ISSN 0917-7388

COMMUNICATIONS IN

CMO Since 1986

MARS

No. 442 extra issue

10 January 2016

OBSERVATIONS

No.68

Published by the International Society of the Mars Observers

With Best Wishes for the New Year
& the 2016 Mars Apparition

CMO/ISMO Editors

New Year on Mars: 2016

By
William P. SHEEHAN

This year, 2016, will be of compelling interest for observers and students of the Red Planet.

On Mars itself, the droll Curiosity rover, three years after landing in 96-mile wide Gale Crater, once the site of water-filled lakes, continues to make discoveries about the surface of the planet. Currently it is climbing up three-mile-high Mount Sharp,

exploring sedimentary silicate rocks that attest to the continuing action of liquid water even after the lakes dried up.

Meanwhile, Earth-based Mars observers have a better-than-average opposition to look forward to. Already, at the time of writing (December 18, 2015), Mars's 4" of arc disk is showing detail (refer to CMO/ISMO 2016 Mars Gallery). By early January, its disk will be 6", and by April 17 it begins to make a retrograde loop east of M80, the globular cluster in Scorpio (passing within 1.3 degrees of that object on May 7). Opposition occurs on May 22, with Mars presenting an 18".6 disk. Its large apparent size is partly mitigated by its far-southerly declination, though in compensation, in late August Mars passes close by its rival—Antares—a fetching naked-eye spectacle. It will be less than 2 degrees from Antares (but outshining the latter by 1.4 magnitudes) August 22-27, when it also lies close to the globular cluster M4.

The present writer—who is currently in the process of reestablishing his residence full-time in Flagstaff—is hoping to observe the opposition with the newly refurbished 24-inch Clark refractor at Lowell Observatory, the same telescope used by Percival Lowell to observe the last opposition of Mars

during his lifetime, that of February 10, 1916, when the planet's maximum apparent diameter never exceeded 14".0 of arc. Lowell, overworked, discouraged and depressed—not least by the failure to find "Planet X," the trans-Neptunian planet which was the obsession of his later years and subject of his "Memoir on a trans-Neptunian planet," published in September 1915—died late on the evening of Sunday, November 12th, after suffering a massive stroke.

The centennial anniversary of Lowell's passing will be marked by a number of events, including a conference at Lowell Observatory (co-sponsored by Northern Arizona University) in September or October, which will include a full conference proceedings. The present writer is hoping to write up Lowell's last year—which includes not only his observations of Mars at the February 1916 opposition, but his lecture tour of Canada and the Northwestern United States, his interesting paper "The Genesis of Worlds," and his dogged observations of the Galilean satellites and the fifth satellite of Jupiter, tiny Amalthea, which he was observing with Earl C. Slipher the night before he suffered his stroke. Since the advance of the apsides of Amalthea is 900 degrees a year, the tiny satellite serves as an excellent probe of the gravitational potential of the oblate giant planet around which it moves—and Lowell was attempting to use it, as he had previously used the minute divisions of Saturn's rings, to determine the internal structure of the giant planet. His work was inspired—but unfortunately he did not live to see it through to its conclusion.

Amalthea, then, happens to have been the last object in the Solar System Percival Lowell studied before his death 100 years ago. It may well be that the notoriously faint satellite has not been seen in the Clark refractor since Lowell's death—but with its optics brightened and mechanical apparatus improved we hope to catch sight of it again this year.

Amalthea was of course discovered by E. E. Barnard, using the 36-inch refractor of the Lick Observatory on September 9, 1892. It turns out that two months after this discovery, Barnard, now an internationally recognized celebrity, was lecturing in San Francisco. From some reason he brought his volume of the *1892 American Ephemeris and Nautical Almanac* with him. This is the same volume he must have had at his side on the magical night when he discovered the fifth satellite. It turns out that Percival Lowell was in San Francisco as well, staying in the Palace Hotel, before shipping out to Tokyo on his fourth (and last) voyage to the Far East. (This was the trip on which, famously, he brought with him the 6-inch Clark refractor later used to test sites that led to the decision to place the observatory in Flagstaff.)

