabbit.*

At first we were inclined to dismiss this as a minor and unimportant example of Byford's interest in many obscure and out-of-the-way subjects. It was not until a chance reference in the diary set us searching again that we undid the package, and began to discern that here, perhaps, lay one of the secret springs of which we were in search.

There were seven letters in all—four from Byford and three in reply from Miss McIlroy. Included with the latter were several photographs, two of which I shall reproduce shortly for the information of the reader. One is a photograph of a rather emaciated rabbit, recently dead; the other is of the skull only. The whole thing looked like a brief excursion by Byford into the realm of zoology.

We had not read far, however, into the correspondence before we realized that Byford was back again with his now familiar problem of the fact of miscarriage, and this time he was in deadly earnest. It seemed that during one of his brief visits to London (he was traveling extensively at this period, and Harry was at college), Byford stumbled upon a copy of the "Evening News" to which Miss McIlroy had contributed one of those fascinating studies of animal and bird life for which she is justly famous. Her work upon these subjects is universally recognized as that of one of the most distinguished and observant nature-students of the day.

The article was illustrated by a half-tone reproduction of what, for convenience, we will call Photograph 1. Byford cut it out and put it in his pocket, where it remained forgotten for

a few weeks, until a twist of his memory recalled it to his thought. He then wrote to Miss McIlroy for a print from the original negative, and for further and more minute particulars. The exchange of letters followed to which I have referred.

Now it will seem to the average reader a wholly incredible and bizarre thing that events as far-reaching as those which I have described in the preceding pages could have arisen primarily out of something so slight, apparently so completely negligible, as the experiences of a simple rodent—especially a rodent so humble as the rabbit. I thought so myself, until I tried to look at the matter through Byford's eyes, and from his particular point of view. And then I began to see that the case, though familiar enough to close observers of animals, was in a certain sense unique.

Let me try to explain briefly what I mean.

It is a familiar rule of the scientific worker that, if you want to get at pure causes you must *isolate* your phenomena. A housewife may be morally certain that, before going out on a brief shopping expedition in the village, she left a pork chop on the pantry shelf. If on her return it is no longer there, a variety of causes may have produced the result. The cat or the

dog may have stolen it, or a passing tramp, obtaining no reply to his knock, may have surreptitiously entered the pantry and purloined it. . . . And then, of course, there is just the possibility that the chop *may* have existed only in the imagination of the housewife, having been consumed, and forgotten, on an earlier day.

All these contingencies call for isolation and individual study. The whereabouts of the cat, for example, always an object of suspicion in such cases, must be investigated, and if an alibi be successfully established in his case, he may safely be eliminated. The state of the lock on the back door should, in most instances, dispose finally of the theory of the tramp. Apart from the extreme hypothesis I have suggested above—there remains only the dog, curled up and contentedly asleep in the corner of the kitchen. And if, by some miracle, a neatly cleaned bone be discovered at his side, the case will go to the jury, as it were, with a very high presumption of guilt against him.

Now Byford had been applying, in all seriousness, this well-recognized and universal principle to a very large number of cases of misadventure and miscarriage. There are whole dossiers of them among his papers, in which the facts are set forth with great clearness and with

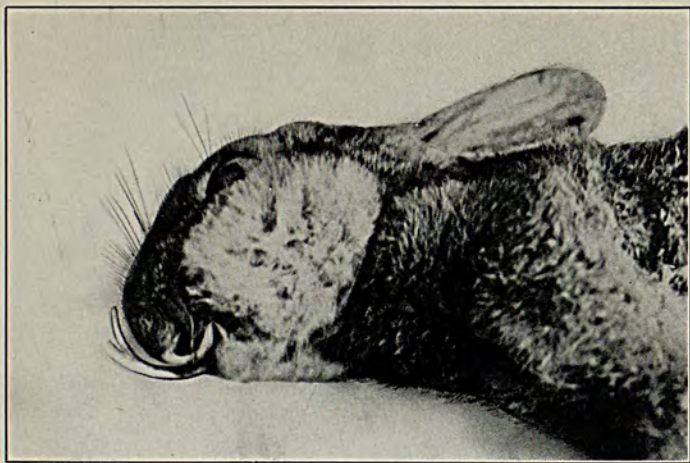
a meticulous regard for truth. But one thing seemed constantly to elude him. He could not get rid of what he called the "human or contributory element."

"You have constantly to allow for that," he wrote. "In most cases of human miscarriage, and even of misadventure among animals, such intermediate causes are usually present. A man who slips upon one of the high and dangerous ledges of the Matterhorn has, at least, his own daring and inexperience to blame for the result. An animal which succumbs to the wounds received in mortal combat with another animal may have contributed to his troubles by his own pugnaciousness. Freedom implies a certain gamble with forces greater than our own."

Yet, if Byford was to get a clear answer to the problem which was troubling him, it was necessary to eliminate these intermediate and "indeterminate" causes. He was looking for a case in which *the responsibility for what happened could be lodged with Nature and the scheme of things alone*. And he believed with a certain fierce conviction that he had found it at last in Miss McIlroy's rabbit.

If the reader will study carefully Photographs I and II, he will see the phenomenon which arrested Byford's attention.

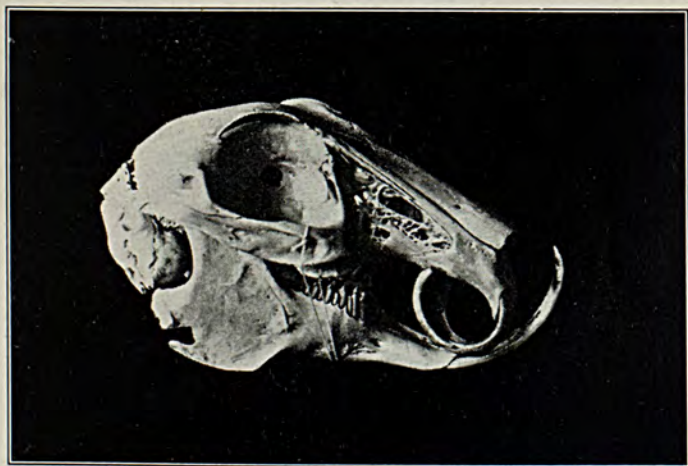
Photograph I



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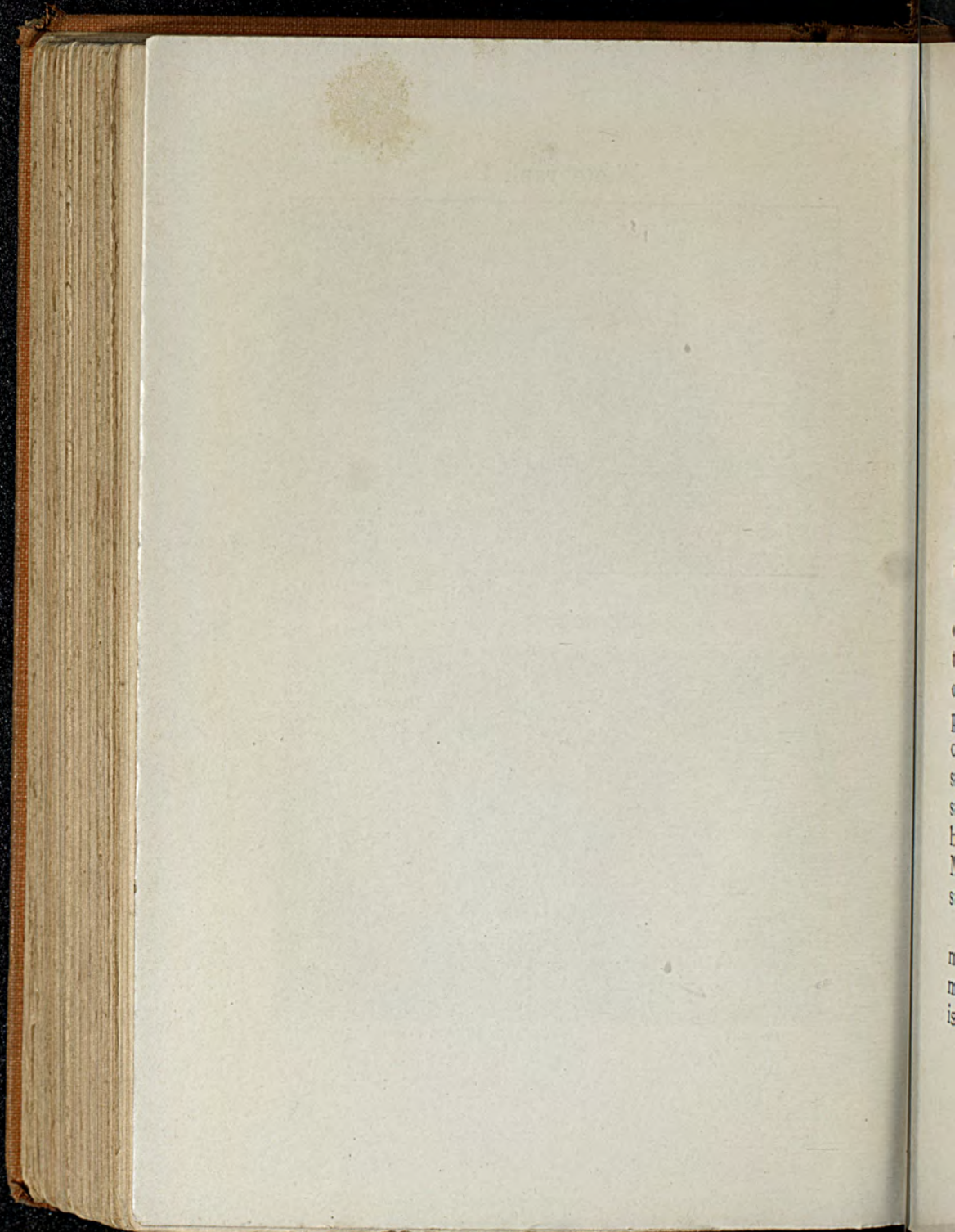
[Photo: Miss Frances Pitt

Photograph II



Copyright]

[Photo: Miss Frances Pitt



While engaged upon one of her expeditions, Miss McIlroy discovered this particular rabbit in an advanced and pitiful state of emaciation. The reason was not far to seek. It seems that the teeth of the common rabbit, unlike those of most of the higher vertebrates, continue to grow throughout life. This would, of course, prove a highly inconvenient fact, were it not that the upper and lower teeth, normally grinding upon each other, wear away. In practice, the loss by attrition balances the growth, and the animal is thus served by an efficient system of dentition throughout its life.

In the present case, however, something had demonstrably gone wrong. The two parts of the jaw did not quite align, and the upper teeth continued to grow in a great curve until their points pressed up sharply under the rabbit's chin. From that moment, slow and inevitable starvation faced this pathetic little creature, since, as those inexorable points advanced, they had the effect of closing the rabbit's mouth. Miss McIlroy discovered it in the last stages of starvation and on the point of death.

Byford's interest in this phenomenon was matched only by the suppressed fury, the almost scathing acerbity of his comment. There is a page in his diary that I would not dare to

print, lest in its outspoken freedom it should seem to verge on blasphemy. Later a more philosophic mood prevailed, but there is a hardness which suggests that the smoldering embers might at any moment break forth into flame.

"This is not truly a rabbit," he wrote scornfully, "it is a 'closed system' in a new and very alarming biological sense. It is a machine so hopelessly out of order as not only to defeat its primary and ostensible object, but to inflict, in the process of that defeat, pain and acute distress upon a helpless but sentient creature."

There was much more in the diary to the same effect. If the matter had ended there—if Byford could have found relief in a mere explosion of his feelings, as he once did on the lawns at Kingston—the course of history might, in some sense, have been changed. But as one reads through those amazing pages, one becomes conscious of a sudden fall in temperature. The heat of anger evaporates, and in its place . . . wonder, amazement, and something of the icy coldness of the reasoner.

For there was coming to Byford a realization which was to change profoundly the direction of his life. He seems to have become aware, suddenly, of something which startled him, as

Crusoe was startled by that strange discovery on the shores of his island, but in the reverse and opposite sense. With all his realism, he had hitherto believed in the existence of some sort of conscious and intelligent direction of the Universe. It was one of his postulates that behind the mystery of life there lay somewhere that supreme and controlling Power. But as he looked at this pitiful evidence of hopeless miscarriage there seemed to dawn upon him the conviction that the hand that controlled the levers was either impotent or dead! He felt as a man might feel visiting some vast and deserted windmill where the wheels, driven idly by the wind, ground on eternally to their doom.

CHAPTER TWENTY

Under the Zermatt Stars

THERE IS a gap, then, of nearly two years. They were years of intense and feverish activity, and when the notes begin again it is a different and a maturer Byford who speaks to us from the written page. The mood of acerbity is gone, and in its place a restless questioning, interrupted by spells of close and concentrated work.

He was already installed at Zermatt with a miscellaneous assortment of queer instruments, and what he calls somewhere the Great Interrogation had begun. There are some amusing side-lights in the diary upon that early and primitive period—the period during which he was experimenting, and was engaged almost exclusively upon the repetitive signals. Thus:

June 24th. Ninth successive night of the signal. Old Jacob's clock works well. So it should

—at the price he asked for it. Am a little doubtful, however, about the mechanism standing the prolonged strain.

July 18th. Tried lion and puma to-night for a change. A bit monotonous, that eternal cuckoo sound. Nova crossing the meridian at 11:35. Very pleased with photo-electric device from Falchi, of Milan. Have experimented already, with promising results. By August, perhaps, we might be ready, and then next spring . . .

August 10th. Night very stormy and unsuitable for transmission. Spent evening at Jöst. Marthe very intrigued to hear the new gramophone. Promised to get her some records.

Later: Wrote Lausanne for records. Should be here Thursday.

Sept. 3rd. Very concerned to hear from Zweiler of mysterious and inquisitive visitors round the hut. Must fence off the enclosure and fix gate. Noticed an eagle to-day, flying in and out of a hole high up in the great couloir on the Furgg arête. Unusual that. Must explore a bit in that direction. Not easy, though. Mummery found that out. I am surprised at Whymper trying that way. Surely the maddest route to the summit.

