The Great Moon Hoax—II

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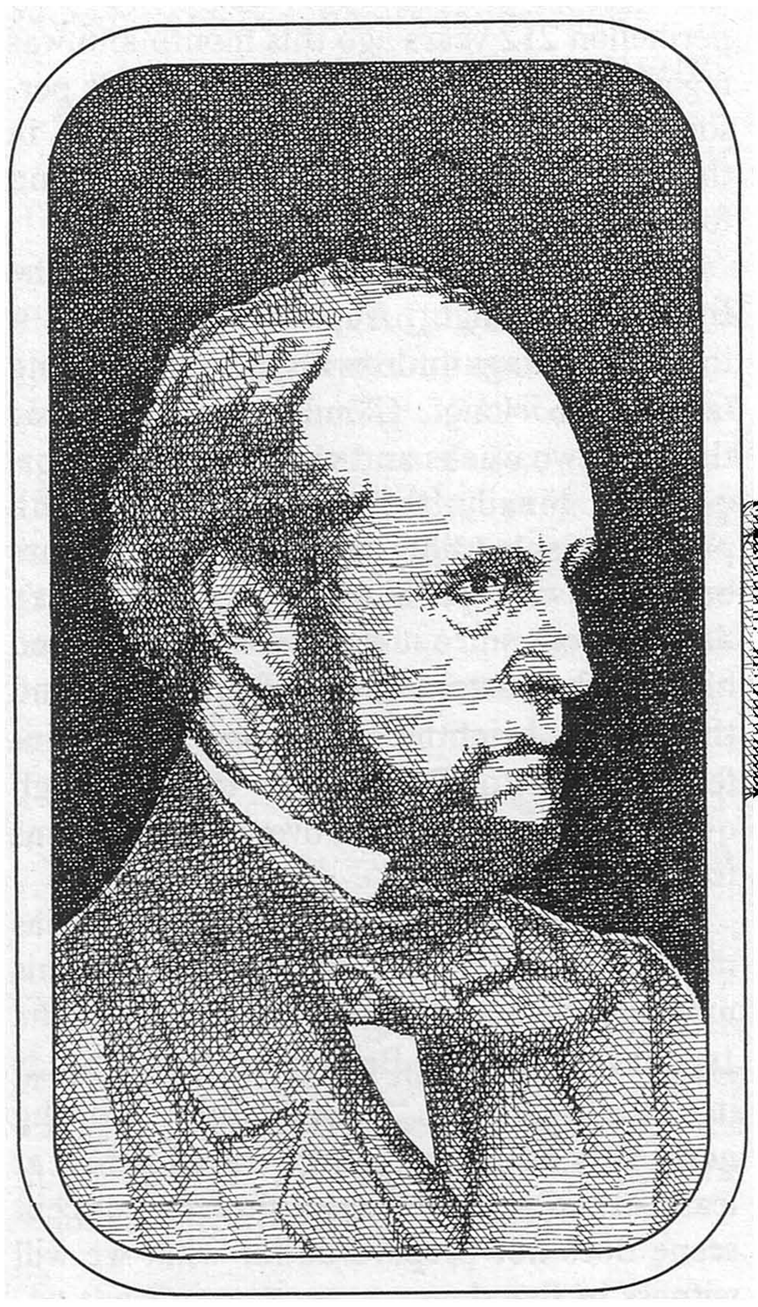


One of the greatest scientific frauds ever perpetrated, the "Moon Hoax" was the creation of Richard Adams Locke (*left*). His accounts of observations supposedly made by Sir John Herschel (*above*) amazed the world in 1835.

IN AUGUST, 1835, a penny daily called the New York *Sun* published an amazing — and totally fabricated — account of discoveries supposedly made by Sir John Herschel at the Cape of Good Hope. Last month's discussion focused on the events leading up to the hoax's publication and how its perpetrator, Richard Adams Locke, managed to work shreds of fact into his story to make it more believable. This tall tale resumes here with Locke's description of Sir John's observatory, which owes almost nothing to fact:

