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EARLY in last autumn, while I was glancing at the Times news-paper in a morning train for London, my eyes fell on the following item :

A Strange Light on Mars.

— On Monday afternoon, Dr. Krueger, who is in charge of the central bureau at Kiel, telegraphed to his correspondents :

“Projection lumineuse dans region australe du terminateur de Mars observee par Javelle 28 Juillet, 16 heures — Perrotin.”

In plain English, at that hour, a ray of light had been observed on the disc of the planet Mars in or near the “terminator,” that is to say, the zone of twilight separating day from night. The news was doubly interesting to me, because a singular dream of “Sunrise in the Moon”<sup>i</sup> had quickened my imagination as to the wonders of the universe beyond our little globe, and because of a never-to-be-

forgotten experience of mine with an aged astronomer several years ago.

This extraordinary man, living the life of a recluse in his own observatory, which was situated in a lonely part of the country, had, or at any rate, believed that he had, opened up a communication with the inhabitants of Mars, by means of powerful electric lights, flashing in the manner of a signal-lantern or heliograph. I had set him down as a monomaniac; but who knows? perhaps he was not so crazy after all.

When evening came I turned to the books, and gathered a great deal about the fiery planet, including the fact that a stout man, a Daniel Lambert, could jump his own height there with the greatest ease. Very likely; but I was seeking information on the strange light, and as I could not find any I resolved to walk over and consult my old

friend, Professor Gazen, the well-known astronomer, who had made his mark by a series of splendid researches with the spectroscope into the constitution of the sun and other celestial bodies.

It was a fine clear night. The sky was cloudless and of a deep dark blue, which revealed the highest heavens and the silvery lustre of the Milky Way. The great belt of Orion shone conspicuously in the east, and Sirius blazed a living gem more to the south. I looked for Mars, and soon found him further to the north, a large red star, amongst the white of the encircling constellations.

Professor Gazen was quite alone in his observatory when I arrived, and busily engaged in writing or computing at his desk.

“I hope I’m not disturbing you,” said I,

as we shook hands; "I know that you astronomers must work when the fine night cometh."

"Don't mention it," he replied cordially.

"I'm observing one of the nebulae just now, but it won't be in sight for a long time yet."

"What about this mysterious light on Mars. Have you seen anything of it?"

Gazen laughed. "I have not," said he, "though I did look the other night."

"You believe that something of the kind has been seen?"

"Oh, certainly. The Nice Observatory, of which Monsieur Perrotin is director, has one of the finest telescopes in existence, and Monsieur Javelle is well-known for his careful work."

“How do you account for it?”

“The light is not outside the disc,” responded Gazen, “else I should ascribe it to a small comet. It may be due to an aurora in Mars as a writer in Nature has suggested, or to a range of snowy Alps, or even to a bright cloud, reflecting the sunrise. Possibly the Martians have seen the forest fires in America, and started a rival illumination.”

“What strikes you as the likeliest of these notions?”

“Mountain peaks catching the sunshine.”

“Might it not be the glare of a city, or a powerful search-light—in short, a signal?”

“Oh dear, no,” exclaimed the astronomer, smiling incredulously. “The idea of signaling has got into people’s heads

through the outcry raised about it two years ago, when Mars was in 'opposition' and near the earth. I suppose you are thinking of the plan for raising and lowering the lights of London to attract the notice of the Martians?"

"No; I believe I told you of the singular experience I had some five or six years ago with an old astronomer, who thought he had established an optical telegraph to Mars?"

"Oh, yes, I remember now. Ah, that poor old chap was insane. Like the astronomer in Rasselas, he had brooded so long in solitude over his visionary idea that he had come to imagine it a reality."

"Might there not be some truth in his notion? Perhaps he was only a little before his time."

Gazen shook his head. "You see," he



replied, "Mars is a much older planet than ours. In winter the Arctic snows extend to within forty degrees of the equator, and the climate must be very cold. If human beings ever existed on it they must have died out long ago, or sunk to the condition of the Eskimo."

"May not the climate be softened by conditions of land and sea unknown to us? May not the science and civilisation of the Martians enable them to cope with the low temperature?"

"The atmosphere of Mars is as rare as ours at a height of six miles, and a warm-blooded creature like man would expire in it."