Sept. 7th. Cuckoo mechanism broke down yesterday. Was afraid it would. Took it to Geneva to-day. Old Jacob furious. Said it will take three days, and hinted that I ought not to be trusted with such a superb piece of craftsmanship! Gramophone filling the gap, though the work is incredibly tedious, having constantly to reset the record.

Sept. 17th. Beginning the real work to-morrow. Tremendously excited by thought of visual grammar and its possibilities. The greatest obstacle overcome, and very simply, too.

With these practical and laconic entries are a number of passages which reveal to us a philosophical and reflective Byford, still restlessly revolving some of the deeper and obscurer problems of the Universe. He seemed to be exploring far back into prehistoric time, and to be gravely occupied with the apparent futility, the meaninglessness of some of Nature's earlier experiments with life. Very frequently these passages are involved with other and more mundane topics.

Thus, on Tuesday, April 13th, in the following year, he wrote:

"Have made a good start with the visual grammar. Over 100 common nouns put over

already. Very amusing, these drawings; even a child can do them. In fact, Marthe's efforts, crude as they are, are more successful than my own. I am too anxious about detail. She sticks to essentials. Her drawing of a dog chasing a cow was excellent, and really very funny. But she fell down on a simple thing like a mountain. Lives too near the Becca to take a normal and conventional view. I had to tell her that ordinary mountains don't have faces. Only the Matterhorn seems to look at you with cold, steely eyes, over that contemptuous and averted shoulder . . ."

And then, apropos of nothing, as though his mind had harked back suddenly a million years, comes this suggestive passage:

"Have been thinking much of late about Nature's 'mistakes' or experiments. They are very interesting, and possibly significant. The pterodactyl, for example, does look rather like an experiment in flying before the biological and aërodynamical factors had, so to speak, been properly worked out. The diplodocus, too, and the iguadon wear the aspect of a Jurassic adventure down an evolutionary bypath which led nowhere. But since all animals seem to enjoy life, despite their limitations, there is perhaps no occasion for serious concern. . . . But if they

really knew what they were driving at why experiment at all?"

He had the habit of using the word "they" as the appropriate pronoun for the mysterious powers which lie behind the Universe.

But I must refrain from prolonged citation of these extracts. There is, however, one feature of those early diaries too serious and important to be left wholly out of account. It reflects a facet of Byford's mind which was destined to affect profoundly the character of the experiment, and at the risk of seeming to digress from our theme, I must now describe it.

It was one of the really engaging things about the personality of John Byford that he took such a deep interest in the doings of quite humble and obscure people, and would often go out of his way to render them little services. Such a person was "Mère" Chantré, a frail aged woman who lived in a tiny apartment in one of those narrow, winding streets which abut upon the old harbor at Geneva. She came from Les Mayens, a village near Sion, and she held herself a little proudly as a true daughter of the Valais. Her husband, once an officer of the Swiss Guard, was long since dead, and as the pension she received was small, she eked out a modest existence by plying her needle. Occasionally, during the season, the great hotels in

the fashionable quarter would send her work, but for the most part she depended upon the humble requirements of her immediate neighbors, which were not considerable.

One day she rendered Byford—until then a complete stranger to her—a trifling service by mending a small rent in his jacket which had resulted from a too energetic examination of some tangled steel wire in a local tradesman's yard. He sat in his shirt-sleeves in her tiny room, talking in that disarming way of his, while the temporary repair was being executed. When she had finished, and he offered her money, she refused.

"*Non, m'sieur,*" she said in shy, halting French. "It is nothing. I could not take it for so small a piece of work."

Byford insisted, of course, and ultimately had his way. But he stopped to talk to the old woman for fully an hour, and there sprang up one of those queer friendships which were such a characteristic feature of his life. He let her ramble on in her own simple way, breaking in now and then to draw a smile of understanding or even a merry laugh at one of his jests. So Mère Chantré herself recently described to me their first meeting.

Such an incident might easily have been forgotten within a few days, but Byford had an

odd gift for cultivating stray acquaintanceships. He rarely visited Geneva without dropping in to the tiny house near the harbor to give a cheery good day or to provide a little custom. He used to save up his old socks and climbing garments so that she might have the opportunity of darning them, and an occasional entry in his cash book shows that he was generous in his remuneration. Once when serious illness threatened her means of livelihood, he sent her a draft upon the Bank of Geneva for a substantial amount.

It was this latter incident which called forth, indirectly, one of the most dramatic and outspoken entries in his diary. There is a letter among his papers, written on faded blue paper in Mme. Chantré's uneven, shaky hand, in which she conveyed to him her heartfelt gratitude for this unexpected gift. The difference in their ages was considerable, sufficient to justify her regarding him almost as a son, and in the fullness of her heart, she paid him a graceful tribute by writing in the corner of her letter a brief sentence from the thirteenth chapter of St. Paul's Epistle to the Corinthians: "*La charité ne périt jamais.*" Or, as our revised English translation puts it: Love never faileth.

You would not have thought that a simple

thing like that could have set Byford off upon a profound dissertation of biochemistry, but it did. On the night he received that letter he sat up late making a long and intensely interesting entry in his diary. It is full of acute and penetrating observations upon the chemistry of living things. "Life feeds upon life," he wrote, "and can do no other. Things are fixed that way. That's the devilish ingenuity of the thing."

Here follows a long passage, which I cannot conveniently quote, full of those strange symbols and contractions of the bio-chemist. Then he summarizes again, with something of the old sharp asperity.

"Carnivores prey on herbivores; birds prey on insects, worms and small mammals; fishes upon other fishes and crustacea, and so on throughout the whole realm of Nature. How can you expect love to grow and develop in a world where things are so framed that the living organism has, so to speak, to look for its next meal off its own brother?"

Things are fixed that way. . . . "*La charité ne périt jamais.*" . . . There seemed to John Byford no escape from that sharp antithesis.

CHAPTER TWENTY-ONE

The Oxyrhynchus Sayings

I DO NOT know when it was that the Oxyrhynchus Sayings first began to attract the attention of Byford, but I think it must have been quite early in the experiment.

Certainly they were present to his mind on that memorable day when I met Harry outside King's College in the Strand, since they were mentioned in Byford's telegram of that date. It is probable that, with his flair for pursuing unfrequented or forgotten bypaths of human knowledge, they may have been familiar to him for a long time. It was toward the second year of the experiment, however, that their significance seems to have aroused his interest and to become integral to his thought. And since that is vital to his story, I must try to explain how it came about.

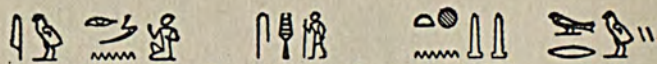
You must picture Byford about this period deeply engaged and interested in his work. The

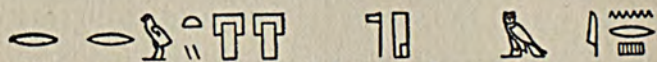
second and critical stage of the experiment had begun. Apart from the cuckoo signal, which he continued to emit regularly, he had by now abandoned entirely the aural method of transmission. It was too dangerous, he said. Rumors had already reached him that it had been picked up by numerous stations, and embarrassing inquiries were on foot. Moreover, the vocabulary and the grammar which were, so to speak, the keystone of his arch, could only be transmitted effectively by visual means and he was devoting his undivided attention to that.

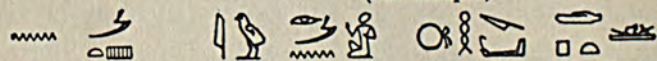
This part of his diary is full of rough but fascinating tracings of the crude pen-and-ink drawings which he used, and is pictorially very diverting. Many of these were the work of Marthe, who was developing a notable gift with her pencil.

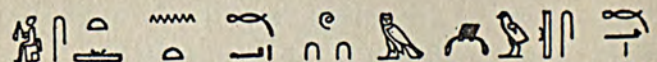
Byford seems to have gone back for inspiration and suggestion to the picture-writing of early Egyptian and Sumerian times. At the very beginning of this period there are pasted into his diary two cuttings which I have since identified as coming from one of the learned works of Sir E. Wallis Budge. One is a reproduction of the inscription of Annas, an early Egyptian observer, describing rather amusingly how the gigantic obelisks were transported from their

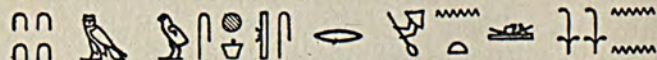
quarries, near Siene, on the upper Nile, to the place of their erection.



 I watched over the erection of two obelisks great

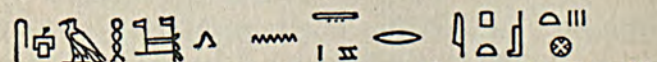

 at the double door of the god's house in stone
 (i.e. temple)


 of granite. I watched over the building of a boat

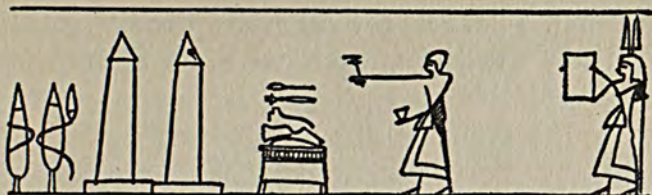

 splendid of cubits 120 in its length, cubits


 40 in its breadth, to transport these


 obelisks. [It] arrived safely in good condition,


 close to the district at the Apt (i.e. Karnak)

The other was a picture script showing an ancient priest offering sacrifice before these obelisks.



To Byford's fertile mind these cuttings suggested a simple and, of course, time-honored way of conveying the idea of *numbers*. It will be observed that when the ancient writers of these inscriptions wanted to convey the thought of more than one object of the same kind they merely duplicated the picture, putting *two* obelisks, or *two* doors, in the place of one. Byford's application of this principle was something like this:



One bird
Un oiseau



Two birds
Deux oiseaux



Three birds
Trois oiseaux

It is surprising what a large number of common and frequently recurring ideas can be conveyed in this way, provided, as Byford said, you "stick to essentials," and Marthe undoubtedly

did that. There is, for example, a whole gallery of little drawings, each with its appropriate



caption in French and English, showing the more typical of the animals which constitute our



terrestrial fauna. And there was a particularly striking representation of a whale, with a little boat at its side, designed to suggest the relative

size and formidable character of the monstrous fish (see page 206).

What these drawings lacked in elegance they made up by a certain childish sense of humor, but as Byford somewhat acutely remarks, if the element of humor had been absent they would in some sort of sense have not been true.

I wish I could convey an adequate idea of the immensity of the labor, and the closely calculated thought which went to make up this part of the experiment, but the reader is directed to the official publication: "Visual and Aural Transmissions," to which I have already referred on an earlier page. This publication contains no fewer than 500 out of the many thousands of diagrams upon which the vocabulary and grammar of the experiment were based.

In this way a period of over eighteen months went by, and then quietly and almost imperceptibly Byford began to build seriously upon the foundations which he had laid.

The catholicity of Byford's mind gives to his printed transmissions a great and varied interest. He put over the whole of "Alice in Wonderland," complete with pictures, in the course of a week, using a large print edition which has

since become one of Marthe's treasured possessions. A certain size of type was absolutely necessary, as Byford's photo-transmitter tended to blur and render illegible very small detail.

He went on to simple passages from Defoe and Stevenson, where appropriate pictures could be transmitted simultaneously. He scoured Europe for copies of the original editions of Verne's more striking romances, such as "The Mysterious Island" and "Twenty Thousand Leagues Under the Sea," mainly because they were so copiously illustrated, and could be transmitted at one operation—the picture side by side with the printed page. The number of unusual books which went up in the dust and smoke of that final explosion at Schwarzsee must have been considerable.

When this brief but necessary introduction to terrestrial thought and literature had been going on for some months, Byford felt that the way was gradually clearing for what, on many a luminous page, he calls "the Great Interrogation." I shall have occasion to describe that remarkable phase of the experiment very fully in a later chapter. But as a kind of preliminary he turned at last to some of the greater passages of Holy Writ. He put over the essential part of the story of Sinai, with its moral and ethical

injunctions . . . "that great bell," he calls it, "booming, as it were, from the dawn of history." He transmitted considerable portions of the historical books of the Old Testament, many of the shorter Psalms, and as a concession to the New Testament, St. Paul's immortal passage, briefly quoted by Mme. Chantry—the famous thirteenth chapter of 1st Corinthians.

But of that Greater Figure, whose tragic story lies at the heart of the New Testament, he, as yet, said nothing. It was not that the sublimity of that story—its matchless moral and spiritual grandeur—failed to strike a responsive chord in the experimenter's mind and heart. The explanation, I think, lies deeper. It was that he himself was not ready. For there was coming to the mind of John Byford a new respect, a profounder interest in those ancient and venerable documents. It was as though some scales were falling from his eyes, and as he read and reread the familiar pages of the Gospels, he seemed to see light breaking, in some of the darker places of the Universe.

He had an impression that the mind which spoke in those pages was greater than the vehicle through which it came—that something was lost in the filter—and he pursued every scrap of written recollection which might

throw light upon that supreme and amazing episode.

So it was that he came to take something more than a layman's interest in that strange collection of disconnected and truncated sentences known to scholars as the *Oxyrhynchus papyri*.

It seemed to him that in these lost sayings, recovered almost by accident after a lapse of nearly 1,700 years, he was nearer—appreciably nearer—to the original and central fire. Especially the following sentences which he had copied neatly into his diary:

From Papyrus 1, Col. 2.

“Lift up the stone, and there shalt thou find me: Cleave the wood and I am there.”

From Papyrus 1, Col. 1.

“I stood in the midst of the world and in flesh appeared I unto them: and I found all men drunken, and none did I find thirsting among them, and my soul is afflicted for the sons of men, because they are blind in their heart and see not . . .”

From Papyrus 654.

“The fowls of the heaven, and the beasts of

the earth, and the fishes of the sea . . . *These are they that draw you . . . and whosoever knoweth . . . shall find it.*"

The words which I have printed in italic were underlined in red. Was Byford mad—or was he grappling with something beyond the present comprehension of mankind?

CHAPTER TWENTY-TWO

The Great Interrogation

IT MUST not be thought that because Byford possessed this singular capacity for passing swiftly from the mundane and the commonplace to the profound that his serious work suffered in consequence.