The ground plan of the structure is in some respects similar to that of the Herschel telescope in England except that instead of circular foundations of brickwork, it consists of parallel circles of railroad iron, upon wooden framework; so constructed that the turn-outs or rather turn-ins, from the largest circle, will conduct the observatory, which moves upon them, to the innermost circle, which is the basis of the lens-works; and to each of the circles that intervene. The diameter of the smallest circle is twenty-eight feet; that of the largest our correspondent has singularly forgotten to state, though it may be in some measure computed from the angle of incidence projected by the lens, and the space occupied by the observatory. The latter is a wooden building fifty feet square and as many high, with a flat roof and gutters of thin copper. Through the side proximate to the lens, is an aperture four feet in diameter to receive its rays, and through the roof another for the same purpose in meridional observations. The lens which is inclosed in a frame of wood, and braced to its corners by bars of copper, is suspended upon an axis between two pillars which are nearly as high as those which supported the celebrated quadrant of Uleg Beg (*sic*), being one hundred and fifty feet. These are united at the top and bottom by cross-pieces and strengthened by a number of diagonal braces; and between them is a double capstan for hoisting the lens from its horizontal line with the observatory to the height required by its focal distance when turned to the meridian; and for elevating it to any intermediate degree of altitude that may be needed. This last operation is beautifully regulated by an immense double sextant, which is connected and moves with the axis of the lens, and is regularly divided into degrees, minutes, and seconds; and the horizontal circles of the observatory being also divided into 360 degrees, and minutely subdivided, the whole instrument has the powers and regularity of the most improved theodolite. Having no tube, it is connected with the observatory by two horizontal levers, which pass underneath the floor of that building from the circular basis of the pillars; thus keeping the lens always square with the observatory and securing to both a uniform and simple movement. By means of these levers, too, a rack and windlass, the observatory is brought to any degree of approximation to the pillars that the altitude of an observation may require; and although, when at its nearest station it cannot command an observation with the great lens within about fifteen degrees of the meridian, it is supplied with an excellent telescope of vast power, constructed by the elder Herschel, by which every high degree can be surveyed. The field of view therefore, whether exhibited on the floor or on the wall of the apartment, has a diameter of nearly fifty feet, and, being circular, it has therefore an area of nearly 1,875 feet. The place of all the horizontal movements having been accurately levelled by Lieut. Drummond, with the improved level of his invention which bears his name, and the wheels both of the observatory and of the lens-works being facilitated by friction-rollers in patent axle-boxes filled with oil, the strength of one man applied to the extremity of the levers is sufficient to propel the whole structure upon either of the railroad circles; and that of the two men applied to the windlass is fully adequate to bring the observatory to the basis of the pillars. Both of these movements, however, are now effected by a locomotive apparatus commanded within the apartment by a single person, and showing by means of an ingenious index, every inch of progression or retrogression.

