

Telegrams, Media Coverage and Correspondence

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In this supplement to ‘Revisiting The 1963 Aristarchus Events’,¹ we present the Lowell Observatory telegrams announcing the October 30 and November 28, 1963 (UT) transient lunar phenomena (TLP) observations, highlight subsequent newspaper coverage and quote from portions of Hall’s correspondence on these events. We conclude by expanding on our paper’s clarification regarding a widely reported story that one TLP seen by the Mars Hill observers on night 2 was also “confirmed” by two other observers through a 69-inch reflector. This supplement available for download at: www.the1963aristarchusevents.com.

October 31st Telegram

The day after the October 30th Greenacre-Barr TLP sighting of reddish glows on the Aristarchus Plateau, John S. Hall (1908 – 1991) dispatched a two-page telegram to Harvard College Observatory. This telegram officially recorded the observation with the *International Astronomical Union’s* (I.A.U.) *Central Bureau for Astronomical Telegrams* which is responsible for the dissemination of information on transient astronomical events.² Hall also sent a copy of this telegram to *Sky and Telescope Magazine*. (See Figure 1).

The same day, Hall gave an “exclusive” interview to William Hoyt, managing editor of the *Arizona Daily Sun* in Flagstaff. (See Figure 2). While it is rumored the story may have leaked to the press on October 30th, the telegram and Hoyt’s article on October 31st establish it was Hall who oversaw the official release of information. While the front-page story had the attention-grabbing headline: “Moon ‘Eruptions’ Seen Here – Lunar Mappers Spot Possible Volcanoes”, care was taken within the article to emphasize these were only “apparent” volcanic eruptions with Hoyt making the obvious connection to the November 1958 and October 1959 spectroscopic observations of suspected lunar volcanic activity in the crater Alphonsus by Soviet astrophysicist Nikolai A. Kozyrev (1908-1983).³

Given the Lowell *Martian Canals* legacy, Hall was acutely aware of the controversial nature of red spots now reportedly being seen on the Moon at his observatory and cautiously speculated this report “will probably create quite a stir in the scientific community”. The story also noted the “extreme rarity” of these types of observations and that Greenacre and Barr had not been looking for lunar activity and that neither believed such activity had ever been seen before. William D. Cannell (1926-2006), the USAF Moon-mapping site director at

Figure 1. (Top) Page 1 of 2 of John Hall’s telegram for night 1 Greenacre-Barr TLP observation. Upper shaded area on page 1 (added by authors): “Air Mail Special Delivery.” Lower shaded area on page 1 appears to say “My opinions.” (Bottom) page 2 of 2. Shaded area: “Sky & Tele 49 Bay State Rd Cambridge Mass.”

Lowell, was quoted in the story reiterating nothing like this had ever been seen before at Lowell by USAF mappers.

Hoyt reported Col. John G. Eriksen, the USAF *Aeronautical Chart and Information Center's* (ACIC) new commanding officer had flown out to Flagstaff the previous day from St. Louis and noted the disturbances were intense enough to distract the observers' attention, despite the concentration required by the routine of their "delicate" moon-mapping work. Eriksen added "These things are usually difficult to see unless you happen to be deliberately looking for them – unless you know what sort of thing to expect and look for." Dr. Hall agreed with Eriksen.



Figure 2. Flagstaff *Arizona Daily Sun* front-page headline announcing the observation of apparent volcanic 'Eruptions' on the Moon. Note 'SUN Exclusive' in this story's text box.

Hoyt noted the general scientific consensus that most lunar craters were formed by impacts and not volcanism. But he also noted the U.S. Geologic Survey's Astrogeology Flagstaff Branch: "... also postulate volcanism on the Moon". Despite the controversial nature of suggesting contemporary lunar volcanism, Hoyt cites Hall as pointing out "... these new observations are nonetheless well-documented and will tend to focus the attention of many astronomers in the world in a newly intensified search for similar phenomena."⁴ Greenacre was not interviewed for the story and Hoyt erroneously reported the TLP events were already underway when Greenacre first noted them. But Greenacre actually had been observing the Aristarchus area for 20 minutes during which time everything seemed normal before he watched as the first phenomenon began to appear and brighten near the Cobra Head formation.

