# The Great Moon Hoax—I

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IN NOVEMBER, 1833, Sir John Herschel, accompanied by his family, set sail from Portsmouth, England, for the Cape of Good Hope. His purpose was to extend to the south the surveys of the northern sky made by his father and himself. He chose the Cape because 13 years earlier the British Admiralty had established there what was intended to be the southern counterpart of Greenwich Observatory; also, his friend Thomas Maclear had very recently been appointed director. Moreover, the Cape lies in the same longitude as eastern Europe and, at this time, Cape Town was the only sizable city in the Southern Hemisphere where English was an important language.

In the ship's hold were two telescopes, large by the standards of the time — an 18-inch speculum-metal reflector on the Herschelian pattern with spare mirrors, and a 7-inch equatorial refractor. Also included were the paraphernalia needed to set up a complete observatory.

In the early morning of January 15, 1834, they sighted land and next day went ashore. Herschel soon found a suitable house, Feldhausen (The Grove), at Claremont a few miles south of Cape Town. Its 19 rooms and spacious grounds gave scope for the large family and ample space for the telescopes.

The foundation ring and center work of the 18-inch telescope — always referred to by its focal length: "the 20-foot" — were assembled on February 12th. On the 22nd the telescope was turned on Alpha Crucis. Construction of a pillar for the 7-inch refractor took until the end of April. At that time Sir John and his family moved into the house from temporary lodgings.

Sir John's activities at the Cape have been described in detail elsewhere (one source is our book *Herschel at the Cape,* 1968). Suffice it to say here that he surveyed the whole of the southern sky for galaxies, clusters, planetary nebulae, and multiple stars, as well as carrying out an enormous variety of other studies.

The important point that the reader should keep in mind is that Herschel's stay was modest and unofficial.

In a letter from Lady Herschel to Sir John's aged but indomitable little aunt Caroline, undated but annotated "Recd in London Sept 26, in Hanover Oct 1 (1836)" appears the passage:

> Have you seen a very clever piece of imagination in an American Newspaper, giving an account of Herschel's voyage to the Cape with an instrument [omitted] feet in length, and of his wonderful lunar discoveries Birds, beasts and fishes of strange shape, landscapes of every colouring, extraordinary scenes of lunar vegetation, and groupes of the reasonable inhabitants of the Moon with wings at their backs, all pass in review before his and his companions' astonished gaze — the whole description is so well *clenched* with minute details of workmanship and names of individuals boldly referred to, that the New Yorkists were not to be blamed for actually believing it as they did for forty eight hours — It is only a great pity that it *is not true* but if grandsons stride on as grandfathers *have* done, as wonderful things may yet be accomplished —

The final reference is, of course, to the achievements of Sir John's father, Sir William Herschel, and the whole passage refers to what has become known as the Great Moon Hoax. The hoax has been described by William H. Barton, Jr., in the February, 1937, issue of *The Sky* and by Ormond Seavey in his book *The Moon Hoax* (1975). The original text appeared in the New York *Sun* for August, 1835.

The *Sun* was published as a penny paper by "Benj. H. Day, *Office at the Corner of Nassau and Spruce Streets Opposite City Hall.*" Most issues comprised four pages and much of the space was taken up by small advertisements. Included were local police news, reports of the arrivals of ships, and several columns carrying snippets of foreign and domestic news.

This was usually not enough to fill the paper, and the editor often lifted some more extended story from another publication. One example was an adventure travelogue, *A Hibernian among the Redskins.*

The series that began on Tuesday, August 25, 1835, was somewhat out of character. It occupied three columns that day and the nature of the material was most unusual. The article began: "GREAT ASTRONOMICAL DISCOVERIES lately made by SIR JOHN HERSCHEL L.L.D., F.R.S, etc. *At the Cape of Good Hope* (*From The Supplement to the Edinburgh Journal of Science*)." There really *was* such a journal, though it had temporarily ceased publication two years earlier.