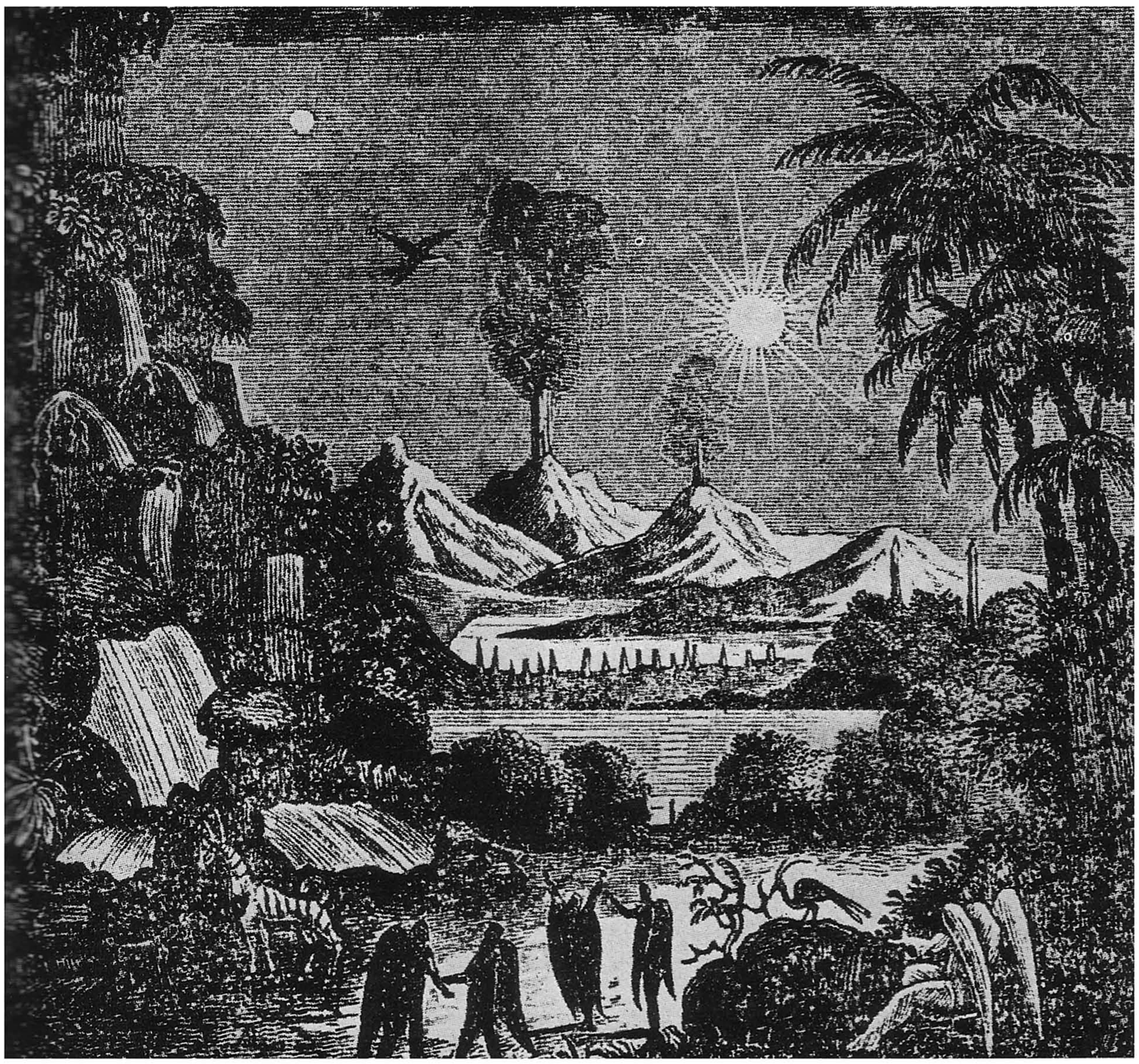
What an imagination! All this is sheer malarkey, though it does reveal that Locke thought one used a telescope by projecting the image on a screen, as indeed one does to avoid eye damage when observing the Sun. No doubt all that extra hydro-oxygen light made it work equally well for other celestial objects!

One further shred of fact concerns Halley's comet which was due to reappear in 1835 after an absence of some 77 years. The *real* Sir John recorded his successful observation on Wednesday, October 28, 1835: "Knocked up a temporary stand for the 7 feet Equatorial telescope — dismantled it and carried it out to the 1st Sand hills on the flats there erected it just at Sunset and was rewarded with the 1st glorious sight of Halley's Comet!!!" The punctuation is characteristically Sir John's. Evidently his observations had been impeded until then by Table Mountain just to the west.

According to the *Sun:*

. . . the world heard nothing of him or his expedition until it was announced a few months since in the scientific journals of Germany, that Sir John Herschel, at the Cape of Good Hope, had written to the astronomer-royal of Vienna, to inform him that the portentous comet predicted for the year 1835, which was to approach so near this trembling globe that we might hear the roaring of its fires, had turned upon another scent, and would not even shake a hair of its tail upon our hunting-grounds. At a loss to conceive by what extra authority he had made so bold a declaration, the men of science in Europe who were not acquainted with his secret, regarded his "postponement," as his discovery was termed, with incredulous contumely, and continued to terrorize upon the strength of former predictions.

Any scientist reading this paragraph would instantly become suspicious at this sudden repeal of the law of gravitation even though, in the popular mind, scare stories



According to Locke, on January 10, 1835, Herschel examined the Moon with telescopic resolution difficult to obtain from lunar orbit, let alone from Earth. This engraving from Frank O'Brien's *The Story of The Sun* portrays that day's revelations; no illustrations appeared with the *Sun's* original text.

of flames and poison gas cause alarm right up to the present.