When I retired from medical practice in October, Richard Schmidt, a retired astronomer at the U. S. Naval Observatory in Washington D. C., marked the occasion by presenting me with an extraordinary gift: the very volume of the *American Ephemeris and Nautical Almanac* that Barnard had with him on the night he discovered Amalthea (some of his notes were recorded on that very night). The front bears his inscription, "Barnard 1891," and on the next page Percival Lowell, in his unmistakable hand, has penciled his own name, Boston address, and forwarding address in Tokyo. This inscription records the encounter of two giants in planetary astronomy—one already world famous, the other about to be.

I wonder if, on the night of November 11~12, 1916, while Lowell and E. C. Slipher pursued their tiny satellitic quarry in the field near Jupiter, Lowell glanced back at the meeting with the discoverer that had taken place some 23 years before.

Whether he did or no, I like to imagine their meeting, and it sends shivers down my spine to hold in my hands the very same volume that E. E. Barnard and Percival Lowell once held in theirs. --(Dec. 18, 2015)

Forthcoming 2016 Mars (#06)

The Apparition of Mars in 2016. II

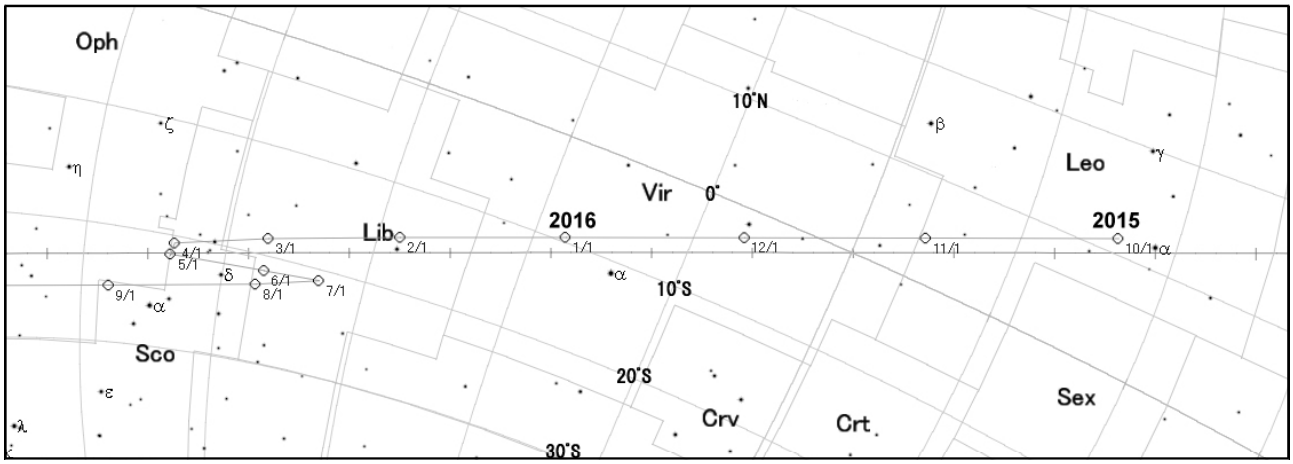
How Does the Planet Mars Move among the Zodiac Constellations in 2016?