It is not clear if Day knew that the piece was a fraud, but he did not intend to leave his readers in doubt. The issue in question included an unsigned note:

> *Great Astronomical Discoveries.* — We this morning commence the publication of a series of extracts from the new supplement to *The Edinburgh Journal of Science,* which have been very politely furnished us by a medical gentleman immediately from Scotland, in consequence of a paragraph which appeared on Friday last from *The Edinburgh Courant.* The portion which we publish today is introduction to celestial discoveries of higher and more universal interest than any, in any science yet known to the human race. We are necessarily compelled to omit the more abstruse and mathematical parts of the extracts however important they may be as demonstrations of those we have marked for publication; but even the latter cannot fail to excite more ardent curiosity and afford more sublime gratification than could be created and supplied by anything short of divine revelation from heaven. Now indeed it may be said that we live in an age of discovery. There is little doubt that to the natural history of our own world will now be added that of the globe which we have hitherto regarded merely as "the lesser light" to rule our nocturnal hours.

This pitch and the printed piece went over in a big way. On the 31st there was a brief reference to the great circulation which the *Sun* had attained. Its circulation of 19,500 was the largest of any similar paper in the world, and Day was proposing a larger format and free distribution of another 10,000 copies. A further note read:

> — *The Great Discoveries* — Our readers may rest assured that we have not been inattentive to the numerous speculations and remarks of our contemporary editors upon the authenticity of the extracts which we have republished on the subject of the Great Astronomical Discoveries of Sir John Herschel. The opinion of the public press seems to be pretty equally divided, but knowing and feeling as we do our power to

THE SUN.

Number 615.] NEW YORK, TUESDAY MORNING, AUGUST 25, 1835. [Price One Cent.

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[From Supplement to the Edinburgh Journal of Science.]

In this unusual addition to our Journal, we have the happiness of making known to the British publick, and thence to the whole civilized world, recent discoveries in Astronomy which will build an imperishable monument to the age in which we live, and confer upon the present generation of the human race proud distinction through all future time. It has been poetically said that the stars of heaven are the hereditary regalia of man as the intellectual sovereign of the animal creation. He may now fold the Zodiack around him with a loftier consciousness of his mental supremacy.

It is impossible to contemplate any great Astronomical discovery without feelings closely allied to a sensation of awe, and nearly akin to those with which a departed spirit may be supposed to discover the unknown realities of a future state. Bound by the irrevocable laws of nature to the globe on which we live; creatures, "close shut up in infinite expanse;" it seems like acquiring a fearful supernatural power to further discoveries in our solar system. Several years, however, prior to the death of this venerable astronomer, he conceived it practicable to construct an improved series of parabolic and spherical reflectors which, by uniting all the meritorious points in the the Gregorian and Newtonian instruments, with the highly interesting achromatick discovery of Dolland, would, to a great degree, remove the formidable obstruction. His plan evinced the most profound research in optical science, and the most dexterous ingenuity in mechanical contrivance; but accumulating infirmities, and eventually death, prevented its experimental application. His son, the present Sir John Herschel, who had been nursed and cradled in the observatory, and a practical astronomer from his boyhood, was so fully cognizant of the value of the theory, that he determined upon testing it at whatever cost. Within two years of his father's death, he completed his new apparatus and adapted it to the old telescope with nearly perfect success. He found that the magnifying power of 6000 times, when applied to the moon, which was the severest criterion that could be selected, produced, under these new reflectors, a focal object of exquisite distinctness, free from every achromatick obscur[illegible]od containing the [illegible] would require an ultra-rail-road speed of fifty miles an hour, for nearly the live-long year, to secure him a more favorable inspection of the gentle luminary of night. The interesting question, however, whether this light of the solemn forest, of the treeless desert, and of the deep blue ocean as it rolls; whether this object of the lonely turret, of the uplifted eye on the deserted battle field, and of all the pilgrims of love and hope, of misery and despair, that have journeyed over the hills and valleys of this earth, through all the eras of its unwritten history to those of its present voluminous record; the exciting question whether this "observed" of all the sons of men, from the days of Eden those of Edinburgh, be inhabited by beings, like ourselves, of consciousness and curiosity, was left for solution to the benevolent index of natural analogy, or to the severe tradition that it is tenanted only by the hoary solitaire whom the criminal code of the nursery had banished thither for collecting fuel on the sabbath day.