By the middle of the August 26th article Locke gets into his stride and from here on all is fiction supported by meaningless technicalities and circumstantial asides to lend credibility. He defers

> . . . Dr. Grant's elaborate mathematical details of the corrections which Sir John Herschel has made in the best tables of the moon's tropical, sidereal, and synodic revolutions, and of those phenomena of syzygies on which a great part of the established lunar theory depends.

Well he might.

On January 10, 1835, the Moon is examined at a resolution of one foot. There were columnar basalts, flowers (instantly identified by Dr. Grant), forests of yews, and oceans. Then came a chain of obelisks or pyramids made of amethyst, desert, more seas and forests, and finally a red oval valley into which fell many waterfalls. Here were herds of creatures like bison with a hairy flap to cover their eyes against the strong sunlight, and others resembling the fabulous unicorn. There were birds like cranes and a strange amphibious creature of spherical form which rolled rapidly across a pebbly beach.

In truth, on this day Sir John did not observe at all due to a fire which had broken out a few miles away on Devil's Peak two nights before. Locke evidently had a map of the Moon, as his text is full of named lunar features and references to "Blunt's map," apparently an invention.

It was next possible to observe on January 13th when they examined the western limb from Lacus Mortis to Cleomedes, finding volcanoes (at least Mars and Io have imitated Locke's invention), more forests and lakes, and no less than 38 species of trees, nine of mammalia, and five ovipara. Near Cleomedes (a genuine lunar formation) were natural arches, high waterfalls and more volcanoes, lunar palm trees, and pygmy zebra. "After a short delay in advancing the observatory upon the levers, and in regulating the lens, we found our object and surveyed it." This was the crater Langrenus "which is almost within the verge of the libration in longitude, and of which, for this reason, Dr. Herschel entertained some singular expectations."

Here they saw creatures like giraffes with long horns and, to their amusement, flocks of ordinary terrestrial sheep. Then,

> we were thrilled with astonishment to perceive four successive flocks of large winged creatures, wholly unlike any kind of birds, descend with a slow even motion from the cliffs on the western side, and alight upon the plain. They were first noticed by Dr. Herschel who exclaimed "Now, gentlemen, my theories against your proofs, which you have often found a pretty even bet, we have here something worth looking at: I was confident that if ever we found beings in human shape, it would be in this longitude, and that they would be provided by their Creator with some extraordinary powers of locomotion: first exchange for my number D." This lens being soon introduced . . . we counted three parties of these creatures . . . They averaged four feet in height, were covered, except on the face, with short and glossy copper-colored hair, and had wings composed of a thin membrane, without hair, lying snugly upon their backs, from the top of the shoulders to the calves of the legs. The face, which was of a yellowish flesh color, was a slight improvement upon that of the large orang outang, being more open and intelligent in its expression, and having a much greater expansion of forehead. The mouth, however, was very prominent, though somewhat relieved by a thick beard upon the lower jaw, and by lips far more human than those of any species of the simia genus. In general symmetry of body and limbs they were infinitely superior to the orang outang; so much so, that, but for their long wings, Lieut. Drummond said they would look as well on a parade ground as some of the old cockney militia!

The creatures talked, bathed in the lakes, shook their wings, and flew. "We scientifically denominated them the Verspertilio-homo, or man-bat; and they are doubtless innocent and happy creatures, notwithstanding that some of their amusements would but ill comport with our terrestrial notions of decorum."

The original *Sun* version had no illustrations, but even the first reprint of the material had at least one, and when it was published again in 1859 it evidently had several. The date explains how it is that one of the engravings is apparently a view of Yosemite Valley (discovered in 1851) with the bat people hang-gliding in front of El Capitan and the Bridal Veil Falls in the right background.

As if he wondered whether this last revelation would be too much to swallow, Locke went on, "We have, of course, faithfully obeyed Dr. Grant's private injunction to omit those highly curious passages in his correspondence which he wished us to suppress . . . ," and then reassures the reader with, ". . . other prohibited passages, which will be published by Dr. Herschel, with the certificates of the civil and military authorities of the colony, and of several Episcopal, Wesleyan, and other ministers, who, in the month of March last, were permitted under stipulation of temporary secrecy, to visit the observatory, and become eye-witnesses of the wonders which they were requested to attest. . . ."