On November 12th, John Hall began corresponding about the Greenacre-Barr observation with Nobel Prize winning American chemist Harold C. Urey (1893-1981) who had a keen interest in the TLP issue. In his initial correspondence, Hall enclosed copies of the proofs he had received that morning from *Sky and Telescope* of Greenacre's article "A

Recent Observation of Lunar Color Phenomena"⁵ and commented he thought Urey would be "pleased" with what *S&T* was expected to say about Kozyrev's 1959 (TLP) observation.⁶

December 3rd Telegram

It is not known for certain why it took Director Hall five days to dispatch a telegram announcing the second November 28th TLP episode. (See Figure 3).

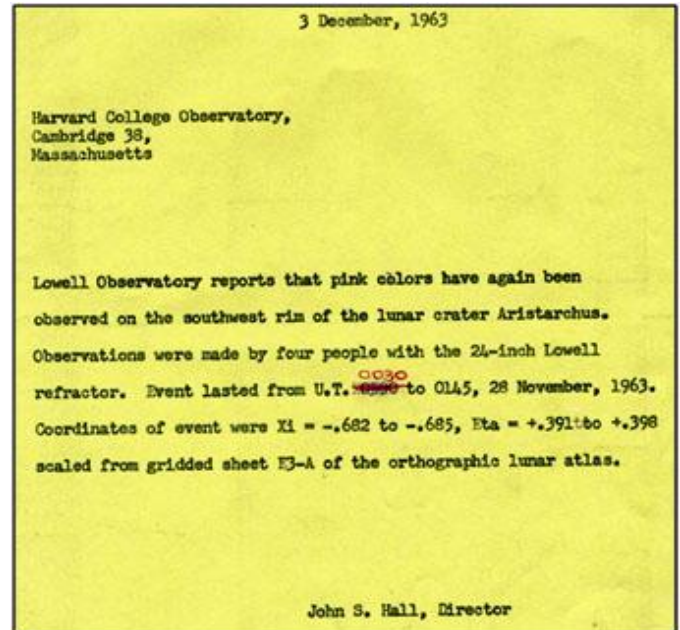


Figure 3. John Hall telegram for night 2 TLP sightings of which he was one of the witnesses. Note absence of widely reported Boyce-Ford TLP "confirmation" from Anderson Mesa. (Red correction on U.T. time in original documnt.)

But it is of historical interest to note that less than a week earlier President John F. Kennedy had been assassinated in Dallas, Texas on November 22nd. The assassination and subsequent burial on November 25th at Arlington National Cemetery profoundly disrupted for some time the normal activity of business and the flow of information as America and the whole were reeling from this tragic event. On December 4th newspapers first reported the observation and a story originating in Flagstaff had a headline which again included the word "Eruption" with speculation that the "disturbance" this time may also have been "volcanic activity". (See Figure 4).

On the day after Hall sent the second telegram, Urey wrote a reply to Hall's November 12th correspondence with a "Congratulations" to Greenacre and Barr and speculated that the cause of the reddish TLP "Must be gases, not collisions of

New Eruption on the Moon Sighted by AF Lunar Team

FLAGSTAFF, Ariz. (AP) — A second disturbance on the moon has been sighted by Air Force lunar mappers at Lowell's Observatory.

This time, they said they had taken movies of the eruption, possibly volcanic in nature.

The latest sighting was Nov. 27 and lasted for an hour and a half. The first was on Oct. 23 and lasted just 20 minutes.

The sighting was announced by the Air Force's Aeronautical Chart and Information Center (ACIC), which has been using Lowell facilities for two years in an effort to map the moon for Apollo astronauts.

The new observation, made on a 24-inch refracting telescope, was made by James Greenacre and Edward Barr, selenographers with ACIC, scientific illustrator Fred Dungan and observatory director John S. Hall.

The two sightings were similar. Both were near the crater Aristarchus and both were noted when the moon was in the same phase.

The first disturbance, however, included three "eruptions," while the latest was only one.

Prior to the Lowell sightings, there had been only three instances of suspected volcanic activity noted in the last decade.