The limits of discovery in the planetary bodies and in this one especially, thus seemed to be immutably fixed; and no expectation was elevated for a period of several years. But, about three years ago, in the course of a conversational [illegible] with Sir

**This small reproduction of the *Sun's* front page of August 25, 1835 (the issue in which the "Moon Hoax" first appeared), is interesting quite apart from the article itself. Here was, apparently, the most amazing news of all time — yet it was heralded without the bold headlines and fanfare that usually accompany significant news events. From F. O'Brien's *The Story of the Sun*.**

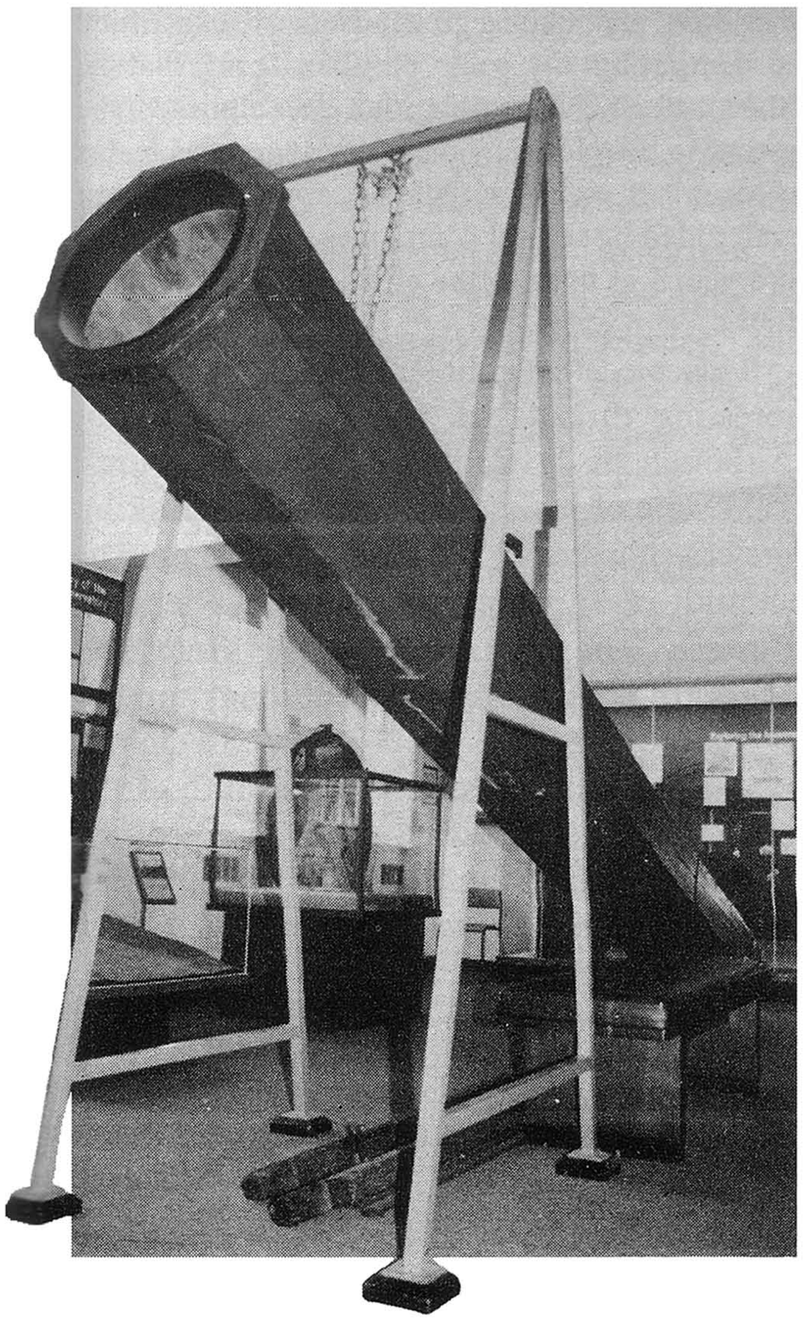
place the question beyond further controversy by the immediate production of affirmative proof, we feel no particular anxiety to quell the waves of discussion. We greatly enlarge our paper tomorrow, and may then take the trouble to give each of our sceptical contemporaries a gentle quietus: and in the meantime our readers may depend that the cry of hoax and humbug will be crammed down the throats of its too knowing exclaimers in the most approved style of such a surgical operation.