An active volcano would be handy to local inhabitants during the long lunar nights, so they next searched near the "flaming mountain" Bullialdus, and came upon a temple of extremely elaborate construction described with a wealth of circumstantial detail. Eventually they came upon the inhabitants, who though batlike were smaller and lighter than the first species seen, and were happily feasting on fruits. Locke was clearly having a vision of Eden at this point.

That night the great lens was not properly stowed and the next morning, acting as a

burning glass, set fire to much of the imaginary apparatus. Within a week, however, all was repaired, and they could proceed to the observation of Saturn. We are told that Sir John's most important discovery is that "these two rings [of Saturn] are composed of the fragments of two destroyed worlds." These remarks of Locke's must rank as one of those flukes of imagination, like the inspired guess of Dean Swift in *Gulliver's Travels* about the satellites of Mars. In Locke's case it is clear that he thought the two rings divided by Cassini's division were each composed of solid fragments, "but not devoid of mountains and seas." The faint belts on the surface of Saturn and the prominent ones on Jupiter are supposed to be exhalations of volcanoes. All this is the subject of a beautiful mathematical demonstration "which we omit as too mathematical for popular comprehension."

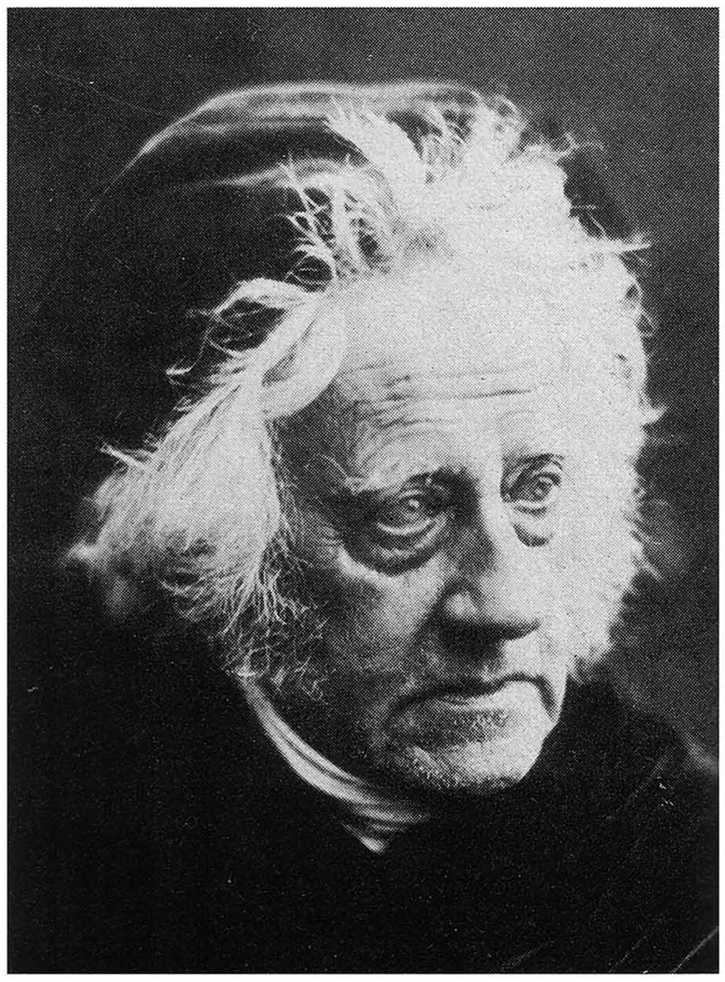
By this time Locke was running out of steam and the reputed supplement concludes with a brief reference to other lunar observations of a "very superior species of the Vespertilio-homo of infinitely greater personal beauty . . . scarcely less lovely than the general representations of angels by the more imaginative schools of painters. Their social economy seemed to be regulated by laws or ceremonies . . . their works of art . . . displayed a proficiency and skill quite incredible . . . *This concludes the Supplement, with the exception of forty pages of illustrative and mathematical notes . . . . Ed. Sun.*"

To lend credence to the foregoing Locke added the method of determining the height of lunar mountains from the lengths of their shadows. The correctness of his method cannot be checked since it refers to points on a diagram not supplied, but superficially it looks convincing enough.