Figure 4. Headline in *Pacific Stars and Stripes*, December 6, 1963, p. 3 which mentions "suspected volcanic activity" for the cause of the November 28th TLP observation by four observers at the Lowell Observatory 24-inch Clark refractor.

meteorites nor volcanoes of the hot kind for they would be visible at night. Must be gases, probably C₂."⁷

On December 6th Hall wrote back to Urey assuring him he would pass on the "congratulations" and noted initial analysis of the film taken through the Clark during the second night's TLP episode "showed nothing unusual to the eye" and that the results were negative for the microdensitometer analysis, (improperly done by William Cannell) but that more analysis was being planned.⁸ He also gave details of the attempt by Peter Boyce and Kent Ford to confirm one of the TLP at the Lowell Anderson Mesa site and speculated "we may now be witnessing a certain pattern in these peculiar color effects". Hall also wrote that Greenacre's failure to see the phenomena through the 12-inch guide scope "may explain why such features have not been previously observed more often." He ends his letter: "A much more intensive effort will be made to get better data on the next lunation. We hope something happens."

Hall also corresponded with Nikolai Kozyrev on the TLP events. On December 28th Kozyrev sent Hall a congratulatory letter to which Hall responded on January 7th: "Dear Dr. Kozyrev; Thank you very much for your kind letter of December 28th, regarding the observations made here of Aristarchus. Just in case you have not seen an account of the more recent observation, I enclose a copy of a description of it given in the January 1964 issue of 'Sky and Telescope.' We were disappointed to learn that you had not continued your observations of Aristarchus but presumably, have observed other areas since your last interesting report [Alphonsus TLP] given in the July issue of "Nature" in 1963. . . ."⁹

By this time the correspondence and media inquiries were evidently becoming burdensome as Hall's directorial position was not honorific. His time was consumed with other matters including those related to a new building to house a Planetary Research Center¹⁰, his own astronomical research and intimate involvement with the expanding NASA-USAF

Apollo lunar-mapping program.¹¹ In a letter dated January 7, 1964, Hall explained his situation to Urey and, in effect, asked him for assistance in taking the lead on these TLP reports: "As you doubtless are aware, my association with this project has been a chance occurrence and is far removed from the work on the polarization of extra galactic objects which I have been carrying on for the past two years. This circumstance does not mean that I am not extremely interested in what is apparently going on on the lunar surface, but it does mean that I have very little time to devote to this subject . . . I regret that my name has been mentioned in the press regarding these color phenomena because I have not been directly concerned and have not made any suggestions regarding the origin of these colored areas. You are far better qualified to do this than anyone else."¹²

November 28th "Confirmation"

It was widely and repeatedly reported that two observers at the Lowell Anderson Mesa site confirmed one of the TLP on November 28th. *The New York Times* (NYT) December 19th story reported "Mr. Boyce swung the 69-inch instrument onto the target and confirmed the existence of a reddish area precisely at the point described later by Lowell observers."¹³

While the January 1964 issue of *S&T* did not¹⁴ report the Anderson Mesa observation as a "confirmation", *S&T* editor, Charles Federer, was quoted in a December 24th newspaper interview as stating visual corroboration from Anderson Mesa ". . . seems to rule out the possibility of human error."¹⁵ On the same day, the NYT again reported there was a confirmation under an article heading "Six Confirm Spots" . . . "Two observers, using the 69-inch telescope . . . were alerted and they also saw one of the spots."¹⁶ (See Figure 5).

It is no mystery why a "confirmation" was reported at the time and is still being reported as such today¹⁷ as Lowell

AIR FORCE STUDIES LUNAR RED SPOTS

Seeks Color Photographs to Prove Their Existence

By JOHN W. FINNEY
Special to The New York Times

WASHINGTON, Feb. 24 — The Air Force is looking for red spots to appear on a "dying" moon in early June.

Twice before — in late October and November — Air Force lunar mappers have spotted ruby-like and pinkish spots in and around the large crater of Aristarchus in the northwest.

graphic science with color film and convince skeptical astronomers of the existence of the spots.

Six Confirm Spots

The Air Force lunar observation group at the Lowell Observatory in Flagstaff, Ariz., has no doubt the spots exist. They have now been observed by six persons.

Figure 5. Spliced portion of Feb. 24, 1964 *New York Times* story Note: "Six Confirm Spots" (red arrow).