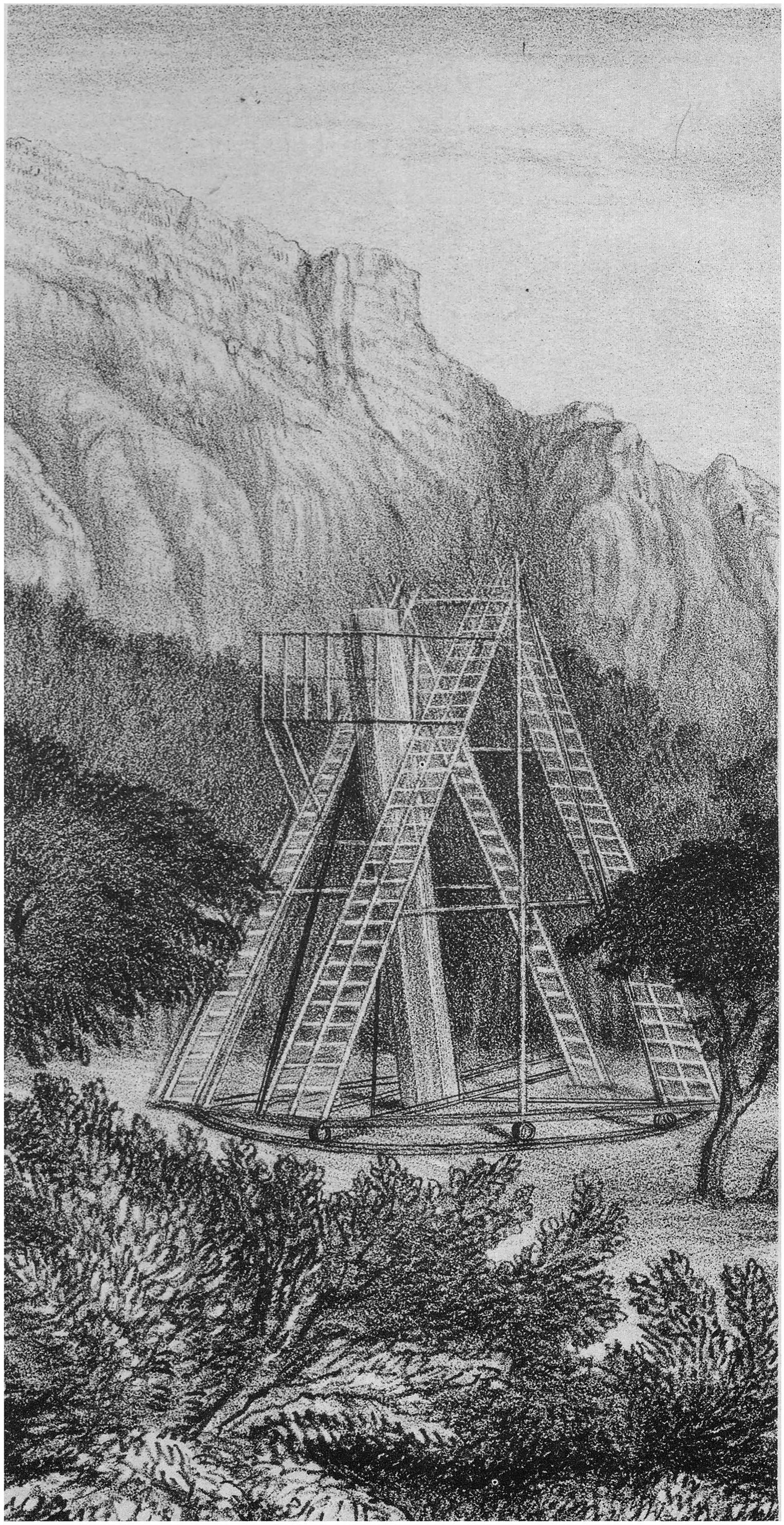
The tone suggests that, by this time, Day had seen through Richard Adams Locke, the perpetrator of the hoax, and was trying to brazen it out (there was no big issue the next day). But, realizing a good thing financially, he went on to say: "The republication, in pamphlet form, of the interesting Supplement to the Edinburgh Journal of Science, which is concluded in today's *Sun,* may now be had at our desk. Price one shilling. We have also published a lithograph sketch of lunar animals and other objects, from the same work."