By

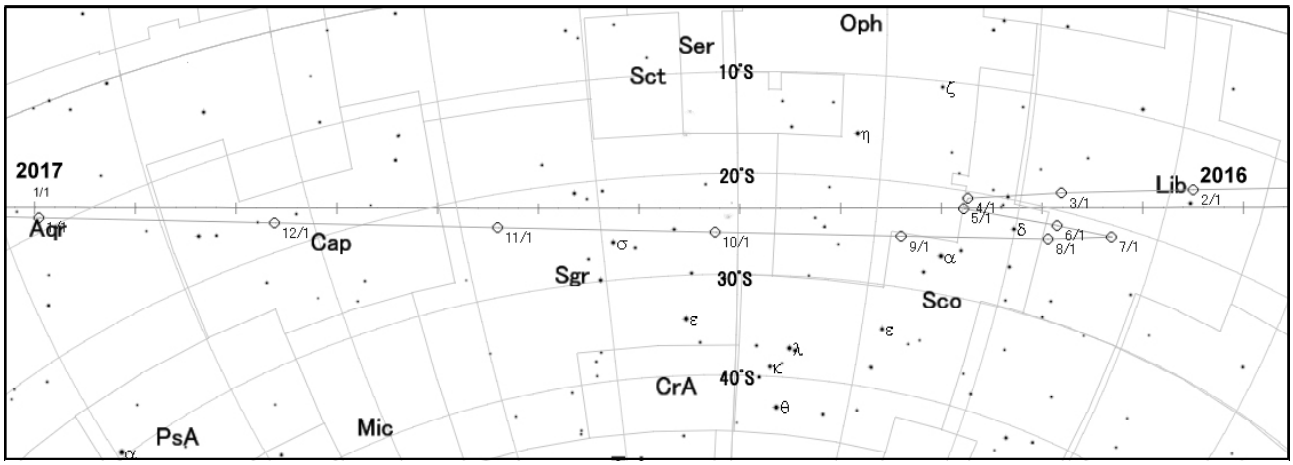
Masami MURAKAMI

WE shall here show how the planet Mars in 2016 makes a prograde motion or a retrograde one on the celestial sphere. To show the motions we employ two kinds of the star maps. One is to trace the motion of the planet Mars in 2016 by the ecliptic system. The other is based on the equatorial system where the celestial equator plays the principal role. The former shows how the planet Mars moves near the ecliptic, that is, the zodiac, and so it is rather easy to see the motion of the planet along the 12 ecliptical constellations.

The latter is useful in checking the relative altitude of the planet. We here first show ecliptic maps, by dividing it into two pieces.



This and the next figures correspond therefore to some descriptions in a previous article (Part I) in



CMO #439. For example, we wrote in it:

"At the beginning of 2016, Mars is still located inside the Virgo constellation, and it rises in the east after midnight. On 1 January (when δ=5.6", λ=089°Ls, ϕ=20°N), the Martian season is just before the northern summer solstice (λ=090°Ls), and the tilt is quite upward so that it may be possible to catch the residual north polar cap. As February comes in, the planet will proceed into the Libra constellation. The western quadrature occurs on 7 February."

"At the beginning of April, the planet is located near the common boundaries of the Scorpio and Ophiuchus constellations, becomes stationary on 17 April and then will begin to retrograde towards the celestial west."

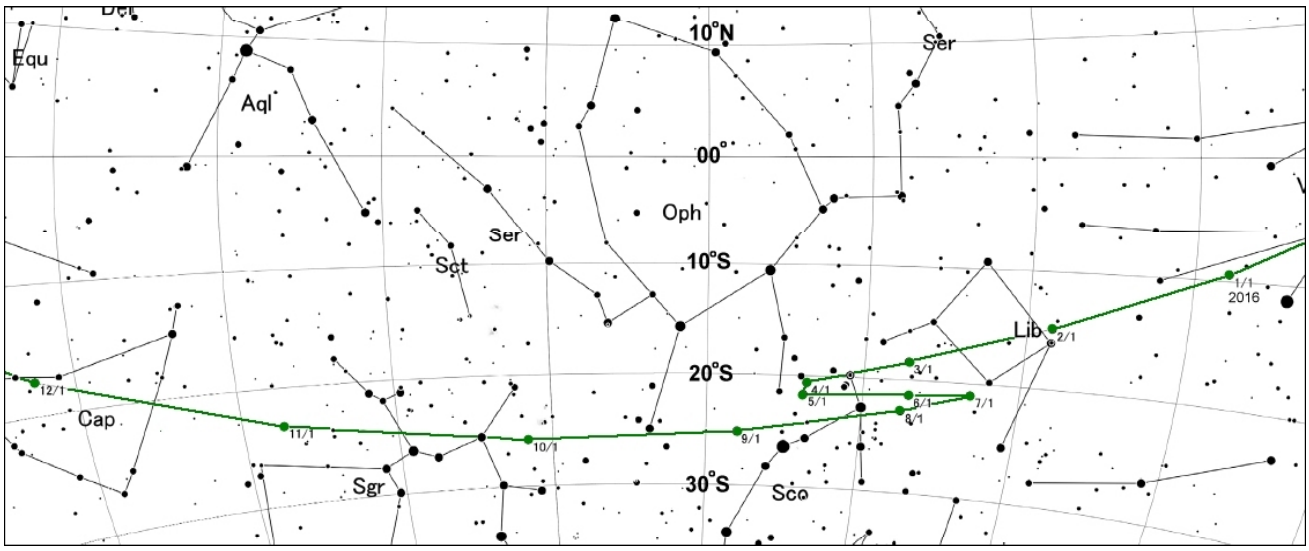
"In June the planet still continues to retrograde into the Libra constellation, and on 30 June it becomes stationary again. Then it makes a prograde motion towards the Scorpion constellation."