Observatory archival documents establish this was the general consensus on Mars Hill. In a December 5th letter Hall wrote to Phil Bury of the *Societe d'Astronomie Populaire*, Toulouse, France, not more than a week after the second TLP observation of which he was a witness: "*A reoccurrence of the same phenomena was recently observed here again on the evening of 27th November [28th UT], between 5:30 and 6:45 p.m. MST [00:30 - 01:45 UT]. This observation made by the same observers, and several others, was made with both the 24-inch refractor and the 69-inch reflector of the Perkins Observatory.*"

On December 7th, Hall (who was at that time in Chile) wrote a letter to Urey with the following passage giving clear insight into his impressions of November 28th: "*Boyce was preparing the photoelectric scanner for observations at the 69-inch when we telephoned him from the 24-inch dome about twenty minutes prior to the end of this last observation. He knew he was several hours away from being ready to make photoelectric scans so he and Kent Ford examined the Aristarchus region and set the area which they thought was colored on the slit of the scanner. (We had not previously given them more information than that there was coloration again in the Aristarchus area.) A later comparison indicated that they had set the slit on the rim of Aristarchus right where the red color was seen at the 24-inch.*"

While Hall avoided public speculation on possible causes for the phenomena, he did offer several possibilities in his letter to Phil Bury in France: "*We do not know the nature of this phenomena. It of course could be caused by gases being emitted through cracks in the surface, or by fluorescence of materials produced by unusual solar bombardment. Contention made here is that this coloration is not produced in the optics of the telescope or by the earth's atmosphere.*"¹⁸

On January 7th William Cannell reiterated Hall's impressions of Nov. 28th in a letter written on Hall's behalf (who was in Chile) in a letter to (Sir) Patrick Moore noting: "*The confirmatory observation with a large reflector was made on November 27 (28 UT) by Dr. Boyce and Dr. Ford with the 69-inch Perkins telescope. They were in the process of setting up a photo-electric spectro-scanner but were not able to put it into operation in time. However, they did observe visually with the guiding eyepiece at 900X with no filter. They observed a reddish glow in the shadow just outside the southern rim of Aristarchus. This was at approximately 6:45 p.m. (MST) [01:45 UT] near the end of the activity but exactly in the same place that the other four observers on the 24-inch refractor had seen it.*"¹⁹

Given the media reporting and Lowell correspondence suggesting an Anderson Mesa confirmation, it is curious why Hall chose not to mention the Boyce-Ford observation in his

December 3rd *Western Union* telegram. This telegram only refers to the four observers at the Clark telescope on Mars Hill. (See Figure 3). This notable omission was one of the reasons we chose in our paper to exclude the Anderson Mesa observation from our assessment of *The 1963 Aristarchus Events*. The other reason was the information shared with us by one of the observers at the 69-inch Perkins reflector on the night of November 28, 1963.

Peter Boyce on "Confirmation"

In late 2010 we, with the assistance of Thomas A. Dobbins, contributing editor to *Sky and Telescope Magazine*, established contact with Dr. Peter Boyce, now retired astronomer, seeking his recall of what he and Dr. Kent Ford observed on November 28, 1963.²⁰ (See Figure 6).



Figure 6. Thomas A. Dobbins (left) and Peter Boyce in 2003 at the AstroAssembly of the Amateur Astronomical Society of Rhode Island. Image Bob Derouin.

Below are relevant portions of Dr. Boyce's emails pertaining specifically to the confirmation issue. We have inserted minor date and editing for clarification (bold-italicized). On November 13, 2010, Boyce wrote: ". . . I appreciate your efforts at trying to make sense out of these observations. First, you are right. I did not confirm the observations of the bright ruby red glows (**Oct. 30th**). I certainly did not see anything like that. But my observations, (**Nov. 28th**) which I did not document properly at the time, were made well after the **Greenacre-Barr (Dungan & Hall)** event (**November 28th**), and probably after it had faded in the 24-inch. (Personal communication, R. O'Connell, 2010).

Both Kent Ford and I did agree that, if we used our imagination, the area might be a slightly bit redder than the surroundings, but neither of us could say for sure that was the case. So, in summary, we definitely did not see or confirm the main event, and we certainly did not see a definite afterglow.

So, neither **Ford** nor I consider ourselves to be corroborating witnesses. The only thing we did say was that neither of us could definitively rule out the presence of a red afterglow at the very limit of detection at the time we were looking.

You should know that neither **Ford** nor I were used to looking at the moon. We were not even sure that we were looking at the same spot as Greenacre and **Barr (Dungan & Hall)**. It was difficult to be certain where we should be looking, and we were just being given pointing directions over the phone. This is important because, as I recall, we had a very limited field of view through the eyepiece of Bill Sinton's interferometer, so we had to be told where to look. In other words, the instrumentation was not well adapted to making lunar observations."