What was offered to readers included a good deal of genuine science and a remarkably good pastiche of Sir John's literary style, one that cried out to be counterfeited.

What the *Sun* said in part was:

To render our enthusiasm intelligible, we will state at once, that by means of a telescope of vast dimensions and an entirely new principle, the younger Herschel, at his observatory in the Southern Hemisphere, has already made the most extraordinary discoveries in every planet of our solar system; has discovered planets in other solar systems; has obtained a distinct view of objects in the moon, fully equal to that which the unaided eye commands of terrestrial objects at the distance of a hundred yards; has affirmatively settled the question whether this satellite be inhabited, and by what order of beings; has firmly established a new theory of cometary phenomena; and has solved or corrected nearly





*Above:* The frontispiece from the published results of Sir John Herschel's observations in South Africa depicts his 20-foot reflector as it appeared in September, 1834. Behind the instrument looms Table Mountain.

*Left:* Parts of the telescope, including the original tube, are currently displayed at the Old Royal Observatory, Greenwich, in England. J. Kelly Beatty photo.

every leading problem of mathematical astronomy.

Sir John hadn't, though he did solve so many things that his final resting place near that of Sir Isaac Newton in Westminster Abbey is entirely justified.

All this, via *The Edinburgh Journal of Science,* was supposed to have been made available by a devoted friend and colleague of Sir John's, Dr. Andrew Grant. Despite the fact that, as researchers, the Herschels were essentially loners, the fictional Dr. Grant is described as a devoted friend, "the pupil of the elder," (that is, Sir William Herschel) "and the inseparable coadjutor of the Younger Herschel. The amanuensis of the latter at the Cape of Good Hope, and the indefatigable superintendent of his telescope during the whole period of its construction and operation, Dr. Grant has been enabled to supply us with intelligence equal, in general interest at least, to that which Dr. Herschel himself has transmitted to the Royal Society."

The hoaxer had quite an astronomical background — where that came from is an interesting question — and found the productivity of Sir John so great that he added yet another creation, Herbert Home: "The engravings of lunar animals and other objects, and of the phases of the several planets, are accurate copies of drawings taken in the observatory by Herbert Home, Esq., who accompanied the last powerful series of reflectors from London to the Cape, and superintended their erection."

Richard Locke, the hoax's perpetrator, could hardly have known that the results from the Cape, which proved in the end at least as important as these made-up discoveries, were accomplished with telescopes no bigger than 18 inches in diameter, erected by Sir John, his handyman John Stone, and four unskilled locals. For Locke, the instruments had to be new and gigantic and the work force enormous. He begins with a perfectly accurate description of the largest telescope made by Sir William Herschel, the so-called "40-foot" (focal length) reflector of 4-foot aperture. This monster was mounted on a rotating framework with ropes to haul it up to any elevation. The whole affair was of massive size.