"It will be notable that the locus of the planet Mars will trace an *S*-shaped orbit on the celestial sphere from March to August: That is, during the period the celestial longitude of the planet does not change so much. On the other hand the apparent declination will be deepened. At the beginning of August the apparent diameter will become one size smaller and the data reads on 1 August such that (δ=13.0", λ=196°Ls, ϕ=13°N). The planet *Ares* approaches Antares on 24 August at 4h GMT and will pass through the north side of *Antares*, separated by 1.8°. On 25 August at 18h GMT, Mars will pass through 4°S of the planet Saturn. In September, Mars will go to the southern part of the Ophiuchus constellation, and around on 24 September (δ=9.1", λ=229°Ls, ϕ=0.1°N) the apparent declination will reach the bottom (if seen from the Northern Hemisphere) and reads 25°54.5′S "

"The planet will then enter the Sagittarius constellation, and the apparent diameter goes down to 8″ on 19 October such that (δ=8.0", λ=244°Ls, ϕ= 8°S). At the beginning of November the planet proceeds to the Capricorn constellation, and in mid-December to the Aquarius constellation, and thus the planet Mars will be receding from us."

On the other hand, the second kind of star map in equatorial system shows us visually how the planet Mars will lower terribly the altitude in 2016 if seen from the observers living on the Northern Hemisphere.

The figure at the top of the next page clearly shows that the planet will be deeply lower in July, August and September 2016 if observed from the Northern Hemisphere. As was said before "the apparent declination D will reach the bottom (if seen from the Northern Hemisphere) and reads 25°54.5′S" on 24 September. However for the observers who observe Mars from the Southern Hemisphere, this opportunity in 2016 is a stroke of luck. The angular diameter reads still δ=9.1" on 24 September 2016!



CMO/ISMO 2016 Mars Report #02

2016 Mars Observations in December 2015

♂・・・・・In December 2015, the planet Mars moved in the Virgo constellation. From October, Mars at the morning sky was located near the planets Venus and Jupiter, but gradually they were away from each other, and the apparent declination of Mars D in December went down from 3°S to 9°S at the end of December. Mars passed the north of Spica by 4° on 21 December. Mars's apparent diameter went up from δ=4.8" to δ=5.6". The Martian season proceeded from λ=075°Ls to λ=089°Ls. The tilt (or central latitude) moved from ϕ=24°N to 20°N, still showing well the residual north polar cap (npc). The phase angle was up from ι=30° to 34°.