Sometime after Boyce's clarification, the authors located correspondence in the Lowell Observatory Archives clearly suggesting those on Mars Hill considered the Boyce-Ford observation a TLP confirmation (as presented above). On July 8, 2011, after supplying Dr. Boyce with copies of this correspondence, he addressed the issue: "People, who want to believe in lunar transient phenomena, will take my report as confirmation. Personally, I would classify it as not reliable. As in all things like this, there is a range in the degree of certainty. I would give it perhaps a 4 on a scale of 0-10, with 10 being an absolute certainty. We (**Kent Ford and I**) thought there was *perhaps* (Boyce's emphasis) some reddening. I am uncomfortable with people using my observation as a certain confirmation, as if we were certain at the 8-10 level on the degree of certainty scale. I did not know that John Hall was quoting this as a confirmation. I did explain my uncertainties to him in person the next morning.

Also note that we were not looking directly through the telescope, but using the image as reflected off the slit jaws through optics which were only meant to be used to position a star on the slit. They weren't the best optics. It was a scanner which was cobbled together by someone else from an old spectrograph, and was not very well designed. Also, I was a very young astronomer at the time, having been at Lowell only since September, and was not an experienced large telescope observer, and had never before looked at the moon with the 69-inch, so I was pretty hesitant to make a strong statement. I am still hesitant."

Conclusion

Lowell Observatory archival documents and media coverage which was laden with speculation on lunar volcanism following both TLP observations clearly establish John Hall directed the release of information on these two TLP events. While wondering if he may have in fact witnessed real lunar phenomena in November, Hall nonetheless

subsequently sought to distance himself from the TLP issue because of the demands on his time as Director of Lowell Observatory and from that required to pursue his own research interests. While noting he was "extremely interested" in what might have been occurring on the Moon, Hall soon sought Nobel Laureate Harold Urey's assistance in handling inquiries from the media and scientific community, noting Urey was "far better qualified" than he was to speculate on the "origin of these colored areas."

Finally, Dr. Boyce's recall of events and Hall's notable omission of the Boyce-Ford observation in his December 3, 1963 telegram lead us to consider the "confirmation" issue as merely a curious footnote to 'The 1963 Aristarchus Events'.

Acknowledgements

The authors thank Dr. Peter Boyce for his recall and opinions regarding the November 28, 1963 (UT) TLP episode. We also thank Thomas A. Dobbins for his assistance in helping us contact Dr. Boyce and for numerous engaging discussions and correspondence on the TLP issue over the past several years. Finally, we thank Lauren Amundson, Lowell Observatory Archivist, for her assistance in accessing relevant documents.

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References and notes

- 1 O'Connell, R. & Cook, A., 'Revisiting The 1963 Aristarchus Events', *J. Brit. Astron. Assoc.*, **123**(4) pp. 197-208, (2013 August)
- 2 In 1963, Harvard College Observatory was the informal acting clearing house for the western hemisphere on astronomical events and officially become so for worldwide reports in late 1964. Managed by the Smithsonian Astrophysical Observatory. http://en.wikipedia.org/wiki/Central_Bureau_for_Astronomical_Telegrams (Accessed 2013-03-21)
- 3 Kozyrev N., Letter to the Editor, 'Volcanic Phenomena on the Moon', *Nature*, **198**(4884), (1963 Jun 08), pp. 979-980. In this letter Kozyrev also references similar 1961 observations of suspected ejection of gases of the fumaroles-emission type at the crater Aristarchus. See: <http://www.nature.com/nature/journal/v198/n4884/abs/198979a0.html> (Accessed 2013-03-21)
- 4 A failed attempt to capture TLP on the Aristarchus Plateau was made in June 1964 when conditions were similar to those present during both the Oct. 30th and Nov. 28th sightings at Lowell. "Arizona-based astronomers failed during the night in an attempt to make a third sighting of ruby-red spots on the moon . . . Telescopes at Lowell and Kitt Peak National Observatory near Tucson actually have been fixed on the Moon throughout the week. They will remain this way until the moon is new.", AP story, 'Moon Gazers Fail To See Red Spots', *Tucson Daily Citizen*, (1964 June 5), p. 6
- 5 Greenacre, J. A., 'A Recent Observation of Lunar Color Phenomena, *Sky and Telescope Magazine*, **26**(6), p. 316-317, (1963 December). **NOTE: Greenacre's middle initial "C." in this article's byline was misspelled "A".**