Sir William did use extraordinarily high magnifications, and Locke correctly mentions powers of 6,000, which would bring the Moon to an effective distance of 40 miles. Except for disturbances in our atmosphere, this would permit visibility of objects only a few tens of yards in size. Locke had some genuine information here, and he goes on to a correct discussion of the fact that at very high magnifications the brilliance of the surface illumination of an extended object is reduced vastly.

At this point he invents a conversation, dated three years before, between Sir John and Sir David Brewster, famous for his optical inventions: "After a few moments' silent thought, Sir John diffidently inquired whether it would not be possible to effect *a transfusion of artificial light through the focal object of vision!* . . . 'And,' continued he, 'why cannot the illuminated microscope, say the hydro-oxygen, be applied to render distinct, and if necessary, even to magnify the focal object?'"

The whole production is full of high-sounding technical phraseology which might have come from *Star Trek,* mixed with bits from a nut college. The collaborators set to work: "The only apparent desideratum was a recipient for the focal image which should transfer it, without degrading it, to the surface on which it was to be viewed under the revivifying light of the microscopic reflectors. A medium of the purest plate glass was the most eligible that they could discover."

And where did they get it? "By consent from the shop window of Mons. Desanges, the jeweller to his ex-majesty Charles X., in High Street." From this unlikely source, aided by £10,000 from the Royal Society and another £70,000 from the King, whom they assured of consequent improvements in navigation, the conspirators carted off their prize to the imaginary glass firm of Hartly and Grant ("brother of our invaluable friend Dr. Grant") at Dumbarton.

By January 27, 1833, after two tries, they had a lens 24 feet in diameter (only some four feet shy of the modern-day 6-meter Soviet reflector) and weighing 14,826 pounds. This monster was supposed to magnify 42,000 times and might even show insects on the Moon. There is nothing like a precise figure to lend credibility to a bogus story, but it is not difficult to see that a real lens this size would weigh several times as much.

The mechanical parts of the telescope were "easily and rapidly executed. He awaited only the appointed period at which he was to convey his magnificent apparatus to its destination."