"Like man, yes," I answered; "but man was made for this world. We are too apt to measure things by our own experience. Why

should we limit the potentiality of life by what we know of this planet?"

"In the next place," went on Gazen, ignoring my remark, "the old astronomer's plan of signaling by strong lights was quite impracticable. No artificial light is capable of reaching to Mars. Think of the immense distance and the two atmospheres to penetrate! The man was mad, as mad as a March hare; though why a March hare is mad I'm sure I don't know."

"I read the other day of an electric light in America which can be seen 150 miles through the lower atmosphere. Such a light, if properly directed, might be visible on Mars; and, for aught we know, the Martians may have discovered a still stronger beam."

"And if they have, the odds against their signaling just when we are alive to the

possibility of it are simply tremendous.”

“I see nothing incredible in the coincidence. Two heads often conceive the same idea about the same time, and why not two planets, if the hour be ripe? Surely there is one and the same inspiring Soul in all the universe. Besides, they may have been signaling for centuries, off and on, without our knowing it.”

“Then, again,” said Gazen, with a pawky twinkle in his eye, “our electric light may have woke them up.”

“Perhaps they are signaling now,” said I, “while we are wasting precious time. I wish you would look.”

“Yes, if you like; but I don’t think you’ll see any ‘luminous projections,’ human or otherwise.”

“I shall see the face of Mars, anyhow, and that will be a rare experience. It seems to me that a view of the heavenly bodies through a fine telescope, as well as a tour round the world, should form a part of a liberal education. How many run to and fro upon the earth, hunting for sights at great trouble and expense, but how few even think of that sublimer scenery of the sky which can be seen without stirring far from home! A peep at some distant orb has power to raise and purify our thoughts like a strain of sacred music, or a noble picture, or a passage from the grander poets. It always does one good.”

Professor Gazen silently turned the great refracting telescope in the direction of Mars, and peered attentively through its mighty tube for several minutes.

“Is there any light?” I inquired.

“None,” he replied, shaking his head.  
“Look for yourself.”

I took his place at the eye-piece, and was almost startled to find the little coppery star, which I had seen half an hour before, apparently quite near, and transformed into a large globe. It resembled a gibbous moon, for a considerable part of its disc was illuminated by the sun.

A dazzling spot marked one of its poles, and the rest of its visible surface was mottled with ruddy and greenish tints which faded into white at the rim. Fascinated by the spectacle of that living world, seen at a glance, and pursuing its appointed course through the illimitable ether, I forgot my quest, and a religious awe came over me akin to that felt under the dome of a vast cathedral.

“Well, what do you make of it?”

The voice recalled me to myself, and I began to scrutinise the dim and shadowy border of the terminator for the feeblest ray of light, but all in vain.

“I can’t see any ‘luminous projection’; but what a magnificent object in the telescope!”

“It is indeed,” rejoined the professor, “and though we have not many opportunities of seeing it we know it better than the other planets, and almost as well as the moon. Its features have been carefully mapped like those of the moon and christened after celebrated astronomers.”

“Yourself included, I hope.”

“No, sir; I have not that honour. It is true that a man I know, an enthusiastic

amateur in astronomy, dubbed a lot of holes and corners in the moon after his private friends and acquaintances, myself amongst them : ‘Snook’s Crater,’ ‘Smith’s Bottom,’ ‘Tiddler’s Cove,’ and so on; but I regret to say the authorities declined to sanction his nomenclature.”

“I presume that bright spot on the Southern limb is one of the polar ice-caps,” said I, still keeping my eye on the planet.

“Yes,” replied the professor, “and they are seen to wax and wane in winter and summer. The reddish-yellow tracts are doubtless continents of an ochrey soil; and not, as some think, of a ruddy vegetation. The greenish-grey patches are probably seas and lakes. The land and water are better mixed on Mars than on the earth—a fact which tends to equalise the climate. There is a belt of continents round the equator :

'Copernicus,' 'Galileo,' 'Dawes,' and others, having long winding lakes and inlets. These are separated by narrow seas from other islands on the north or south such as : 'Haze Land,' 'Storm Land,' and so forth, which occupy what we should call the temperate zones, beneath the poles; but I suspect they are frigid enough. If you look closely you will see some narrow streaks crossing the continents like fractures. These are the famous 'Canals ' of Schiaparelli, who discovered (and I wish I had his eyes) that many of them were 'doubled,' that is, had another canal alongside. Some of these are nearly 2,000 miles long by fifty miles broad, and 300 miles apart."