♂・・・・・We received a total of 29 observations with thanks from seven observers as follows:

AERTS, Leo *(LAt)* BELGIUM

1 *B&W* Image (8 December 2015) 30cm Cassegrain

FOSTER, Clyde *(CFs)* Centurion, SOUTH AFRICA

3 Sets of RGB + 6 *IR* + 1 *R* Images (1, 5, 11, 17, 19, 22 December 2015)
36cm SCT @*f*/22 with an ASI 224MC

MELILLO, Frank J (*FMl*) Holtsville, NY, the USA

1 *R* Image (5 December 2015) 25cm SCT @ *f*/20 with a Starlight Xpress

MORALES RIVERA, Efrain (*EMr*) Aguadilla, PUERTO RICO

6 Sets of *RGB* Images (11, 21, 23, 26, 28, 29 December 2015) 31cm SCT with a Flea 3

MORITA, Yukio (*Mo*) Hatsuka-ichi, Hiroshima, JAPAN

9 Sets of *LRGB* Images (1, 6, 8, 19, 29, 30 December 2015) 36cm SCT with a Flea 3

VALIMBERTI, Maurice *(MVl)* Melbourne, AUSTRALIA

1 *IR* Image (29 December 2015) 36cm SCT @*f*/20 with an ASI 120MM

♂・・・・・ We further received an earlier observation from

SUSSENBACH, John S *(JSb)* Houten, the NETHERLANDS

1 *Colour* + 1 *IR* Images (2 November 2015) 36cm SCT @*f*/22 with an ASI 224MC

♂····· This time we shall review the observations in chronological order:

1 December 2015 (λ=075°Ls~076°Ls, δ=4.8")

Clyde FOSTER (CFs) took an IR image at ω=045°W. The description around M Acidalium looks favourable: Niliacus L appears classical and Nilokeras looks isolated. More northerly, Hyperboreus L is dark adjacent to the north polar cap (npc). On the contrary, the southern limb side is badly shadowy without graduation, though the northern part of Margaritifer S and Auroræ S are well recognised, and Ophir is light.

Yukio MORITA (Mo) produced a good LRGB image at ω=304°W. Syrtis Mj appears prominent while S Sabæus is slightly coarse. The R image is nice to show a bit of Hellas. The northern markings are dark though not well decomposed.

5 December 2015 (λ=077°Ls~078°Ls, δ=4.8"~4.9", φ=24°N)

CFs obtained two images: one at ω=012°W (by IR685) and the other at ω=014°W (by R610). The former shows a more contrast, though as to the degree of description they are equal. The shape of M Acidalium near the morning limb looks charming, and Indus seems apparent. Oxus is also partly visible. From the area between Margaritifer S and Auroræ S a shadowy band goes down to Chryse. These fine structures can be compared with those on **Damian PEACH (DPc)**'s image produced on 19 February 2012 at ω=017°W, ϕ=23°N where Indus is normally visible.

Frank MELILLO (FMl) obtained a small R image at ω=175°W. This is compared with **DPc**'s image on 8 March 2012 at ω=184°W to find what markings are fixed around there.

6 December 2015 (λ=078°Ls, δ=4.9")

Mo gave a one set of images at ω=255°W. The RGB image is better (than LRGB). Syrtis Mj and Utopia are dark evident. On G and B images, the southern limb looks lighter. Around at the time λ=080°Ls, the spc very expands to the direction of Hellas (noted from the season λ=050°Ls around to λ=150°Ls).

8 December 2015 (λ=079°Ls, δ=4.9")

Leo AERTS (LAt) gave an image at ω=017°W (sent from Bill SHEEHAN). This shows a fair description of the area of M Acidalium. Note the **DPc** image on 19 February 2012 above mentioned was just taken at ω=017°W, so should be compared.

Mo took a set of images at ω=238°W: These are rather satisfactory because the disk is rich in light and shade. Near the evening terminator Elysium is white. The coming Syrtis Mj also shows a light-bluish tinge. In the R image, the light area of Elysium and Cebrenia makes a form of a large nipper (which pinches the Ætheria Dark Patch). M Cimmerium and Utopia are fairly shown. The morning Hellas is a bit light.