Benjamin H. Day, enjoying a paid circulation of 19,360 as compared with the London *Times'* 17,000, was not about to look a gift horse in the mouth. Yet he did have the grace on September 4th to print extracts from the Hampshire (Massachusetts) *Gazette,* the Baltimore *Chronicle,* and the Troy *Budget* which expressed a mixture of awe, wonderment, and skepticism. Meanwhile, according to the account given by William H. Barton in the February, 1937, issue of *The Sky,* quoting *The Story of The Sun* by Frank O'Brien, the public clamored both for the paper and copies of a print (at 25 cents apiece) showing "lunar animals and other objects lately discovered by Sir John Herschel." Barton says:

Professors from Yale College, Olmstead and Loomis, came down to see the more technical and unpublished portions of the Supplement. Day was incensed at their doubts about his having the original. Locke sent them on a wild-goose chase from one printer to another, all the while short-cutting through lanes and alleys to instruct his friends where to direct them next. Locke was no impractical genius.

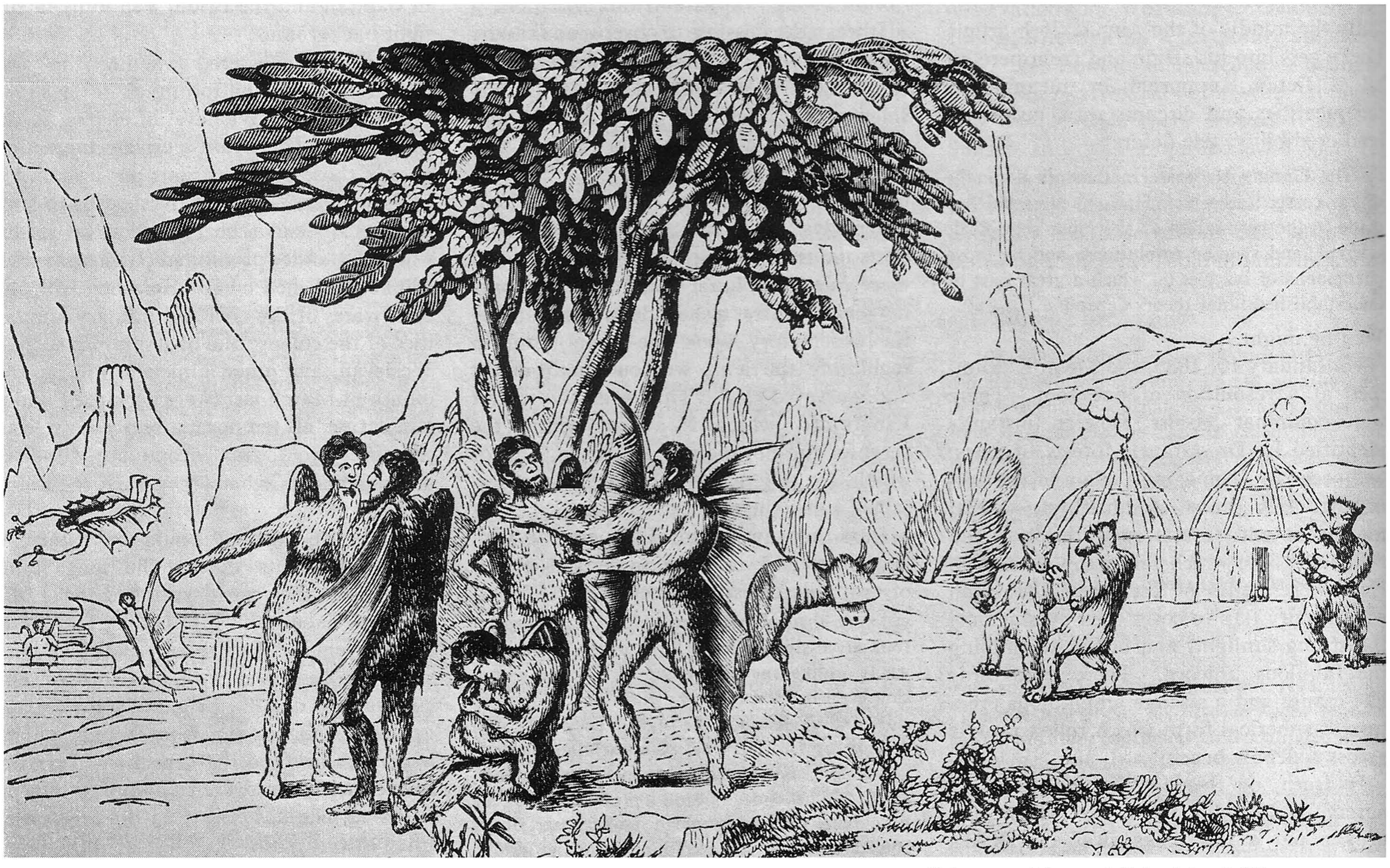
Finally the bubble burst. *The Journal of Commerce* decided to copy the story and sent Finn, a reporter and close friend of Locke's, to get the papers. He met Locke and told him of the plans. Locke advised him not to print it and