"That beats the Suez Canal."

"Of course, they are not artificial. The doubling is chiefly observed at the vernal equinox, our month of May, and is perhaps



due to spring floods or vegetation in valleys of the like trend, as we find in Siberia. The massing of clouds or mists will account for the peculiar whiteness at the edge of the limb, and an occasional veiling of the landscape.”

While he spoke, my attention was suddenly arrested by a vivid point of light which appeared on the dark side of the terminator and south of the equator.

“Hallo!” I exclaimed, involuntarily. “There’s a light!”

“Really!” responded Gazen, in a tone of surprise not unmingled with doubt. “Are you sure?”

“Quite. There is a distinct light on one of the continents.”

“Let me see it, will you?” he rejoined,

hastily; and I yielded up my place to him.

“Why, so there is,” he declared, after a pause. “I suspect it has been hidden under a cloud till now.”

We turned and looked at each other in silence.

“It can’t be the light Javelle saw,” ejaculated Gazen at length. “That was on Hellas Land.”

“Should the Martians be signaling they would probably use a system of lights. I dare say they possess an electric telegraph to work it.”

The professor put his eye to the glass again, and I awaited the result of his observation with eager interest.

“It’s as steady as possible,” said he.

“The steadiness puzzles me,” I replied. “If it would only flash I should call it a signal.”

“Not necessarily to us,” said Gazen, with mock gravity. “You see, it might be a lighthouse flashing on the Kaiser Sea, or a night message in the autumn manoeuvres of the Martians, who are, no doubt, very warlike, or even the advertisement of a new pill.”

“Seriously, what do you, think of it?” I asked.

“I confess it’s a mystery to me,” he answered, pondering deeply; and then, as if struck by a sudden thought, he added: “I wonder if it’s any good trying the spectroscope on it?”

So saying, he attached to the telescope a magnificent spectroscope, which he

employed in his researches on the nebulae, and renewed his observation.

“Well, that’s the most remarkable thing in all my professional experience,” he exclaimed, resigning his place at the instrument to me.

“What is?” I demanded, looking into the spectroscope, where I could distinguish several faint streaks of coloured light on a darker background.

“You know that we can tell the nature of a substance that is burning by splitting up the light which comes from it in the prism of a spectroscope. Well, these bright lines of different colours are the spectrum of a luminous gas.”

“Indeed! Have you any idea as to the origin of the blaze?”

“It may be electrical — for instance, an aurora. It may be a volcanic eruption, or a lake of fire such as the crater of Kilauea. Really, I can’t say. Let me see if I can identify the bright lines of the spectrum.”

I yielded the spectroscope to him, and scarcely had he looked into it ere he cried out:

“By all that’s wonderful, the spectrum has changed. Eureka! It’s thallium now. I should know that splendid green line amongst a thousand.”

“Thallium!” I exclaimed, astonished in my turn.

“Yes,” responded Gazen, hurriedly. “Make a note of the observation, and also of the time. You will find a book for the purpose lying on the desk.”

I did as directed, and waited further orders. The silence was so great that I could plainly hear the ticking of my watch laid on the desk before me. At the end of several minutes the professor cried:

“It has changed again : make another note.”

“What is it now?”

“Sodium. The yellow bands are unmistakable.”

A deep stillness reigned as before.

“There she goes again,” exclaimed the professor, much excited. “Now I can see a couple of blue lines. What can that be? I believe it’s indium.”

Another long pause ensued.

“Now they are gone,” ejaculated Gazen

once more. "A red and a yellow line have taken their place. That should be lithium. Hey, presto! — and all was dark."

"What's the matter?"

"It's all over." With these words he removed the spectroscope from the telescope and gazed anxiously at the planet. "The light is gone," he continued after a minute. "Perhaps another cloud is passing over it. Well, we must wait. In the meantime let us consider the situation. It seems to me that we have every reason to be satisfied with our night's work. What do you think?" There was a glow of triumph on his countenance as he came and stood before me.