11 December 2015 (λ=080°Ls, δ=5.0")

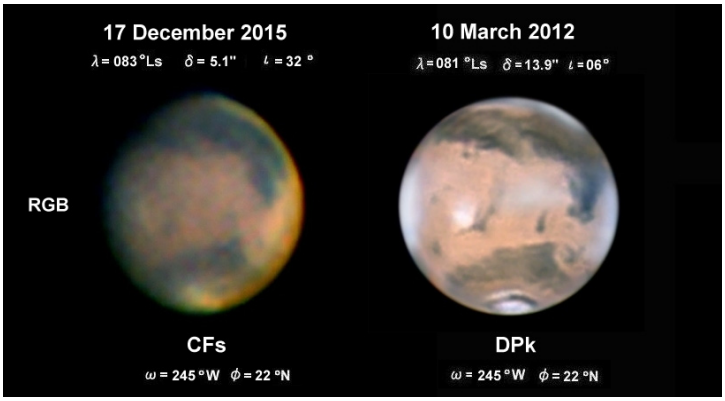
CFs obtained a colour image at ω=310°W. He used an ASI224MC camera. The R image and IR image look similar, and the morning S Meridiani is dark. The area of M Serpentis also looks to suggest an interesting piece of information already. M Acidalium is just coming in, in a bluish tinge because of a morning mist. G and B show the npc white patch so that the npc in colour looks stable.

Efrain MORALES (EMr) took a set of images at ω=054°W. M Acidalium is traceable on the afternoon side, but the images are dull in general and even the npc looks not to stand out.

17 December 2015 (λ=082°Ls~083°Ls, δ=5.1"~5.2", φ=22°N)

CFs observed at ω=245°W. The R image looks to enclose some details, but the B image looks very coarse as if the raw images are deficient, so that the composed colour image looks rather dirty. However the R image shows some spectacular descriptions. Syrtis Mj is described in some details.

We are now in a position to compare **CFs**'s images with **Don PARKER (DPk)**'s images produced on 10 March 2012 at ω=245°W (when ϕ=22°N and δ=13.9"). The comparison soon makes us recognised that the west coast of Syrtis Mj may suggest a new feature. The description in R of Utopia by **CFs** is also favourable, though the area around at Nodus Alcyonius is blurred. Even then some parts of M Cimmerium and M Tyrrhenum are reproduced in spite of the tiny 5.1 arcsecond diameter. Compared with **DPk**'s images, the inferior points are ascribed to the G and B images of **CFs**. Because of this inferiority, for example, the whiteness associated with Elysium Mons does not show up, and the description of the white npc in the colour composite fails (we therefore employed here an RGB image made by us. The original one is found from the URL below or in our Gallery). It is expected that if the inclusions of the G and B images are treated more exquisitely, the composite images will be much improved even if the angular diameter is tiny.



19 December 2015 (λ=083°Ls~084°Ls, δ=5.2")

CFs took a set of images at ω=228°W. R is good, but the B image must be so poor that the whiteness of the npc is not reproduced. The IR image looks more diluted in resolution power than the R image.

Mo took two sets of images at ω=133°W and at ω=143°W. However they are all dull to the extent that the npc does not well show up.

21 December 2015 (λ=084°Ls~085°Ls, δ=5.2"~5.3")

EMr took L, R, G, B images at ω=323°W. M Acidalium is good-looking, slightly bluish, near the morning limb. S Sabæus and S Meridiani are seen dark. Syrtis Mj is conspicuous near the evening terminator.

22 December 2015 (λ=085°Ls, δ=5.3")

CFs gave an IR685 single image at ω=193°W. It looks there are many noises, though some features appear.

23 December 2015 (λ=085°Ls~086°Ls, δ=5.3")

EMr gave a set of images at ω=298°W: Syrtis Mj is now considerably inside the disk. S Sabæus is beautiful in light-blue. The npc looks off-white because of an inferior B image.

26 December 2015 (λ=086°Ls~087°Ls, δ=5.4")

EMr gave a set of images at ω=270°W. Syrtis Mj is definite with a bit light Hellas. The area of Utopia shows a light and shade. The area of the npc, outside and inside, is nicely shot and looks interesting.