This photograph of John Herschel was taken by Julia Margaret Cameron in April, 1867, four years before his death. While in South Africa (1834-38), Herschel made many genuine contributions to astronomy, such as extensive studies of galaxies, planetary nebulae, and multiple stars. Courtesy O. Gingerich.

admitted authorship. *The Journal,* instead of "carrying" the story the next day, "told" the story. Bennett of *The Herald* cried "Hoax" and named its author.

The source of Locke's astronomical knowledge is a mystery. Born of a good family in Somerset, England, on Septem-



A remarkably detailed portrayal of the inhabitants of the Moon, from an English pamphlet published in 1836.

ber 22, 1800, he was said to have been educated at Cambridge yet his name does not appear in Venn's *Alumni Cantabrigiensis*. Herschel, meanwhile, left Cambridge temporarily in 1814 and finally in 1816, but his writings (for example, his *Preliminary Discourse on Natural Philosophy* published in 1830) would be well known to an educated public by the time of the hoax. Locke floated two unsuccessful newspaper ventures in London before coming to New York in 1832 and joining the *Sun* in 1835 as a reporter at $12 per week.

Resigning in 1836, he started the *New Era* with Joseph Price and tried unsuccessfully to duplicate the Moon Hoax with the *Last Manuscript of Mungo Park* (a famous African explorer). The paper failed and he became a reporter on the Brooklyn *Daily Eagle*. He evidently had the physical presence needed by a successful con-man. "Five feet 7 inches tall, with a noble air of genius, a pocked face, a fine forehead and obliquity in the eyes." He died on February 16, 1871 — just before Sir John, who passed away on May 11th the same year.

The evident indebtedness of the factual basis of the hoax to earlier writings of de la Caille in the *Mémoires de l'Académie Royale des Sciences de France* probably led Augustus de Morgan in his *Budget of Paradoxes* to attribute the hoax to Jean Nicolas Nicollet. The latter was a French astronomer who actually met Herschel in Paris in 1824. Yet it seems incredible that anyone not a native-born English speaker could have successfully imitated Sir John's style.

There are other complications with crediting the hoax to Nicollet. Despite the fact that all other sources give his birth date as 1786, the *Grande Encyclopédie* on which de Morgan relied places his birth in Savoy in 1756. It further describes him as a naturalized Frenchman who worked his way through the French astronomical community before emigrating to America (New Orleans) in 1831. There he undertook geographic and geologic exploration west of the Mississippi. This hardly squares with an age, by de Morgan's reckoning, of 76. Although Nicollet later moved to Washington (where he published numerous papers and eventually died in 1843), he appears not to have had any contact with Locke.

De Morgan believed Nicollet's motive for the hoax was to hoodwink his enemy Arago (who was also at the 1824 meeting), as Arago was reputedly taken in when the hoax was translated into French. Yet such a roundabout scheme would almost certainly go astray at some point. Further, why would someone presumably respected in Washington want to mock either Herschel or Arago? Thus, de Morgan's reasoning is likely faulty, leaving the true basis for the hoax still shrouded in mystery.

Don Davis has provided a modern-day reconstruction of the sights visible through Sir John Herschel's imaginary telescope on January 13, 1835, based on the "Moon Hoax" text. Two denizens of the area rest at lower left while overlooking the undulating hills, crystalline columns, temples, and oceans below. Unicorns forage as still more creatures fly overhead. In the distance stand volcanic peaks and other formations reflecting the state of lunar science in the 19th century. The Earth gleams brightly above the horizon, with a glint marking the location of Herschel's behemoth reflector in South Africa.