A glance at his seventh journal will prove the contrary, for in this masterly piece of condensed writing he presented his main problem with a degree of force and clarity which was really surprising. Indeed, I do not know of any document of similar length in which so many diverse issues are brought into such sharp focus—and this despite the difficulties of language which beset him on every side.

In this he was undoubtedly helped by his essential simplicity of character and his almost child-like capacity for conceiving abstract ideas in visual form. If a simple device or visual image pleased him, or seemed to get swiftly to

the root of a matter, he would employ it in all sorts of connections, even after the occasion of its original utility had passed. This gives even to his severely scientific diagrams a bizarre quality, suggestive of those quaint maps of the medieval cartographers who filled unexplored or unknown territories with fearsome dragons. Byford's embellishments, however, were rarely fearsome, possessing more usually the saving grace of humor.

For instance, in the very early days of the experiment, Byford and Marthe had a lot of trouble in finding a simple way of conveying the meaning of the word "Question." Such concrete entities as sun, man, house, mountain, tree, etc., presented no difficulties. But "question" was a negative sort of abstract notion which did not respond so easily. Marthe solved the problem rather neatly by drawing a picture of a little man with a large dome-like head, suggestive of one of the super-selenites in Mr. Wells's romance: "The First Men in the Moon."

This rather grotesque little figure sat in an attitude of profound meditation with his forefinger resting on his brow. The same figure, but now wreathed in smiles going off in an energetic and purposeful manner, represented the idea of "answer" or "solution" (see next page).

Byford was so pleased with this primitive but effective device that, not only did he embody it in the Vocabulary, but he ran off about one hundred copies upon an old stylograph machine which he kept for such purposes. When a year or so later his messages began to take a distinctly interrogative form he would affix one of these



Question



Solution

stereotyped figures to the corner of the sheet, producing an effect of almost startling absurdity, until one realized the purpose behind it.

I have given this single instance from the Journal because it shows how, by a skilful combination of phrase and diagram, many recondite ideas and propositions were successfully transmitted. Byford limited himself, as far as possible, to a single thought or group of ideas in each message, repeating the transmission nightly for about ten nights.

So began the Great Interrogation, the first part of which was devoted to what Byford describes as "Basic Ideas." It is in the main astronomical. He went to immense pains to put over a really detailed account of the structure of the Solar System. The orbits of the planets and their period of revolution in relation to the earth's rotation (an important unit in Byford's case since it was disclosed and registered by the interval between the messages) were all carefully mapped out and rendered in their true proportions.

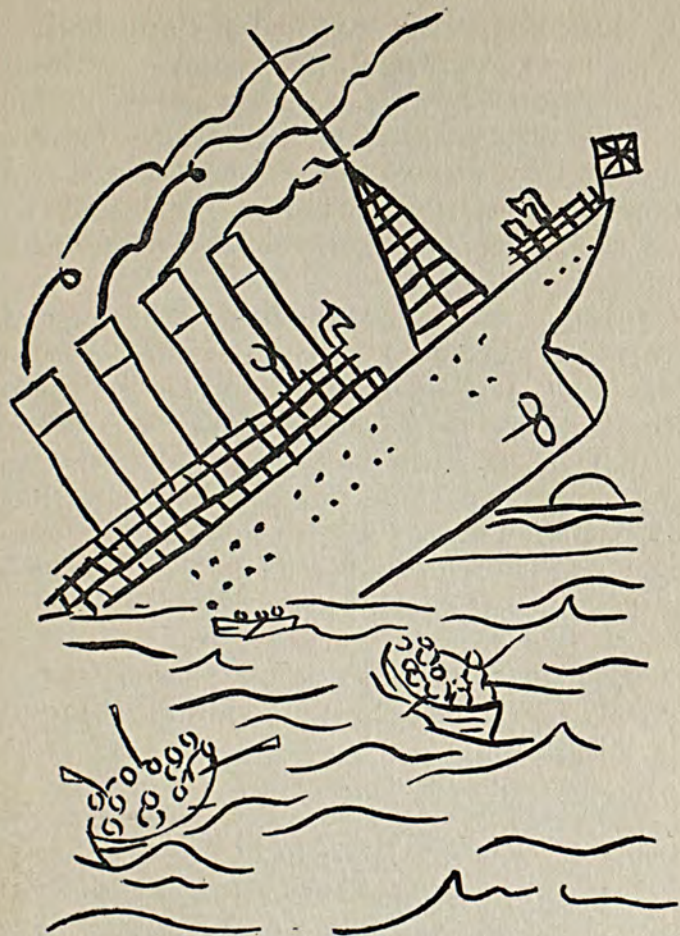
The flaming projections from the sun, the moon and its craters, the complex satellite systems of Mars, Jupiter and Saturn were all described in some detail, while there was a little sub-section devoted to comets and other wandering visitors from the depths of space. Apart from the numerous formal diagrams, this section was illustrated by a rather ambitious drawing of Marthe's, showing a terrestrial landscape with Donati's comet hanging like a jeweled scimitar in the sky. The proportions were not quite right, but as Byford remarks in a penciled footnote, the slight exaggeration was probably an advantage. This part of the transmission ended with a request that data of a similar character should be transmitted in due course.

In the next phase we find Byford back, though in even more serious mood, with his old problem of miscarriage. He calls this section "The Phenomena of Misadventure," and it is almost impossible to conceive anything more depressing than the collection of disasters, accidents, and strange mishaps which are described therein.

He begins in the cosmic field, refusing to draw any distinction between the disruption of a planet and the sinking of a ship. He worked tremendously upon the rings of Saturn, using greatly enlarged photographs to show its filmy and unsubstantial character. He drew in firm lines a circle round the planet indicating the theoretical position of Roche's limit, and showing that the rings lay in that formidable and disastrous zone. He even reproduced a series of photographs of broken meteoritic matter from the South Kensington and other Natural History Museums.

The same exhaustive treatment was accorded to the Asteroids, a map, carefully drawn to scale, showing clearly the gap which, according to Bode's hypothesis, should have been occupied by a planet.

From these stellar and cosmic examples Byford turned nearer home, and for many pages the journal is filled with tracings of illustrations



Marthe's drawing of the sinking of the *Titanic*

Reproduced by permission from *The Zermatt Experiments: Visual and Aural Transmissions*

in which *tragedy*—"accidental and non-contributory," as he puts it—is the dominant and prevailing note. He does not draw any particular moral from these cases. He seems rather to have regarded them as psychologically essential to a true picture of life on our planet, though he pauses at the end to inquire briefly whether such things occur elsewhere.

Incidentally, this section seems to have tested Marthe's powers of portrayal to the utmost. There is a lack of that buoyant zest and confidence which marked her earlier efforts, as though the theme were uncongenial or the restraint of an unnatural sadness had paralyzed her pencil. This can be clearly seen in her rendering of the last moments of the *Titanic* which is depicted on previous page.

From the next two sections, however, Marthe's work is almost entirely absent. It may be that Byford did not wish to sear her mind by thoughts and experiences beyond her years. It may be that he thought the theme too grim for her light and humorous touch. However that may be, this part of the transmission is the saddest and most harrowing of all. With no trace of personal animus, Byford was cold and merci-

less in his portrayal of the inhuman cruelty which marks some phases of the so-called struggle for existence. He seems to have drawn mainly upon those dour illustrators of unimaginative text-books in which the habits of the wilder and less tractable animals are depicted with unblushing realism. There is no hint of tears, no softening of the high lights in that relentless picture of a lioness, her mouth and paws smeared with blood, making her evening meal from the still quivering flesh of an antelope. There is a hard and businesslike efficiency about the picture of a cat stealing to cover with a bird. The drawing of the structure of the carnivorous plants is merciless in its exposure of the subtle trap by which the unsuspecting insect is imprisoned and committed to its doom. I do not care to dwell upon this part of the journal, so melancholy and forbidding is its theme. I turn gladly to other and more inspiring topics.

It was toward the close of the experiment that Byford seems to have felt the need for transmitting something representative of the greater imaginative literature of the world. He chose ultimately Milton's "Paradise Lost"—partly, I

think, because the genius of Doré had rendered it so peculiarly susceptible of illustration, but chiefly for its sublime imagery, its escape from the sordid and unwelcome details upon which he had recently been engaged.

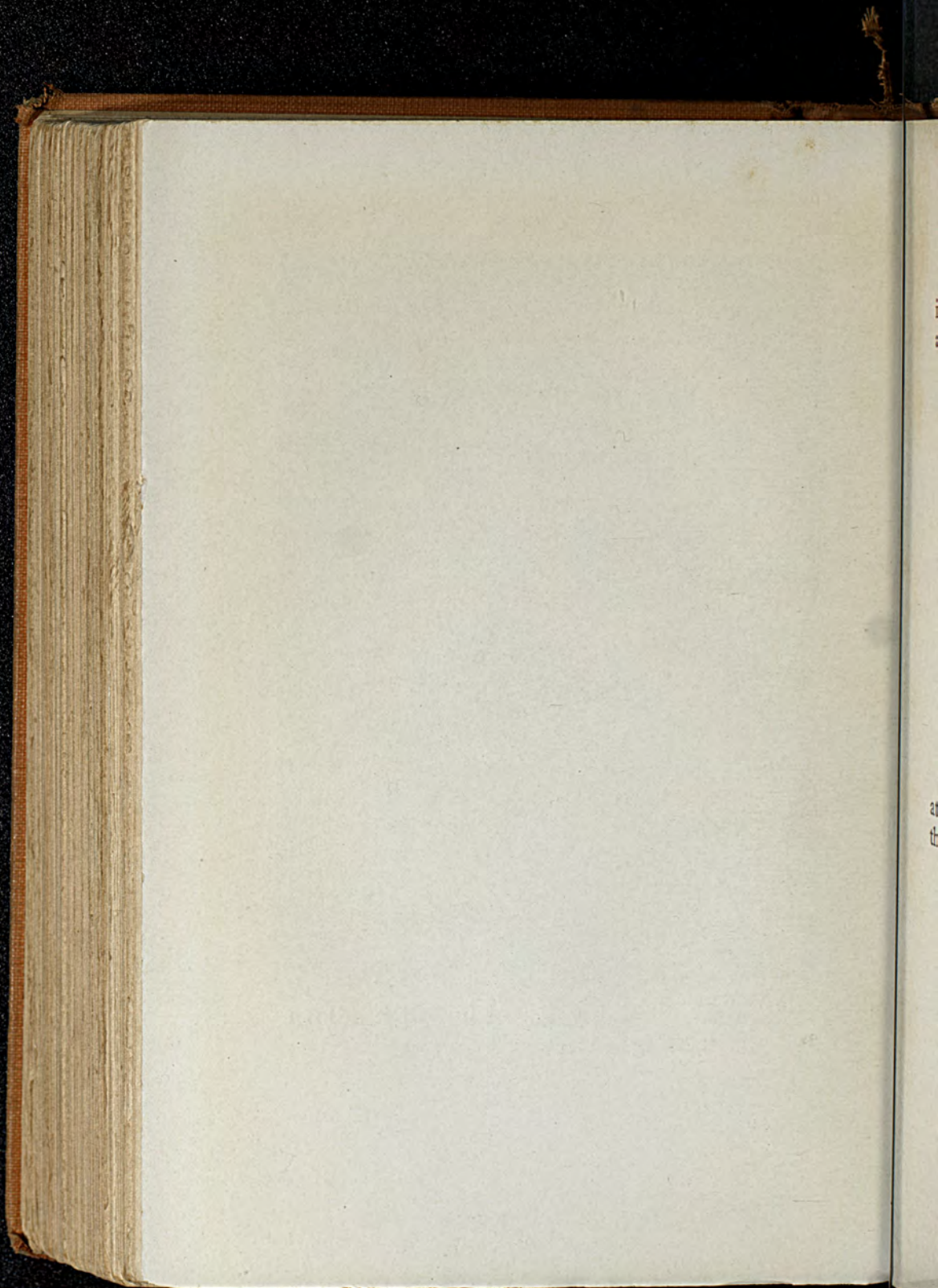
In the little museum at Zermatt, side by side with the many gruesome relics of Alpine misadventure, lie the charred remains of a large quarto volume containing the full text of the poem, illustrated by Doré's famous etchings. It was hurled out by the explosion and was discovered by Zweiler a few hours later, soaked with dew and rain.

How much of that tremendous epic was transmitted by Byford will probably never be known. There is a curious gap in the journal at this point, as though other and more urgent matters were already engaging his attention. But on the last page of the seventh journal there is a faded print of one of the etchings depicting Satan and the rebellious angels falling headlong into the abyss, with a printed caption, from the text, in the august Miltonic vein:

"Him the Almighty Power hurled headlong flaming from the ethereal sky, with hideous ruin and combustion down to bottomless perdition."

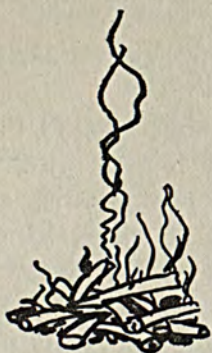


“Him the Almighty Power hurled headlong
flaming from the ethereal sky”



The entry is of some interest because beneath it there is a little footnote which seems to betray again the hand of Marthe:

Combustion = le feu =



Apparently this excursion into classical literature called for an unpremeditated extension of the Vocabulary.

CHAPTER TWENTY-THREE

The Shadow on the Screen

IT WILL probably always remain one of the mysteries of science how it was that John Byford, whose ingenuity and foresight was of a very rare and subtle kind, came to make the peculiar sort of blunder which very nearly ruined the experiment, and threatened for a period to nullify entirely his prodigious expenditure of time and labor.

It came about this way:

Byford possessed to a marked degree the cautious temperament of the scientific man, and he was never satisfied until he had tested his results in various ways. For this purpose, quite early in the experiment, he erected a short aërial on rising ground about 700 yards from the hut, trailing therefrom an insulated wire which terminated in a plug on the corner of the bench at which he worked. He was thus able to pick up at will, not only his own transmissions, but

those of the nearer Continental stations which at that time were just beginning to spring up. It was this precaution which first gave him warning that his aural transmissions were being overheard.