28 December 2015 (λ=087°Ls~088°Ls, δ=5.4"~5.5")

EMr obtained a set of images at ω=246°W: The images except for R look rather poorer, while the bright Elysium is witnessed near the evening terminator.

29 December 2015 (λ=088°Ls, δ=5.5")

EMr shot at ω=240°W where Syrtis Mj moved to the morning side. The southern limb area is light in G and B, and so we may say G and B images are better, but the R image seems looser. Hellas seems to appear light near the morning limb.

Maurice VALIMBERTI (MVl)'s first observation in this apparition. The image reported is the one made at ω=356°W through an IR filter. The image looks mild and excellent. M Acidalium is nicely described, and the area of S Meridiani is clear and well separated from the area of Margaritifer S. The description of the inside of Chryse is also good. Indus is shown as well as Oxia P.

Mo first tried to obtain three sets of images successively at ω=034°W, 038°W, and at 043°W. Judging from the aspect of the npc, the first set looks more favourable. The aspect of the southern hemisphere is a bit shown up. It is also suggested from all the images that the area of Chryse is higher in luminance. However the details of such markings as M Acidalium are not described.

30 December 2015 (λ=088°Ls~089°Ls, δ=5.5")

Mo obtained a set at ω=034°W. This angle came from the preceding day to compare (this is important when something extraordinary happens). The existence of M Acidalium is sure near the CM, but it remains still without details, mostly because of the dismal weather of Japan at this season. The description of the southern continent is dull. It looks the treatment of the L image is poor.

We further received: An IR image and another IRRGB image from **John SUSSENBACH (JSb)** who produced these on 2 November 2015 (λ=063°Ls) at ω=359°W: M Acidalium is located on the morning side and S Sabæus is visible half at the evening side. Margaritifer S is also definite, and Indus looks also apparent. http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151102/JSb02Nov15.jpg

---

LAt
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151208/LAt08Dec15.jpg

CFs
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151201/CFs01Dec15.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151205/CFs05Dec15.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151211/CFs11Dec15.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151217/CFs17Dec15.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151219/CFs19Dec15.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151222/CFs22Dec15.jpg

FMl
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151205/FMl05Dec15.jpg

EMr
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151211/EMr11Dec15.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151221/EMr21Dec15.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151223/EMr23Dec15.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151226/EMr26Dec15.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151228/EMr28Dec15.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151229/EMr29Dec15.jpg

Mo
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151201/Mo01Dec15.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151206/Mo06Dec15.jpg

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151208/Mo08Dec15.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151219/Mo19Dec15.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151229/Mo29Dec15.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151230/Mo30Dec15.jpg

MVl

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151229/MVl29Dec15.jpg

(Masatsugu MINAMI and Masami MURAKAMI)

Letters to the Editor

●·····***Subject: Mars 17 December 2015 Colour***
Received: 18 December 2015 at 07:36 JST

Hi all, A colour capture from 17 December. Elysium and Hellas show as whitish. Possibly a bright spot (IR and R) at the tip of Syrtis Major? Best regards,

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151217/CFs17Dec15.jpg

○····***Subject: Mars 19 December 2015 Colour***
Received: 19 December 2015 at 15:50 JST

Hi all, A colour capture from this morning. Best

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151219/CFs19Dec15.jpg

○····***Subject: Mars 2015/12/22 0222UT IR***
Received: 22 December 2015 at 15:36 JST

Hi all, Unfortunately conditions were very poor this morning. Attached a single IR capture. Best regards,

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151222/CFs22Dec15.jpg

○····***Subject: RE:Mars 2015/12/22 0222UT IR***
Received: 22 December 2015 at 16:24 JST

Hi all, Forgot to mention that I will be visiting family in Durban from tomorrow until 27th, so will not be capturing any images over this period. May I wish you and your families a very happy, peaceful and restful Xmas. Best regards,

○····***Subject: Mars 2016/01/03 0236UT RGB***
Received: 3 January 2016 at 22:19 JST