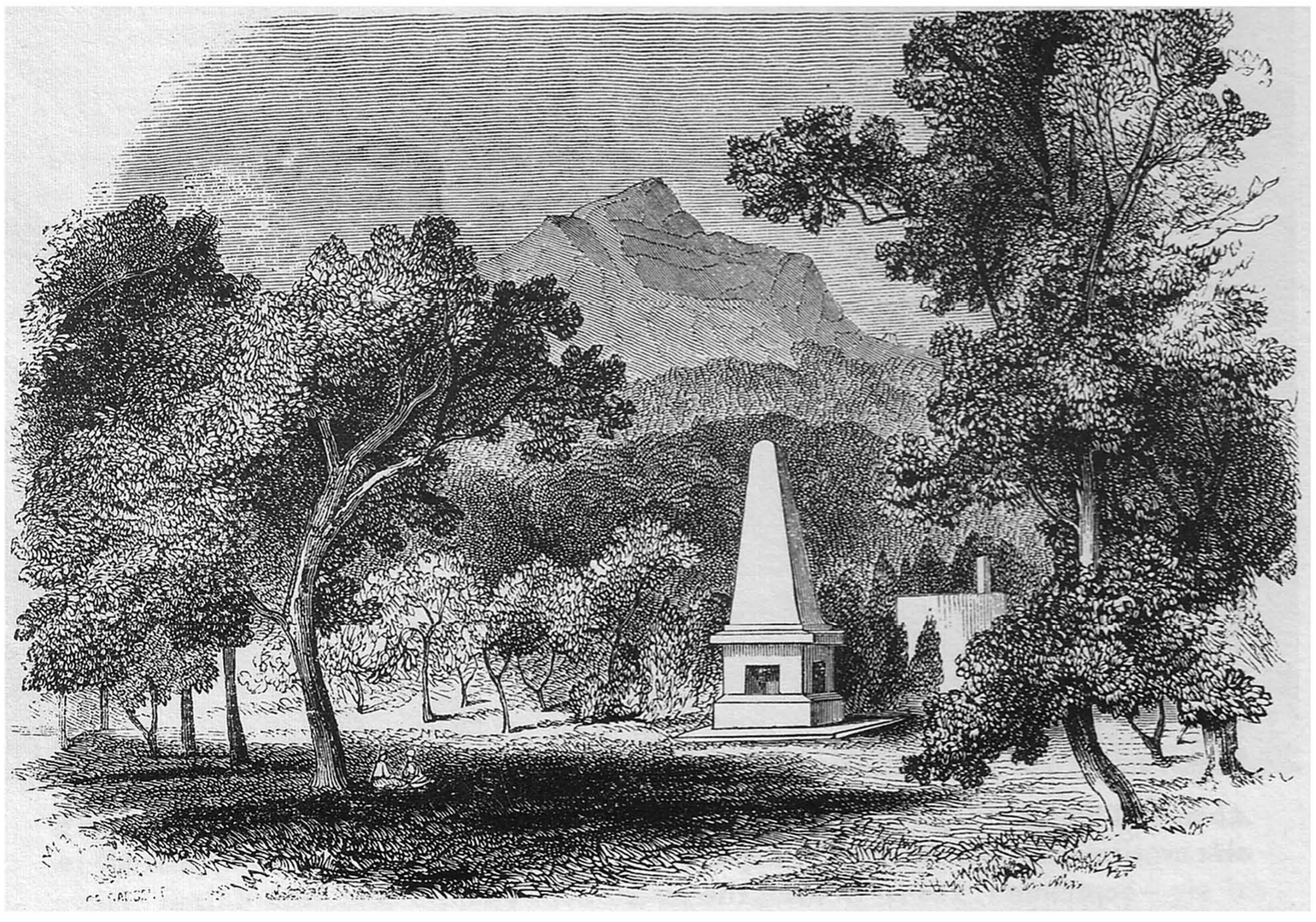
In the *Sun* version, Sir John sailed from London on September 4, 1834, with Dr. Grant, Lieut. Drummond of the Royal Engineers, F.R.A.S. (yet another figment), and a large party of the best English mechanics.

They arrived after an expeditious and agreeable passage, and immediately proceeded to transport the lens, and the frame of the large observatory, to its destined site, which was a piece of tableland of great extent and elevation, about thirty-five miles to the north-east of Capetown, and which is said to be the very spot on which De la Caille, in 1750, constructed his invaluable solar tables, when he measured a degree of the meridian, and made a great advance to exactitude in computing the solar parallax from that of Mars and the Moon. Sir John accomplished the ascent to the plains by means of two relief teams of oxen, of eighteen each, in about four days; and, aided by several companies of Dutch boors, proceeded at once to the erection of his gigantic fabric.

This piece of gobbledygook contains interesting threads of genuine information. Although de la Caille did not arrive until 1751, one of his stations was about 35 kilometers northeast of Cape Town on the summit of an isolated mountain, Riebeeck Casteel. The remarks about the Moon and Mars are poppycock, the traditional number of oxen in a span was 16, and Sir John's real observatory was four miles south of the town. The interesting thing is not the embroidery but the grain of truth, which could only be known to someone with a knowledge of the facts.

In the concluding installment, we will take a closer look at Herschel's remarkable instrument and sample some of the fantastic discoveries made with it.

*(To be continued)*



**After Herschel's departure from the Cape in 1838, local residents erected a granite column at Feldhausen to mark the spot where his reflector stood.**