You must imagine Byford, about this period, settling to his work, shortly after midnight, when for the most part the European stations had closed down. You must think of him with the earphones on his head, and the rough clockwork mechanism before him, working far into the night, emitting that eerie signal into the void of space—his only listener being, as he thought, that immemorial eavesdropper, the ghostly and silent Matterhorn itself. He was mistaken there, of course, as he was soon to discover.

One night, during an interval between the signals, he heard very distinctly, though at greatly reduced strength, a voice calling: "Hullo, hullo . . . X157 speaking . . . cuckoo signal received . . . report position . . ."

The rest of the message was blurred by the whirring of the clock, which had just begun to strike. It was Sillow calling from the high-power experimental station of the Yerkes laboratory.

Byford stopped the transmission immedi-

ately. He was palpably disturbed, and although he continued to send out the aural signal for another seventy nights, he did so at a much later hour, in the hope of escaping the curious attentions of his remote listener.

The incident served, however, to bring to a head a matter which Byford had long been revolving in his mind. In collaboration with that very great technician, Giovanni of Milan, whose brilliant theoretical work upon the possibilities of the photo-electric cell is now universally recognized, Byford had succeeded, several years earlier, in constructing a crude but effective device for the transmission of drawings, photographs and similar objects, thus anticipating by some months the more delicate and advanced work of Mann, in Germany, and Baird, in England.

With the aural outlets closing against him on all sides, he determined to pursue the experiment entirely through the visual medium, since, by working between the hours of midnight and sunrise, he avoided the possible danger of terrestrial interception. He worked feverishly upon his new plans throughout the winter and by the following spring the new method of transmission was in progress.

It took the greater part of a year to put over

the Vocabulary, and in the two following seasons he transmitted the whole of that earlier series of messages which led up to the Great Interrogation. He then proceeded to transmit the entire sequence again. It is this circumstance which accounts for the rather confusing fact that many entries in the journal and the diaries bear two distinct dates—the difference between them being from one and a half to two years.

It says much for the enthusiasm, the unremitting patience of the man, that he had the endurance to achieve this remarkable feat. There are indications, however, that the purely repetitive work did not weary him, but became almost second nature. Certainly his intense interest in the experiment remained undiminished to the end.

Now it was this deep preoccupation and absorption in his work which was very nearly Byford's undoing. He had a weakness for constructing little "gadgets" or devices with the object of cutting out unnecessary labor. One of these was a two-way system of switches, which had the effect of starting or stopping simultaneously the lamps and motors both in the transmitting and receiving sets. In this way he was able to observe and correct any defects or lack of quality in the transmission. He was also in a

position to judge of the relative suitability of particular drawings or originals. When the immediate work was over, a movement of the switch cut off both sets of apparatus.

I suppose he had been doing this for so long that it had become almost habitual, and he overlooked entirely the fact that its practical effect was to *cut him off from the external world*. This fact was to come home to him shortly to his own intense confusion.

It was toward the end of the seventh year of the experiment, and Byford was engaged in transmitting for the second time the series of messages which I have described fully in the previous chapter. He had reached the stage where the Miltonic extracts were dealt with, and the printed book, with one of its steel engravings, was clamped under the powerful lamps of his projector. In a distant corner of the room, specially darkened for the purpose, the image was reproducing itself rather jerkily upon the screen of the receiver.

He was not satisfied with the quality of the transmission. The top right hand corner of the picture was unnaturally dark, as though a shadow was falling on the book, or the light from the lamps was unevenly distributed. Moreover, there was a series of vertical bands,

not unlike the Fraunhofer lines, which interfered periodically with the definition of the picture.

Byford made a small adjustment to the focus of the lens and the lines seemed to disappear, but the heavy shadow in the corner persisted, and after examining the projection chamber of his instrument very closely and finding it to be hot, he decided to discontinue the transmission for a short period. When, however, about ten minutes later, he again put over the switch, the defect which he had noticed was still there. The shadow, if anything, was larger, and its shape seemed to be different. It was as though some opaque object had come between the picture and the lens of the transmitter; yet there were no projections in his apparatus, and the lamps were burning evenly.

Byford looked at the screen in great perplexity for a few moments, and then something happened which caught his pulses, and revealed to him in a flash the extent of his own amazing negligence and folly.

The shadow moved slightly—not with a hard mechanical movement, but with the supple almost unconscious motion of a thing alive. It was stationary for a moment, and then as silently and softly, it moved again and was gone.

Byford leaped from his bench to cut off the transmission, calling himself, as he says in his diary, "every sort of damned fool"—for it was now clear to him that *two entirely different transmissions* were mingling on the screen.

He put out every light in the hut, save those in the chamber of his receiver, and sat down to watch the now dark and unresponsive screen. Nothing happened, and he sat there for over an hour hoping that the image, or at least the shadow, would reappear.

Then a new thought occurred to him. Turning on one of the lights he made his way to the little store-room where he kept his surplus apparatus, and reached down from the wall the dusty set of headphones which he had not used for many months. Making a temporary connection with the distant aërial he leaned over his bench and listened. And there, sure enough, though very faintly and indistinctly, was his old familiar signal coming back to him after a journey of nearly 40 billion miles.

As he listened there came three quiet taps upon the curtained window. It was Zweiler coming to tell him the joyful news about Marthe.

CHAPTER TWENTY-FOUR

Sunset in Lyra

IT IS A very curious and, in some ways, an uncanny experience, looking at one of the older and distant worlds of space through the sort of keyhole provided by Byford's very crude and primitive equipment.

If the reader expects a full and detailed picture of the progress of evolution upon that remote planet, he is, I am afraid, doomed to disappointment. The greater human discoveries have not been made in that way. There has usually been a period of preliminary bungling, of intense study of obscure and perplexing phenomena—often of false inferences drawn from insufficient data. It was so in Byford's case, and although that does not diminish the greatness of his achievement, it adds to and, in a sense, magnifies the obscurities and uncertainties that remain. The reasons for this will, I think, become increasingly clear as we proceed.

I have likened Byford's apparatus to a *key-*

hole, and the parallel is really very close and exact, because in a strictly physical sense his area of observation was very limited, and was rendered more so by an inadvertence—shall we say, an accident?—over which he had no control.

For a considerable period the transmissions which he received were so blurred and indistinct as to be decipherable only with very great difficulty. Byford worried about this a good deal, trying to correct the defect by adjusting the lenses in his receiver, but it soon became apparent that the lack of definition was at the *other end*. He did succeed in sharpening the image considerably, as I shall presently show, but this merely led him to make another and even more disconcerting discovery, viz., that only a restricted part of the transmission was coming through. It was as though he was trying to look at a large surface through a very tiny aperture, and the angle of vision cut off substantial and often indispensable parts of the picture.

This disability, in fact, persistent throughout the whole series of signals from Nova Lyræ and must constantly be taken into account. Byford, in an acute footnote to his journal, suggests that the blurring of the image and the restriction of view may have been due to a single cause.

He thinks that the apparatus in Lyra may have been fitted with a double set of lenses—one for distant pictures, and one for closer objects—and that the “distance” lens was used throughout.

I am inclined to think that even this was only part of the trouble. The transmissions from Nova Lyra were manifestly conducted in circumstances of very great difficulty. Long periods elapsed during which no messages came through, and even in the lucid periods there were tantalizing interruptions and *lacunæ* which can only be explained by insufficiency of skill or some unsuspected lack of coördination at the other end.

But the best way for the reader to judge of the general accuracy of Byford's conclusions is for him to see and hear, as far as possible, what actually transpired. It was Byford's wish that this should be the case, and he was at some pains to preserve certain photographs and drawings which are, in themselves, sufficient justification for his work.

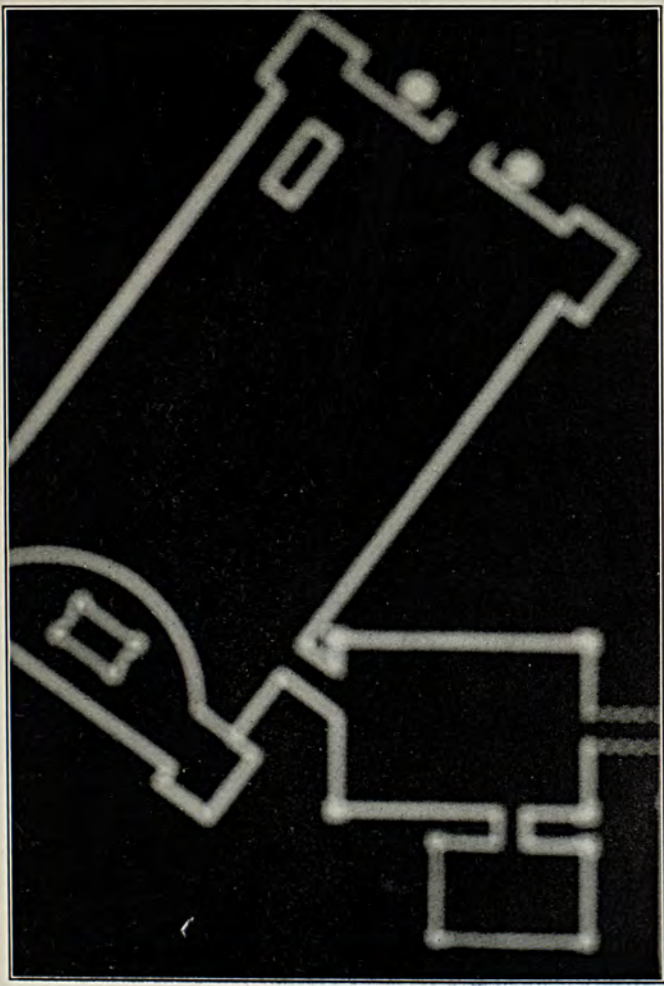
I will pass over the earlier transmissions very briefly. They were so bizarre and meaningless that Byford confesses himself to have been utterly baffled by them, consisting chiefly of short arcs of circles crossed and recrossed by strange contours.

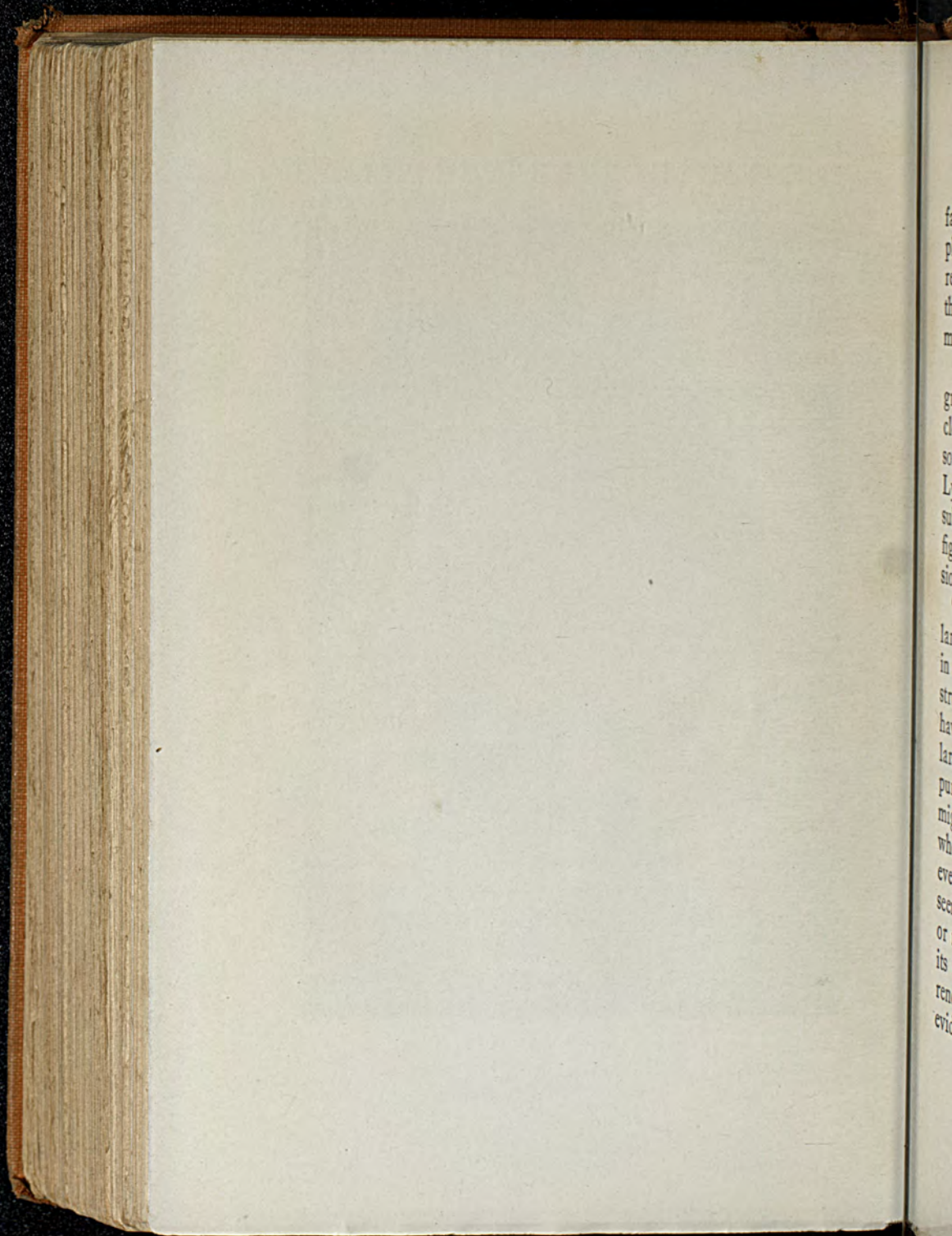
Sometimes the same contour would appear in several transmissions, though in different parts of the picture. Byford thinks they were probably an attempt to give on a large scale some idea of the geography of the planet. There were shaded areas which might conceivably have been seas, though the coast line in that case lacked the rugged and indented character of such contours on the earth. Possibly the tides are less frequent and aggressive than they are with us, and the consequent erosion more placid and uniform. Perhaps what Byford saw was the outline of an enclosed and practically tideless sea. Be that as it may, these earlier transmissions, as I have said, though of profound interest, were of little practical value.