"I believe it's a signal," said I, with an air of conviction.

"But how?"

“Why should it change so regularly? I’ve timed each spectrum and found it to last about five minutes before another took its place.”

The professor remained thoughtful and silent.

“Is it not by the light which comes from them that we have gained all our knowledge of the constitution of the heavenly bodies?” I continued. “A ray from the remotest star brings in its heart a secret message to him who can read it. Now, the Martians would naturally resort to the same medium of communication as the most obvious, simple, and practicable. By producing a powerful light they might hope to attract our attention, and by imbuing it with characteristic spectra, easily recognised and changed at intervals, they would distinguish the light from every other, and show us that



it must have had an intelligent origin.”

“What then?”

“We should know that the Martians had a civilization at least as high as our own. To my mind, that would be a great discovery — the greatest since the world began.”

“But of little use to either party.”

“As for that, a good many of our discoveries, especially in astronomy, are not of much use. Suppose you find out the chemical composition of the nebula you are studying, will that lower the price of bread? No; but it will interest and enlighten us. If the Martians can tell us what Mars is made of, and we can return the compliment as regards the earth, that will be a service.”

“But the correspondence must then cease, as the editors say.”

“I’m not so sure of that.”

“My dear fellow! How on earth are we to understand what the Martians say, and how on Mars are they to understand what we say? We have no common code.”

“True; but the chemical bodies have certain well-defined properties, have they not?”

“Yes. Each has a peculiarity marking it from all the rest. For example, two or more may resemble each other in colour or hardness, but not in weight.”

“Precisely. Now, by comparing their spectra can we not be led to distinguish a particular quality, and grasp the idea of it? In short, can the Martians not impress that idea on us by their spectra-telegraph?”

“I see what you mean,” said Professor

Gazen; "and, now I think of it, all the spectra we have seen belong to the group called 'metals of the alkalies and alkaline earths,' which, of course, have distinctive properties."

"At first, I should think the Martians would only try to attract our notice by striking spectra."

"Lithium is the lightest metal known to us."

"Well, we might get the idea of 'lightness' from that."

"Sodium," continued the professor, "sodium is a very soft metal, with so strong an affinity for oxygen that it burns in water. Manganese, which belongs to the 'iron group,' is hard enough to scratch glass, and, like iron, is decidedly magnetic. Copper is red ----"

“The signals for colour we might get from the spectra direct.”

“Mercury or quicksilver is fluid at ordinary temperatures, and that might lead us to the idea of movement—animation—life itself.”

“Having got certain fundamental ideas,” I went on, “by combining these we might arrive at other distinct conceptions. We might build up an ideographic or glyphic language of signs—the signs being spectra. The numerals might be telegraphed by simple occultations of the light. Then from spectra we might pass by an easy step to equivalent signals of long and short flashes in various combinations, also made by occulting the light. With such a code our correspondence might go on at great length, and present no difficulty; but, of course, we must be able to reply.”

“If the Martians are as clever as you are pleased to imagine, we ought to learn a good deal from them.”

“I hope we may, and I’m sure the world will be all the better for a little superior enlightenment on some points.”

“Well, we must follow the matter up, at all events,” said the professor, taking another peep through the telescope. “For the present the Martian philosophers appear to have shut up shop; and, as my nebula has now risen, I should like to do a little work on it before daybreak. Look here, if it’s a fine night, can you join me tomorrow? We shall then continue our observations; but in the meanwhile, you had better say nothing about them.”

On my way home I looked for the ruddy planet as I had done in the earlier part of the

night, but with very different feelings in my heart. The ice of distance and isolation separating me from it seemed to have broken down since then, and instead of a cold and alien star I saw a friendly and familiar world — a companion to our own in the eternal solitude of the universe.

Unfortunately for our investigation the sky was overcast next evening, and has remained more or less unfavorable for the observation of Mars ever since. Under these circumstances, and in the hope that some other astronomer, in a happier clime, may be able to pursue the research, Professor Gazen and I have deemed it best to publish our discovery without any further delay.

i See Cassell's Magazine for October, 1894.