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- 6 Hall J. S. letter to Urey H. C., (1963 Nov 12), Lowell Observatory Archives, Flagstaff, Arizona
- 7 Urey H. C. letter to Hall J. S., (1963 Dec 4), Lowell Observatory Archives
- 8 Hall J. S. letter to Urey H. C., (1963 Dec 6), Lowell Observatory Archives
- 9 Kozyrev N. A. letter to Hall J. S., (1963 Dec 28), Lowell Observatory Archives
- 10 Hall 1963, *op. cit.*, ref 6.
- 11 In 1964, Greenacre had noted “*Shortly after these sightings were reported in Sky and Telescope we began to receive a considerable amount of correspondence*”, (much of which was directed to John Hall). In Greenacre J. C., ‘The 1963 Aristarchus Events’, *The New York Academy of Sciences Annals*, **123**(2), (1965 July), p. 812
- 12 Hall J. S. letter to Urey H. C., (1964 Jan 7), Lowell Observatory Archives
- 13 Sullivan, W., ‘Lunar Red Spots Observed In U.S’, *The New York Times*, (1963 Dec 19), p. 1.
- 14 In the first posted online version of this supplement (2013-08-04), this author (R. O’Connell) erroneously wrote the January 1964 issue of *S&T* reported the observation as a “*confirmation*”. To correct the historical record, *S&T* did not report the Anderson Mesa observation as a “*confirmation*”. This sentence has now been corrected in this supplement revision. *S&T* actually reported: “*After seeing the red markings, Dr. Hall telephoned the nearby Perkins 69-inch reflector (recently transferred from Delaware, Ohio). He told Peter Boyce and another observer that a color phenomenon was taking place near Aristarchus, without saying just where. Mr. Boyce checked visually, then reported that he suspected a red spot in a position which turned out to agree almost exactly with the location found by Mr. Greenacre.*” *S&T* had in fact presented a description of this episode most closely matching Dr. Boyce’s version as presented later in this supplement. As an example of the puzzling difference of opinion on the “*confirmation*” issue between Mars Hill and Anderson Mesa, consider the following characterization of this issue as found in the May 1964 USAF report ‘Lunar Color Phenomena’, p. 7: “*Dr. Hall suggested that he (Boyce) make visual observations of the Aristarchus rim and adjacent areas. Boyce readily agreed to this and within fifteen minutes had called Dr. Hall and confirmed the sighting of the reddish-pink color on the southwest exterior rim of Aristarchus. The following day, 28 November, Boyce located the position of the color he had observed on a LAC 39 chart. It agreed with the position observed and plotted by the observers at Lowell.*”
- 15 Associated Press, ‘Scientists’ Quiz Game on Moon’, *Oakland Tribune*, (1963 Dec 24), p. D17.
- 16 Finney, J. W. 1964, ‘Air Force Studies Lunar Red Spots - Seek Color Photographs to Prove Their Existence’, *The New York Times*, (24 Feb 1964)
- 17 Cisco, T. A., Jr., ‘All Shall Hide’, (Bloomington: Author House, 2010), p. 48
- 18 Hall J. S. letter to Bury P., (1963 Dec 5), Lowell Observatory Archives.
- 19 Cannell, W. D letter to Moore P., (7 Jan 1964), Lowell Observatory Archives.
- 20 Tom Dobbins made the authors aware for the first time that the widely reported story of a confirmation through the 69-inch Perkins reflector at the Lowell Anderson Mesa site on November 28, 1963 was questionable. Dobbins had addressed this issue publically during his presentation of “*Transient Lunacy*” at ‘A Lunar Morphology Workshop’ at the August 2010 Stellafane Convention in Springfield, Vermont. See Lunar Photo of the Day (LPOD) 6 Aug 2010 at: <http://lpod.wikispaces.com/August+6.+2010>. (Accessed 2013-07-30). He also gave this presentation in November 2010 at a Southern Cross Astronomical Society meeting, Miami, Florida. Also Personal communications with T. Dobbins, 2011-2012.

Supplement Revision History

- 2013-08-04 Original posting
- 2013-08-22 “*Confirmation*” clarification in *S&T*, on p. 3. See ref. 14
- 2013-08-23 Elaboration on Hall’s request to Urey in “*Conclusion*” on p. 5