About a week later, however, there began a series of communications which roused Byford's receptive and fertile mind to the highest pitch of interest. They consisted of a succession of crude drawings, still very much out of focus, but representing clearly some particular locality, as though an effort were being made to describe details possessing a local significance.

A very good idea of the kind of image with which Byford had to deal at this period is given by the photograph reproduced on the opposite page. It was secured late one night with some

THE TEMPLE OF THE TWIN PILLARS





fast film exposed in an ordinary camera, his photo-recording apparatus not then being ready. The thing came upon him so suddenly that he had, perforce, to employ impromptu means.

It was obvious to Byford that this was the ground plan of some kind of building or enclosure. At first he thought that it might be a sort of stadium in which the inhabitants of Nova Lyræ held festivals or prosecuted games, but subsequent diagrams in which the same oblique figure appeared led him to revise this conclusion.

"It transpired later" (he wrote) "that the largest of the group of three buildings depicted in this diagram was the venerable and archaic structure which throughout these memoirs I have described as the Temple of the Twin Pillars. In earlier times it may have been used for purposes which, by purely terrestrial analogies, might be called religious, though I doubt whether the practices conducted therein were ever in any sense ethical. More recently, it seems to have been converted into a sort of hall or museum of the sciences, for which purpose its massive proportions and ample floor space rendered it peculiarly suitable. There is some evidence, too, that the subterranean vaults, once

the scene of hideous and revolting rites, were later converted to dynamical uses—possibly the storage of electrical or other forms of energy.

“The two smaller buildings shown on the plan were of much more recent date, having been built, I gathered, within living memory. It was from the larger of these that a secret corridor communicated with a concealed gate in the fortress wall, of which we shall hear more shortly.”

Of course, Byford would have been greatly perplexed to assign a meaning to these outlines had not, in the course of time, little pieces of attempted description come through. At first, these were of a very tentative and confusing character. They consisted chiefly of nouns, often crudely spelled, in a fluid and sometimes almost indecipherable script. For a long time Byford could make nothing of them until he discovered that the characters had to be read backwards. Indeed all the transmissions possessed this awkward characteristic, due possibly to the intervention of some kind of mirror.

Nevertheless, it was a magical moment for him when in the open space inclosed by the four walls in one of these reproductions appeared the word, *Temple*, while against the circular pillars at the end of the building there was a tiny drawing of *two birds*, followed by the word

colonnes. It was Byford's own amusing device coming back to him from the abyss of space.

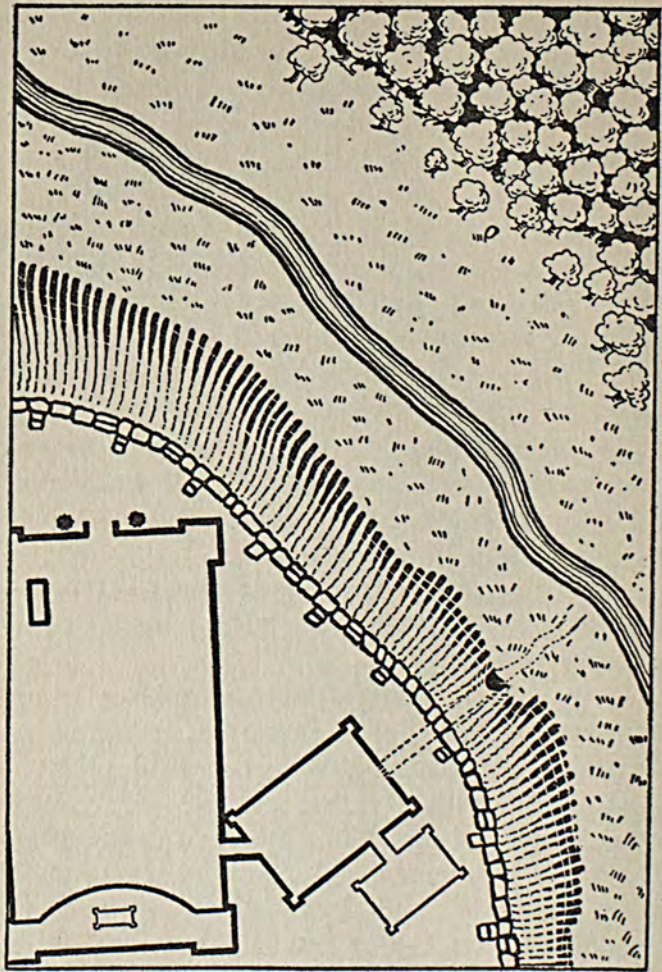
After a while, other drawings began to appear which enlarged considerably Byford's knowledge of the locality. It became clear to him that the Temple settlement really stood upon a lofty hill, from the foot of which stretched a densely wooded region. On the brow of the hill was a massive wall which served, apparently, to protect the fortress in earlier times. The little annexe adjoining it was judged by Byford to be Nerina's personal apartments.

By piecing together these disconnected diagrams the experimenter was able to build up a really serviceable map, the accuracy of which, within certain limits, is assured. I reproduce it here because, apart from its intrinsic interest, it throws some light upon certain incidents which were to follow.

It was while matters were in this early and primitive stage that a series of transmissions started which puzzled Byford considerably.

It began with a rather realistic drawing of what at first he took to be a sort of cactus plant. It was characterized by long spiky leaves which grew outward and bent down toward the ground. At its center was a large proliferous flower, not unlike, so far as Byford could judge,

BYFORD'S MAP



the heart of the terrestrial cauliflower. He was to learn later that this was one of the staple foods of Nova Lyræ, growing prolifically, not only in a wild state, but also under cultivation.

It seemed to him a very extraordinary thing that with so many really interesting questions in suspense, his distant correspondent should waste time by depicting a relatively humble member of the vegetable kingdom. As night after night went by, with the same object presented in different ways, he began to lose his temper, apostrophizing the "wretched *choufleur*" in his diary in no measured terms. After a while, however, it occurred to him that special significance might attach to this demonstration, and he began to follow it with close attention.

His interest was greatly increased when, about three evenings later, he received a transmission, the original of which has unfortunately been lost, but which Byford transcribed into his journal, thus:



Again the script was excessively difficult to read, but with the aid of a mirror the experimenter made it out as follows: Intervals de dix Revolutions de Soleil (Intervals of ten solar revolutions).

This communication had a statistical and business-like air which appealed strongly to Byford's scientific mind. It was clear that during a relatively short period the unfortunate vegetable had undergone a process detrimental to its health. From a flourishing and lusty plant it had dwindled in twenty years to a particularly miserable and dejected object. With no further information to guide him Byford could only speculate upon the causes which had brought this about, but before he went to bed that night he turned up some old copies of the "Journal of Experimental Biology" containing an article entitled: "Experiments with the Jimson-weed and *Drosophila melanogaster*: Chromosome Breakage and Mutations by means of X-rays."

He was still very far from foreseeing the startling developments which were to follow, but certain facts about the behavior of the jimson-weed and other lowly organisms under

given conditions were, as he said, "chasing themselves idly" in his mind.

In the meantime the communications switched over abruptly to an entirely different subject. There were numerous references to "un passage couvert," accompanied by a diagram showing the outer wall or bastion of the fortress. Byford judged that there was a subterranean passage or tunnel leading from the small building at the side of the Temple to a secret gate in the wall which overlooked the valley—a passage which doubtless had a strategical importance in more primitive times. But he was much puzzled by certain references, composed, as he says, in "execrable French," to "les homme-animaux."

"What in the name of fortune," he exclaimed in his diary, "is the meaning of *hommes-animaux*, unless we translate it literally as Men-Beasts?" He began to speculate upon ugly possibilities, a line of thought which was intensified by the manifest aversion and terror with which his invisible correspondent seemed to regard these monsters.

He could not understand why, if such creatures existed, a civilization so manifestly ad-

vanced in its technical equipment and resources had not made short work of them. He was also greatly mystified by the absence of any reference to other members of the community. If there was any real menace from the neighboring forest surely a posse of determined defenders could have coped with it. Where was the intellectual mastery, the inexhaustible resource which Byford associated with a high civilization even in another and a different world?

Some of these questions were destined to be cleared up very shortly. Imperceptibly the quality of the written transmissions improved. There was less reliance upon inconclusive and obscure diagrams. A growing mastery of the vocabulary asserted itself. And then suddenly a little passage came through, in very tolerable French, evidently the product of careful thought and study.

As usual it overlapped the edges of the screen, and Byford had to infer and fill in the conclusion of certain words. The message ran as follows:

Le village est abandonné. Mes compatriotes sont morts. Il n'y a pas en ici de naissance d'enfant pendant les trente dernières révolutions du soleil.

Byford pondered these words with growing

amazement and concern. "The village is deserted. My compatriots are dead. I am alone. No child has been born here during the last thirty revolutions of the sun."

The light of a new and bewildering discovery was beginning to dawn upon his mind. He thought of those strange mutations, that slow wilting of the *choufleur*, under influences too subtle and microscopic for Nerina even to suspect. He thought of those mysterious references to the Beast-Men in the forest. And now this new fact—sterility, stark sterility, in the little community which chance had brought within his ken.

Almost subconsciously a familiar phrase from the book of Daniel came out of his memory and registered itself upon the written page: *Mene, mene, tekel upharsin*. "God hath numbered thy Kingdom and brought it to an end. Thou art weighed in the balances and are found wanting."

CHAPTER TWENTY-FIVE

Nerina's Last Message

IT IS ONE of the tragedies of the Zermatt Experiment that it came to an abrupt and disastrous termination just at the moment when its prospects were alluring beyond the possibility of computation. It would be idle to pretend that Byford was not disappointed, and yet in that final moment of supreme crisis there came to him an understanding which was, in a measure, the glory and fulfilment of his work.

It all happened so suddenly that, prepared though he was for some kind of dramatic climax, it took him queerly by surprise.

During these closing weeks Byford worked with a joyous zest which he had never known before. The long and tedious years of preparation were over, and as the signals became clearer and more definite a curious sense of intimacy grew up between him and his distant collaborator. It seemed as though space had been anni-

hilated. A distinct effort was needed to realize that the messages now reaching him had left Nova Lyrae more than three and a quarter years ago. Indeed, as Byford remarks in his diary, the sense of contemporaneity was one of the most persistent illusions of the whole experiment.

Now it would be manifestly quite impossible, in this summary, to describe in detail the complete series of transmissions, occupying, as they do, many entrancing pages of the journal. It would involve recourse to a degree of illustration beyond the scope and purpose of this book, and my publishers aver that, in this respect, I have already over-stepped the limits of convention. But there is one matter too intimately linked to this closing phase to be neglected or overlooked.

I have already mentioned in a previous chapter certain obscure references to a secret passage which led, it seems, from the library of the Temple to the outer wall or bastion of the fortress. This was the wall which overhung the steep hillside depicted in Byford's map.

Byford was never quite able to determine whether this passage was merely a covered way or a tunnel blasted through the rock. Sometimes it would be referred to merely as "le passage couvert." On other occasions it became "le tun-

nel souterrain." And as his invisible correspondent had now largely discontinued the use of diagrams he was never able definitely to clear up this point. He thinks, however, that the passage really was subterranean, finding an outlet on the hillside below the wall, and screened probably by a thicket of trees. In this way, perhaps, it would be overlooked and forgotten when its original and strategical importance had passed away.

Nerina, who seems dimly to have been aware of its existence, came to explore it under rather peculiar circumstances. During the period of her communications with Byford she was accustomed to go from time to time to the great library which adjoined the temple.

"On the day in question" (says Byford) "she had occasion to visit a little-frequented part of the building, a sort of basement in which the larger and more important documents were kept. The way to this apartment lay down a short flight of steps leading to a vaulted chamber which in times past must have been brilliantly illuminated, but which was now dark and forbidding. So far as Nerina knew, no one had been into this chamber for several years. The dust lay thick upon the ground and on the air-tight cases which contained the manuscripts.

"Nerina seems to have had little difficulty in discovering the records of which she was in search, and as it was now beginning to get dark, she decided to take them with her for further study. It was at this moment that she made a discovery which was destined to give her great concern. In the course of her search she had moved along to the extreme end of the chamber, in the corner of which there was a massive door fitted with heavy bolts. She would not have noticed this door in the gloom had it not been for the fact that it stood half-open and a certain amount of subdued light came through it from a narrow corridor without.

"This was doubtless the entrance to the secret passage, but her attention was chiefly attracted by the presence of certain marks in the accumulated dust upon the floor. It looked as though some strange creature had entered the chamber, turned in a half-circle and gone out again. She was thoroughly alarmed, for she had no idea that there was any access to the building from that side.

"Despite her fears she took a lamp and followed the tracks of the animal. The corridor, which was open to the sky for a short distance, became dark a little farther on, and she had to pick her way with great care. After stumbling

along for some time through the tunnel the faint glow of the evening sky showed through a doorway at the extreme end, and a few moments later she was standing in the open upon the rocky hill-side which overlooked the valley and the dense forests beyond.

"As she stood there in the gathering darkness she could hear the shrill call of birds in the forest. In the far distance she thought she could distinguish a faint glow upon the horizon, as of fires burning beyond the hills.

"Nerina returned hurriedly by the way she had come, but not until she had closed and heavily barred the little postern gate and had taken the same precautions with the door which led into the library."

Such was Byford's vivid and perhaps somewhat imaginative impression of the incident, based upon the slender and obscure messages which reached him. But Nerina's frequent references to this tunnel, with obvious apprehension and terror, continued to possess his mind. That night he made a long entry in his diary:

"It is extraordinarily difficult" (he wrote) "to form an accurate picture of a world so remote and different from our own. The biological and moral history is missing, and much depends

upon that. And yet the broad outlines are plain. There was a *sapping* of something vital to human standards long before the *choufleur* gave the warning signal that physical disintegration was at hand. Only thus can we account for the rise and dominance of the Men-Beasts. Perhaps some of the younger and more brutish men of the community revolted early and left the dwindling settlement. Perhaps there was an urge which does not come to men with more settled and developed institutions. Perhaps the very failure of the normal processes of life and reproduction led to hopeless and unprofitable adventures. Who knows? If only there were time to get answers to all our questions."

But, although he then little realized it, the sands of the experiment were quickly running out.

The next morning Byford went for a long walk across the stony wilderness of the old Zmutt glacier, pondering these matters deeply in his mind. He had not heard from Nerina for three days, and the fact was perplexing him, but since, according to his calculations, the next transmission could not start until evening, he was in no hurry to return to the hut. He took tea at the inn at Staffel, and then went on to spend a pleasant hour or so in the cottage at Jöst.

Zweiler was away, but Marthe and her mother made him welcome.

It was about eight o'clock in the evening, just as it was getting dusk, that he set out for Schwarzsee. Marthe accompanied him part of the way, talking in that deep, serious way of hers, for she was now a young woman, and Byford had confidences concerning his experiment which he reserved for her alone.

They parted at the edge of the wood and Byford went on to the settlement. As he unlocked the door and entered the inner room he was surprised to find that, inadvertently he had left the switch of the receiver over, and a message stared at him sullenly from the illuminated screen in Nerina's frantic and terror-stricken script.

Ils ont abattu la grande porte extérieure. Ils frappent maintenant contre la porte intérieure qui donne dans le corridor. La porte cède . . .

"They have broken down the outer gate. They are hammering now upon the inner door which leads from the corridor. It gives way . . ."

It was the last message he was ever to receive. And yet, in a sense, it was not, for he discovered

to his dismay that it was to continue for many, many days. He could not destroy it; he could only cut it off. More than once, after prolonged intervals, he switched on the receiver, in a last desperate hope that it would be gone. But still it stared at him, like the unwinking sightless eyes of the dead. Only the slow running down of those ancient batteries in the Temple of the Twin Pillars could stay the emission of those terrible vibrations into the ether.

CHAPTER TWENTY-SIX

Byford's Letter to Sillow

AFTER that there is no record in the diary for nearly six weeks. The experiment was over, and John Byford seems to have lived for a time in a sort of stupor. Then begins a series of entries of very unusual interest.

There is a great deal in this section which at first I found some difficulty in understanding, until one of those stark passages to which I have previously referred revealed to me its meaning. He was back again with his old problem of misadventure and miscarriage.

"At least that is proved" (he wrote late one night). "The tendency to miscarriage is coterminous with the Universe. Saturn's ring is not the exception that it seems. Things can go wrong upon a colossal, a stellar scale, and the curious thing is that no one seems to be in the least concerned about it. It is strange, that! You would have thought, with all that prodigious compe-

tence and power they would have done something about it—that they would have *wanted* to do something. Surely there is no joy in fatuity.”

There is a good deal more to the same effect, in which Byford, caustic and unflinching, apostrophizes the “Catastrophic and apparently meaningless drift” of created things.

Then the tone changes. His pen is dipped in anger as he proceeds to review what he calls the “unlovely aspects” of Nature’s earlier experiments with life. There is a stinging phrase about the law of the survival of the fittest—“brilliant in its intellectual conception, but morally and ethically contemptible.”

“It is not merely the duplicity of the proceedings” (he wrote) “which lures an innocent creature to its death which is so antithetical to all decent feeling. There is the much more deadly criticism that the process implies the calculated infliction of unmerited pain and terror upon sensitive creatures. Whatever his sins and short-comings, man, in his highest moods, is immeasurably superior to that. He would shoot a horse which has been badly injured rather than it should suffer a single moment of avoidable anguish. He will go out of his way in a wood to find a starling wounded by a hawk. A dog or a cat grievously hurt by some accident, and still

living, haunts him." He ponders for a while this strange antithesis.

"Consider, for example, the eternal problem of the cat. The domestic cat is really an elaborate bit of camouflage. Witness him lapping his milk, or disporting himself harmlessly upon the hearth-rug, with a strip of blue ribbon about his neck, and he appears the perfect embodiment of Christian principles. He will pretend to go to sleep, curled up before the fire, rise up occasionally and stretch himself, and then settle down once more, as though at perfect peace with all the world. But let a mouse presume upon his apparent pre-occupation to venture forth from its hole, and instantly he is a different creature. The sleeping tiger awakes within him, and the mouse pays the penalty of his indiscretion with his life.

"This is so common and apparently trivial an occurrence" (he continued) "that we are apt to overlook its connection with much deeper things. I once knew a little girl in Kingston who possessed a white mouse. For convenience, it lived in one of those Victorian contrivances expressly made for the purpose—dividing its time between a tiny box and a sort of revolving cage in which it took exercise. Despite these limita-

tions, the little fellow seemed on the whole to be quite happy.

"If my friend, however, had been a different sort of person to what she was, and instead of ministering tenderly to his comfort, had proceeded to torment the mouse by sticking a hat-pin into him, her father would quickly have found himself in an unenviable position. The neighbors would have 'begun to talk.' Before very long that mysterious entity, the State, would have put in an appearance—first in the person of an officer of the S.P.C.A., and later in that of a policeman with a blue envelop. And behind that envelop would lie the righteous and justifiable wrath of an outraged humanity.

"Why should it be wrong—palpably and unforgivably wrong—for a human being to stick pins into a *white* mouse, and yet right for Nature, deputizing through the cat, to stick claws into a *brown* one?"

No answer was vouchsafed to this profound and apparently insoluble enigma, save that Byford's mind seems to have gone back again to the physical constitution of living things:

"It can't be otherwise," (he wrote a little later). "It is part of the chemistry of the thing. Life feeds upon life, and *must*, if it is to con-

tinue. There is no going back on that. Physical life and the principle of hatred are linked biologically by inseparable bonds."

And then, as though the blasphemy of the thought scorched and seared his mind, he added: "No, it can't be that . . . surely it can't be that!" Nevertheless John Byford was, I fancy, very near that night to the unpardonable sin.

It must have been about two days after this entry that Byford dropped unexpectedly into the little cottage at Jöst with two letters. One was addressed to the manager of a small hotel in the Austrian Tyrol; the other to Frank Sillow. Marthe, who was just leaving for the village to do some shopping, offered to post them.

The true history of those letters will probably never be known. Personally, I think that Byford—tired out as he undoubtedly was after his long exertions—must have bungled the inclosures. Certain it is that about a fortnight later, Frank Sillow, greatly to his surprise, received a brief note requesting him to reserve a room, facing south, as from the following Thursday. On the other hand, the proprietor of the hotel in question denies emphatically having received a letter at all. He was well known and respected in the

district, and he affirms that if such a letter had reached the village it would have been delivered to him.

There, for the moment, we must leave it. But curiously enough, in a little packet of loose papers, hurriedly placed between the covers of the Diary, there *was* a letter to Sillow in Byford's clear and cultured hand. It reads as follows:

Letter from John Byford to Frank Sillow

My dear Sillow,

It is years since I last heard from you, save for one occasion when (I fear without your knowledge) I took your signal. I was a fool to forget that there are Sillows in the world, but I enjoyed immensely your humorous references in the New York "Sun" to the "mysterious experimenter," whose lunatic transmissions you had so cleverly intercepted. If you had not so gravely disturbed my sleep at a critical stage of the experiment, I would even now congratulate you!

But seriously, I want your help. This thing is troubling me more than I can say. It seems to *invert* everything, and I want to see it, if possible, through another and a fresher mind. Forgive me for choosing you as the prism or filter for separating the elements of my own very confused and bewildered thoughts. But you are the only man whose opinion, just at present, I should care to take.

I am sending you with this letter a report upon the experiment; together with certain photographs which you may consider essential. The rabbit, for example—a good deal

depends upon how that strikes you. I don't mind confessing that the experience of that pathetic little creature *haunts* me. If its implications are true, then we shall have to revise some of our text-books—especially our theological text-books!

It is not only the suggestion of *miscarriage* which is so disquieting. There are, perhaps, terrestrial analogies to that. After all, what does it matter if a million suns sweep to their doom in the stellar spaces? It is the moral and ethical implications: the thought of a Universe so loosely controlled—shall we say, so inadequately policed—that it can slip almost imperceptibly from one form of spiritual damnation to another.

You will say, perhaps, that these are strong and presumptuous words. I sometimes wish that I could get rid of the distorting element of anger, in discussing the life process, especially its earlier manifestations. But I cannot. It affects the scales. It comes out in every micrometric reading, and I feel somehow that it is intended to do so. For the stain of blood, the stigma of a myriad deaths—heartless, calculated, and utterly cruel—marks the path of Nature's tortuous and bungling adventure to the light.

The average modern schoolboy would scorn to stoop to some of the duplicities and lures manifested in Nature. He would say it was not playing the game. He would be sickened and revolted by a really outright example of one of the *carnivoræ*, in a really hungry mood enacted, let us say, in full view upon the playing fields of Eton or Harrow.

But I have said enough, in conjunction with the Report, to indicate the direction of my thought. Let me know some time what you think.

Very sincerely yours,
JOHN BYFORD.

Why was it that that letter—so rich in its illumination, its flashing lights upon the facets of Byford's troubled mind—was never posted? Did he withdraw the implication of miscarriage to which he was clearly leading the mind of Sil- low, or did some new fact arrest and change the direction of its thought?

It is difficult to say. Personally, I think he held to the theory of misadventure to the end. But in his incessant questioning, his restless pacing to and fro, like an imprisoned animal seeking an outlet from the barriers that held him, he came suddenly upon a profound and illuminating truth. It was as though a door had opened in an utterly unexpected direction.

The reader will remember how, on that memorable evening when Byford was transmitting for the second time the closing phases of the Great Interrogation, he was arrested suddenly by the mingling of two entirely different transmissions on the screen. It was this fact which gave him the first hint that his signals had been heard and were being answered.

Late one night, after the experiment was closed, Byford's mind seems to have gone back to that tense and dramatic moment. He was pondering upon the strange fact that during all the myriad years of man's sojourn upon this planet,

his piteous appeals to the brazen and contemptuous heavens had drawn no reply—no reply, that is, as Byford put it, “from anyone that *matters*.” Where was all that incomparable genius and power which had produced these cosmic and stellar marvels, and to Whose mercy, compassion, and divine understanding, man in all ages had appealed, apparently in vain? It was the Silence, the almost uncanny silence, which awed and cowed him, like a sensitive child locked at night by accident in some vast, deserted, and echoing cathedral.

Then there seems to have come to him a slowly dawning consciousness of the amazing folly of looking for a response through objective and inert channels, while all the time, perhaps, the true fact lay exposed and unheeded before his obtuse and undiscerning mind. A deeper sense gripped him of the almost incredible subtlety of created things. The instinct of the scientist reasserted itself, quick to observe the submerged fact, the hint of a deeper and profounder explanation.

“*There is only one receiver,*” he wrote almost in amazement—“the human mind”—and as though the significance of that was only just beginning to break upon his mind, he wrote it again. “*There is only one receiver.*” And then

the sluice gates which had been damming his thought seem to have given way, and he added . . . "there may be *two transmissions* on the screen."

As this new thought coursed and pulsed through his mind, he seems to have turned again to the Oxyrhynchus Sayings, those strange recollections of a unique and memorable epoch in the past. He read anew the obscure but pregnant sentences which several years before he had copied into his diary.

Lift up the stone, and there shalt thou find me: cleave the wood and I am there.

I stood in the midst of the world and in flesh appeared I unto them: and I found all men drunken, and none did I find thirsting among them, and my soul is afflicted for the sons of men, because they are blind in their heart and see not.

The fowls of the heaven, and the beasts of the earth, and the fishes of the sea . . . these are they that draw you . . . and the Kingdom of Heaven is within you.

And as John Byford pondered upon these things it was as though the dawn was breaking in the secret places of the Universe.

CHAPTER TWENTY-SEVEN

Telford's Fourth Cable

WHO SHALL say that a life devoted to such high and considerable ends was utterly wasted? Yet I sometimes wonder whether the Fates in their blind fury at this daring attempt to wrest from them the ultimate secrets of the Universe need have taken the toll of two lives instead of one.

Sitting now upon the high slopes of the Riffel, with that gaunt and terrible silhouette of the Matterhorn rising steeply across the great spaces, the memories of those last and tragic days come crowding back. Especially that unforgettable moment when, unsuspecting, Telford and I entered the antechamber of a smiling chalet in the little village below. It was the Saturday afternoon following the memorable conference at Chequers.

Late on the previous evening, sitting in my room in Jermyn Street, greatly perturbed by the

course that events were taking, I was interrupted suddenly by a call upon the telephone from Forster of the "Globe." Could I tell him the present whereabouts of Harry Byford? The matter was urgent, since an aëroplane, specially chartered by the Government, was leaving Croydon in an hour's time. Attempts to ring him at his flat had so far failed.

The question was one that had repeatedly occupied my thoughts during those frenzied days. About a fortnight earlier Harry, who, since his father's disappearance, had been distraught and almost unapproachable, sent me a brief note to say that he was leaving for the Continent. He spoke of going to Germany and Poland, and hinted that he might be away for some time. It was rather unlike him not to have written earlier, but I had put down the absence of news to the state of dislocation into which the Continental services had now fallen.

I told these facts briefly to Forster, and he in turn informed me of the message from Zermatt.

"Can I go?" I asked eagerly, since I was only too anxious to be of service to my friend, and the suspense and excitement of the past few days had driven all thought of serious work from my mind.

He was silent for a moment. "I'll inquire," he said, and a few minutes later he came through, telling me to be at Croydon by midnight.

Telford was waiting for me at the aërodrome.

"I wonder what the end of this will be," he said, as we took our seats in the machine.

"Who knows?" I replied. "Do you think Byford came back after all?"

"I've thought of that, of course. It would explain a good deal, but not everything. There's something about this business which we don't yet understand. But I'll find out," he added fiercely, and his face assumed that fixed and determined expression which I have since noticed more than once in connection with the Byford affair.

A few moments later we were off, rising swiftly into the night sky. I remember watching the Croydon lighthouse disappearing into the darkness as the giant machine, after getting its direction, sped toward the Channel.

Throughout the night we roared and thrummed our way across the plains of France, through the narrow gap in the Jura range, and thence over Neuchâtel to the Rhone valley. We spoke little during the journey. I remember getting some hours of uneasy sleep with the sound of the propellers in my ears, and when I awoke

the dawn was breaking beyond the serried skyline of the Alps, and Telford was poring deeply over a map of Europe.

A car was waiting for us at Sierre, where we came down, taking us the forty miles to Visp in time for the midday train. The sun was now shining brilliantly, an ideal occasion for a journey almost without parallel in Europe. But we were in no mood for the glories of that deep ravine, nor for the softer splendors of the valley above Stalden, and when we stepped out at Zermatt Station we were limp and tired.

There seemed to be an air of suppressed excitement about the place. A group of visitors stood respectfully at the approach to the station and saluted as we made our way to the barrier. Here the *chef de la gare*, with traditional Swiss courtesy, greeted us.

"We have been expecting you, m'sieur," he said to Telford, whom he at once recognized. "The Burgomaster awaits you at the châlet. It is but a short distance. I will show you the way." And then in a quieter tone he added: "It was as we feared. The body of M. Byford has been found."

I glanced significantly at Telford, but his gaze was fixed upon a young woman standing at the gate of a distant châlet, shading her eyes

from the sun as though trying to distinguish the features of the approaching visitors. It was Marthe, and her pale and tear-stained face told plainly of her grief.

"You are M. Telford and . . . M. Graham," she said in halting French, as we came up to the gate and bid adieu to our conductor. "It is terrible! Will you come this way?"

Leading us along the path she entered the *châlet*, and we stood in a square hall from which a half-open door revealed an antechamber. The Burgomaster and Franz Zweiler stood within, conversing softly, while a prone and lifeless figure lay on the bed. Marthe motioned to us to enter.

I had never met John Byford in life, but I had always pictured him as a sturdily built man of medium height, with a keen, intellectual face, possibly bronzed, and with his hair and closely trimmed mustache slightly turning gray. It was this picture which was present to my mind as we crossed the threshold of that silent and darkened room. The figure was taller than I expected, but a handkerchief was placed across the face, and a little bunch of mountain flowers, culled by Marthe earlier in the morning, lay upon the breast.

We shook hands in silence, and then Telford,

going softly to the bedside, reverently removed the handkerchief. Never to my dying day shall I forget the surge of emotion, the swift gripping of the heart as that face, serene and placid, despite its injuries, was uncovered. It was not the body of John Byford which lay before us. It was Harry.

We both turned in bewilderment to our companions.

"Didn't you know?" asked the Burgomaster in subdued tones. "I thought they would have told you," and Zweiler, unable to control his emotion any longer, burst into tears.

"I could have saved him," he sobbed . . . "if only I had known . . . he should not have attempted it alone."

"We found him this morning on the glacier," said the Burgomaster. "He left the beaten track, and was trying to cross to the Furgg Shoulder. It was madness for one unused to the mountain. But what can you do? The Matterhorn is utterly without mercy."

Later, when Zweiler was more composed, in a corner of the lounge of one of the great hotels, he told us the whole story. Telford and I listened in amazement.

"It was a week ago," he said, "that M. Byford returned to the village. He was distraught and

hardly seemed to realize what he did. He spoke of ascending the peak by the great couloir which rises from the Breuiljoch, above Theodule. I nearly laughed in his face, so wild was the project. The great couloir! And he so inexperienced. The Becca has slain men for a far less impertinence than that. I warned him of the danger, but he seemed obdurate. Then he told me a strange story.

"Three days before, he said, he had been in Trieste. It was the place in which his father was last heard of. He spent the time wandering in the less reputable regions of the town, hoping by some chance to pick up a hint which would guide him in his search. He entered a cosmopolitan café, much frequented by men and women of doubtful character. There was a good deal of rowdy singing and coarse jesting, much of it in a vernacular he did not understand. But after a while his attention was attracted by a group of three men, sitting at a neighboring table, and conversing quietly in German. He caught the words: 'the best guide from the Ortler—a good man and safe. He will be ready to travel to-morrow.' Then the voices dropped and the three men seemed to be studying a large-scale map which they had opened upon the table. One was indicating a route with his finger while

the others followed him closely. M. Byford listened intently. 'You were a fool to leave it so late,' he heard. 'The news will be out on Sunday.' Then he caught the words: 'The Furgg arête . . . the couloir.'

"At that moment M. Byford's attention was distracted by a noisy brawl which had broken out in a corner of the café, and when his eyes sought the men again they had gone.

"He left Trieste the same night, traveling by forced stages to Zermatt." And here Zweiler's distress seemed to return. "He told me the story," he said. "I was skeptical. I thought him imaginative and overwrought, and his nerves were in no condition for the expedition he clearly had in mind. I told him so, and we parted, cordially enough, without any decision being reached.

"The next day he was missing, and a search party was organized. We found him near the edge of the Furgg glacier. In his folly and inexperience he had tried to cut out the difficult ascent from Theodule, taking the well-known route to the summit from Hörnli. He left the beaten track just below the hut. It is easy that part. A child can do it. It is like a great natural staircase. But he was deceived by its appearance. He thought he could cross to the Breuiljoch,

and thus avoid the dangerous ascent to the shoulder. It was madness! He reached a ledge from which further advance was impossible, and a treacherous mist was rising from the valley. He should have stayed upon the ledge until the morning, when his signals of distress would easily have been seen, and a relief party sent to him. But he tried to get back and, in the uncertain light, he fell."

Telford and I had been following this simple narration with tense and growing interest. Zweiler paused in his story to wipe the moisture which had come unbidden to his eyes. And then he added quietly: "In any case, he would have been too late."

"Too late!" exclaimed Telford excitedly, almost springing from his chair.

"Yes," replied Zweiler. "They got there first. That guide knew his business. Yesterday morning, as I was returning from the peak with a search party, two men passed us near the inn at Schwarzsee. They were hurrying toward Zermatt. One was carrying a small sack heavily tied with rope. I passed them a greeting, as we often do upon the mountains, and receiving no answer, I studied them more closely. Then the truth dawned upon me. There was a familiar mark upon the sack. It was unmistakable. It had once

belonged to M'sieur Byford. He often used it to convey his instruments to the ridge.

"Leaving my party I ran forward and laid my hand upon his shoulder. There was an angry scuffle, and before I could call for help the two men ran off in the direction of Zmutt. But I held firmly to the sack."

"The sack?" cried Telford, striving hard to conceal his excitement. "Where is the sack?"

"It is in the Burgomaster's house. He is waiting official instructions concerning it."

Telford rushed for his hat, and a few minutes later we were in the presence of the Burgomaster. Telford produced a document bearing the seal of the Federal Government. He showed it to the Burgomaster. "I want to see that sack," he said. "It is a matter of importance."

He untied the cord and tumbled the contents upon a table, including the books from which I have so often quoted in these pages. Telford turned them over and as he did so, a long foolscap envelop fell out from between the covers. It was marked "Private."

"May I open that?" he asked, and since no one objected, he burst the flap, and withdrew a long and closely written manuscript in Byford's hand. It was the original draft of the now famous Memorandum.

Telford drew from his pocket a folded cutting from "Novoe Vremie," and turning to the last page of the manuscript he compared them closely.

"May I use your telephone?" he said to the Burgomaster, and soon he was speaking direct to the Federal offices at Berne.

"I want you to send a cable," he said, "will you take it down?" He read over the words slowly:

"Prime Minister, London. Postscript to Byford Memorandum an impudent forgery. There was no prediction."

It was Telford's fourth and last cable.

CHAPTER TWENTY-EIGHT

In Sir William's Study

AFTER that dramatic cable to the Prime Minister, Telford left Zermatt hurriedly, and was absent about ten days. I offered to accompany him, if I could be of any help, but he hinted that the inquiries were delicate, and it would be best for him to undertake them alone.

While he was away I took the opportunity of going carefully through the diary and journals in the hope of finding some further clue to the mystery. I also had some long and intimate conversations with Marthe. But nothing that I could discover seemed to throw any real light upon what had happened to John Byford. From the moment he parted from his erstwhile traveling companion at Padua he seemed to have stepped into the void.

Personally, I had little doubt that the unfortunate experimenter had stumbled unwittingly

into some subtle and skilfully prepared trap, and that he was either being held a prisoner, or had perished in some obscure and little-frequented valley of the Balkans. Certainly it never occurred to me at that time that the solution of the problem might lie very near at home.

It was on the tenth day of my stay in the village that I asked Marthe to show me the exact scene of the tragedy in which Harry Byford had lost his life. I had hesitated to do so earlier out of consideration for her, but I wanted to carry away with me at least a mental picture of those last heroic moments in my friend's career. She led me past the now-ruined settlement, up the steep ascent of the Hörnli, to a point from which that vast natural staircase rose plainly before us. She indicated with her finger the point where Harry had left the worn and beaten track, and farther to the east, high up under the beetling precipices of the peak, the ledge from which he had fallen.

As we stood there, with the sad and bitter memories crowding upon us, a passing climber hailed us.

"You're wanted at the inn," he said, on coming within speaking distance. "They are asking for you from Zermatt."

We descended to the hotel, where a girl, on a word from Marthe, put through a call to the village.

"Telford speaking," came a voice, "where are you?"

"At Schwarzsee," I replied, "about a mile from the settlement."

"Stand by until I come," he said laconically, and rang off.

About an hour and a half later I descried Telford climbing the slow ascent to the inn, accompanied by a party of sappers under the command of an officer of the Swiss Guard. They were armed with picks and crowbars.

Marthe had returned to Jöst, and I greeted Telford alone. "I am glad she has gone," he said, noting her absence. "The work which we are about to do is not for her to see."

Arriving at the settlement the party halted. Telford threw himself down on the grass with a large-scale map of the district, over which he and the officer bent closely. Telford was tracing a dotted line from the settlement over the undulating ground toward the stony wilderness of the old Zmutt glacier.

"The line of least fatigue," he murmured, as he projected it steadily to its objective.

"*Ja, Ja*; it is good," replied the officer, a native of Zurich, understandingly.

Presently they rose, and at a word of command the men shouldered their implements, and we moved off along the indicated track.

Telford strode ahead.

"It should be down here," he cried, making for a gully which led to the pebbly floor of the ancient glacier.

The men worked in groups of twos, spreading out fanwise from the point which Telford had indicated, pushing their picks and crowbars into every unusual group or pile of stones.

"Not too far," warned Telford, as the officer detailed a squad to explore one of the winding causeways across the glacier. "Remember the night was wet. It will probably be near the edge."

For five hours the little detachment worked, leaving not a yard of the scheduled area unexposed. Telford was getting anxious as the day was well advanced. Then, just as the sun was sinking—a glowing ball of fire over the Western heights—a shout from one of the men told us that our search was ended. A sapper, probing the base of a little cairn of stones which marks one of the tracks across the labyrinth, had struck something which yielded to the touch. The cairn

was quickly dismantled and our quest was over. The experimenter had come back after all to the valley of his dreams.

Late that night, at the hotel at Zermatt, Telford sat down and wrote a long and furious letter to Sir William Gray.

We have discovered the body of John Byford [he wrote]. He was callously murdered at about 9:15 P.M. on the evening of July 18th, just outside his own settlement. He was returning from the direction of Theodule, and surprised his enemies in the act of ransacking the hut. The final copy of the Memorandum was stolen with certain other vital papers from his inner pocket. To destroy the evidences of their own tampering with the settlement, the central building was blown up, and the body hidden under a cairn of stones on the old Zmutt glacier.

I am inclosing a detailed report of my investigations, a copy of which you may decide to transmit to the British Foreign Office and to Scotland Yard. The issue is now definitely out of my hands. The miserable guide from the Ortler knows nothing. He was paid by the day for his services, and since the flight from Schwarzsee has seen no one. But if the authorities will investigate the origin of certain very heavy recent deposits in the banks of Leipzig and Bucharest, they will probably get a lead to the true authors of one of the most damnable and atrocious crimes of modern times.

By the way, I have seen the editor of "Novoe Vremie" and am assured of their coöperation. As I surmised the

Memorandum reached them through the post in the ordinary way of business, with a covering letter, requesting publication, from "John Byford." That letter was, of course, a very clever forgery and, by courtesy of the proprietors, I inclose a photograph for official use.

A week later, Telford and I sat in Sir William's study at the offices of the "Evening Globe," having laid John Byford to rest, side by side with his son, in the little churchyard at Zermatt, and Telford's fame as an investigator was resounding throughout Europe.

"You have done remarkably well, Telford. I congratulate you," said the editor, after we had exchanged greetings. "I have read your long and interesting Report, and have forwarded it to the proper quarter. But there are still certain things about that Zermatt affair which I can't quite understand."

We were both tired, after our long all-night journey from Lausanne, but Telford's interest was proof against fatigue.

"Fire away," he said. "Ask your questions. I will endeavor to answer them."

"First of all," said Sir William, lighting his pipe and puffing away silently for a few moments, "I should like to know why you were so infernally certain that Byford met his death in the actual vicinity of the settlement. I should

have thought that the indications were all the other way."

"They were, in a sense," replied Telford. "The obvious thing was to look for him in the vicinity in which he was last heard of. But in all these difficult investigations a great deal of valuable time is usually wasted upon 'obvious' solutions, and then, suddenly, you wake up and find that the submerged facts, the subtler indications, are all against you."

"For example?" countered Sir William.

"In the first place," replied Telford, "there was the singular matter of the records. Didn't it strike you as a very curious thing that a man like Byford, just leaving for two or three weeks' holiday, and having some exceptionally valuable papers which he wished to safeguard, should have taken all the trouble to climb a difficult peak like the Matterhorn and deposit them in a little hollow in the exposed face of the cliff, when there were so many simpler and much more rational things which he could have done? He might have intrusted them to the care of the hotel, or if that didn't satisfy him, there were the vaults of his bank of Geneva."

"It did seem a little odd," commented Sir William, "but things have often been hidden in much stranger places than that."

"I know. But Byford's oddness was not of that particular kind. His was not the type of mind which would do a bizarre or *illogical* thing for its own sake. The more I thought about it, the more convinced I became that he took that course under some kind of *compulsion*, that his movements were temporarily restricted, and that he chose the safest and indeed the only course open to him."

"You mean that his access even to Zermatt may temporarily have been cut off?"

"Yes. That experiment was watched—there can be no doubt about it—from a very early date, and Byford himself knew it! His elaborate precautions in barring the window and increasing the defenses of the doors is sufficient proof of that. Then came the day when he set out for his three weeks' holiday in the Tyrol. He got as far as Trieste. What made him turn back we shall probably never know, but he was traveling light, and had left his precious records—the evidence of over eight years' unremitting labor—at the settlement.

"It may be that it was a case of pure premonition—an intuition of impending evil—that caused him to stop and double on his tracks. It may be that the true significance of those illicit attempts to penetrate the settlement dawned

upon him suddenly for the first time. In any case he returned secretly, appearing to avoid Zermatt. He entered the hut, unknown even to Zweiler, and throwing his precious books into his old climbing-sack, he decided to hide them where only he could find. He was only just in time. During his absence the doors were forced, and he returned to surprise them at their work. I think it must have been at the very gate of the settlement that they killed him."

"How did they know where he had hidden the records?"

Telford smiled. "I thought you would ask that," he said. "Byford had a habit, which I myself have often adopted, of *pinning* important papers to the lining of his pocket. When they stole the Memorandum they tore away part of another document. It was a plan of the couloir. In the darkness they left the rest attached to the pin at the bottom of his pocket."

Telford paused for a moment, and Sir William, who had followed this narrative with tense interest, relit his pipe.

"Of course," continued Telford, "the thing which really convinced me that a grave crime had been committed was the matter of the 'time lag.' I had a word with Horler about that on the night of the Chequers Conference, be-

fore leaving for Croydon. He agreed that there is apparently a corpuscular element in these cosmic rays, but he declared emphatically that, if there was a time lag at all, it would not have been a matter of *days*, but of centuries. Byford, as a physicist, would have known that. He would never have staked his reputation upon a prediction which, in the nature of things, had to contain the threat of immediate dissolution. It was that threat which lay at the bottom of the whole abominable plot."

Sir William knocked the ashes out of his pipe, and his eyes sought the ceiling.

"What I still can't understand, Telford," he said at length, meditatively, "is why, having killed him just there, they didn't throw his body into the burning building. It would have been so easy to fake an accident."

"My dear Gray," replied Telford irritably, thumping the table with his fist, "in the first place, the building wasn't then burning. Secondly, can't you see that *Byford DEAD wasn't of any use to them?* The game would have been up. Only Byford *missing* enabled them to put over that tremendous deception!"

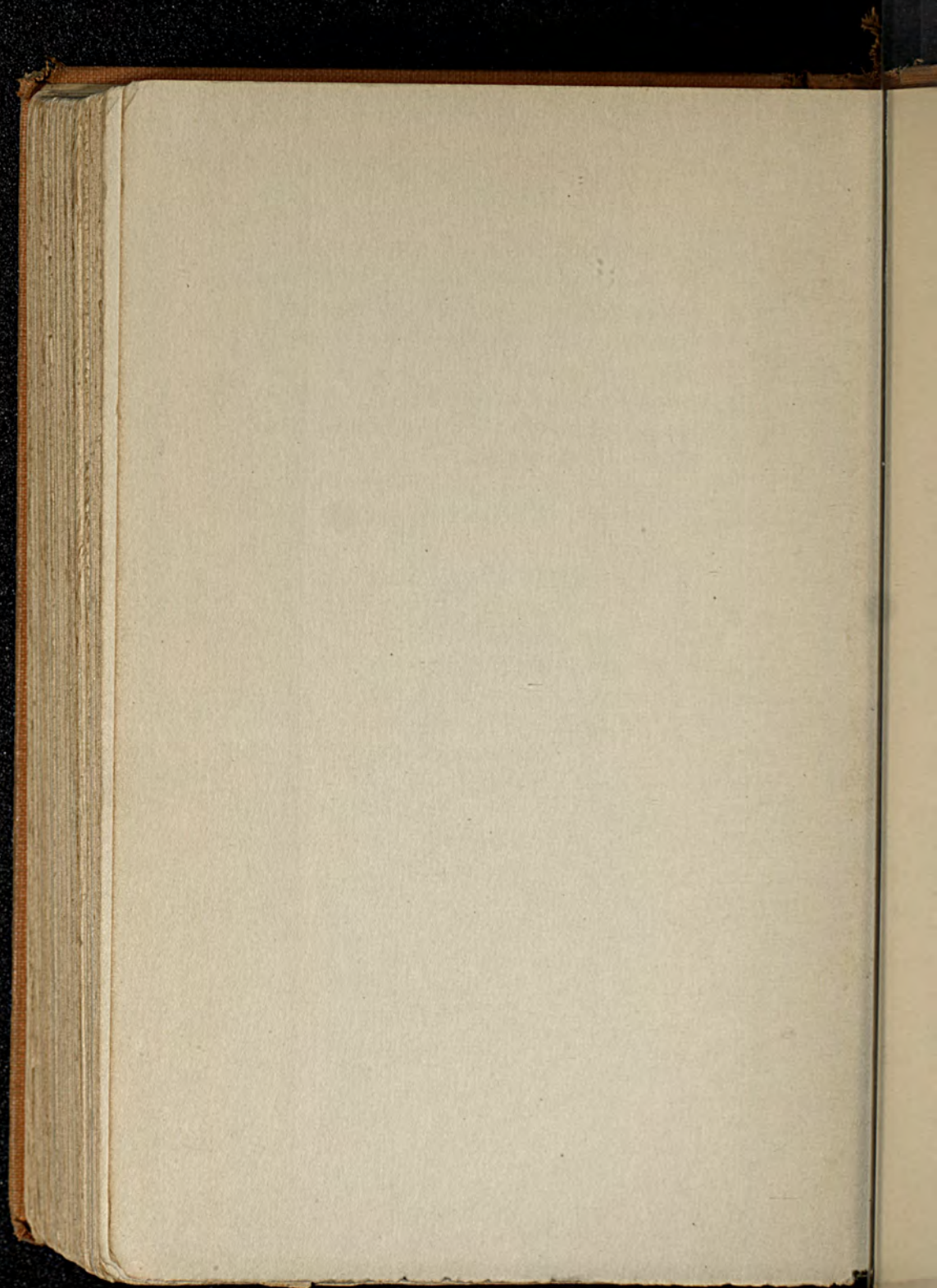
Sir William nodded gravely, as one whose point had been effectively answered.

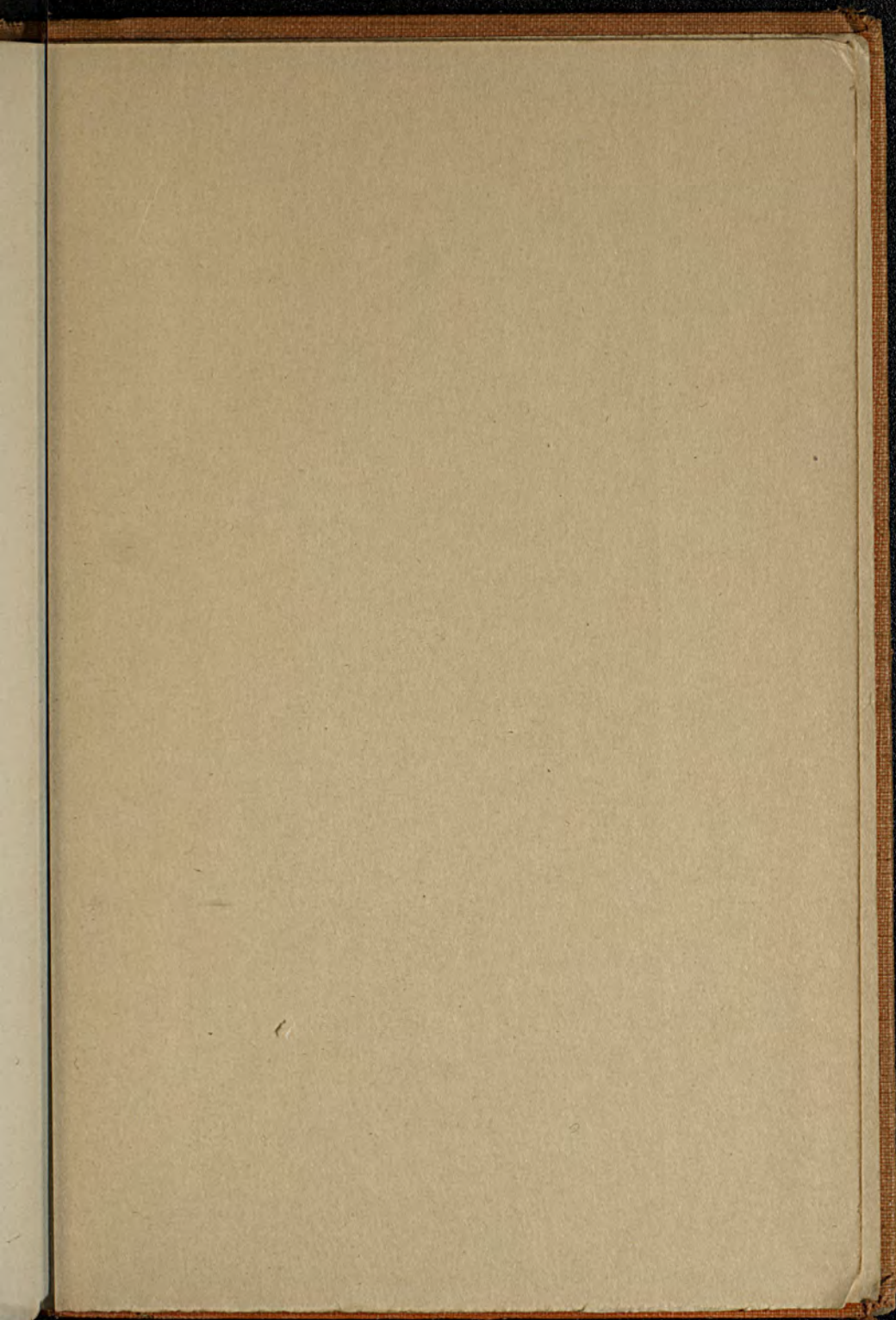
Later in the evening—so he has since told me

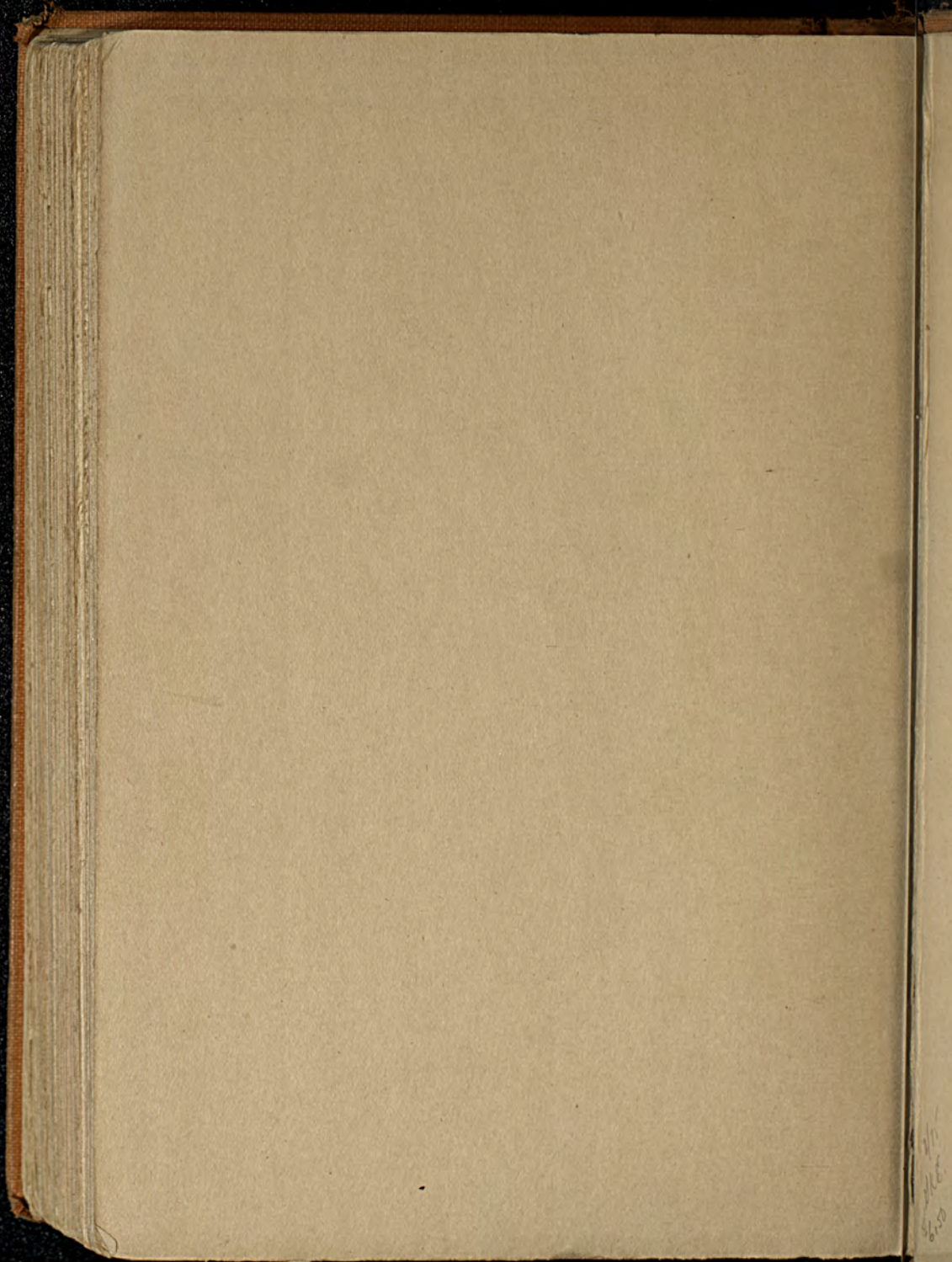
—as he sat pondering upon the singular story to which he had just listened, and all that led up to it, certain words came back to him which had been spoken in that very room a few weeks earlier:

“The Universe is a strange place, Gray—a very strange place—and we haven’t even yet begun to plumb its possibilities.”

THE END







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