Hi, all, An RGB image set from this morning, centered on the Tharsis Plateau. Possible cloud over Ascraeus Mons and also possibly Olympus Mons? Best regards,

○····***Subject: RE: Mars 2016/01/03 0236UT RGB***
Received: 3 January 2016 at 0:52 JST

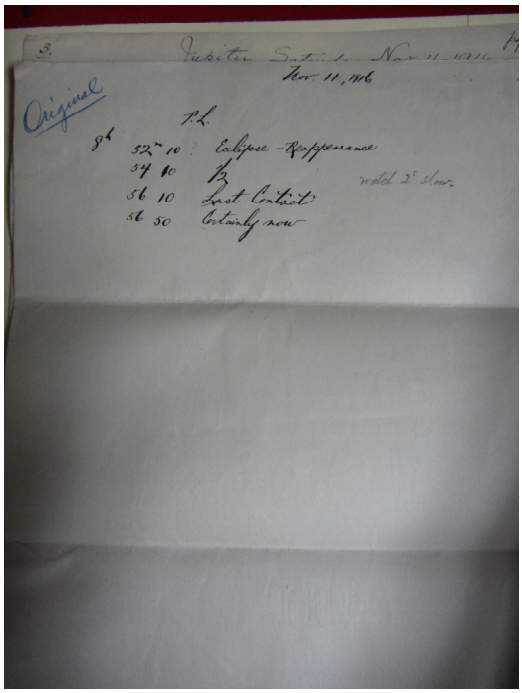
And of course, very best wishes to you all for the New Year. I am looking forward to the Mars opposition with great interest. Best regards

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160103/CFs03Jan16.jpg

Clyde FOSTER (Centurion, SOUTH AFRICA)

●·····***Subject: Last observation of Percival Lowell***
Received: 19 December 2015 at 07:33 JST

Dear Masatsugu, Here is the very last observation Percival Lowell made, of the fifth satellite of Jupiter? the penultimate line reads "Last Contact." The following morning he suffered a massive stroke.



Earl C. Slipher, who was observing with Lowell that night, squirreled this and other documents in a cigar box, and it was long forgotten until rediscovered 2 or 3 years ago by Mike Kitt who was sorting through things in the Slipher building prior to the opening of the Special Collections center.

○····***Subject: RE: questions for your note***
Received: 9 January 2016 at 17:25 JST

Dear Reiichi, Just got back from 3 weeks on the road--two weeks in Flagstaff, where I had a chance to use the newly refurbished Clark, and then in Florida, where I presented on "General relativity: the first

hundred years" at the American Astronomical Society meeting.

Let me first respond to your questions:

I think the phrase, "sends shivers down my spine," or "sends chills down my spine," precedes Bohemian Rhapsody. It describes that feeling one has when presented with something awe-inspiring. Perhaps Queen used it--did you know that Brian May is a keen astronomer?

The other is a bit flowery way of saying that Amalthea was very small and because of glare from Jupiter is more or less swamped out. Perhaps a better way of saying this would be, "the tiny satellite in the glare of the giant planet."

***One more thing that I want to communicate: in October of this year, 2016, we are hoping to put on a big conference on Percival Lowell in Flagstaff, which will lead to a conference proceedings (or some kind of book). We would very much like to have a Japanese person present about Lowell's travels, writings, and influence on Japan. Of course, I would most like to host you or Minami-san, but realize it may not be possible; however, when I was in Anamidzu in 2004, for the Mars Conference that was organized by my dear friend, I note there were also contingents from both the Percival Lowell Society and the Lafcadio Hearn Society, and failing either of you coming over, perhaps someone from those organizations would be interested in coming over.

Best for the New Year, 2016,

On Wed, Jan 6, 2016 at 9:59 PM, Reiichi KONNAÏ wrote to Bill:

Dear Bill, A Happy New Year! Sorry to be late, but I'd like to say thank you for your warm mail at my wife Reiko's passing away last fall. I am now awfully busy as an auditor of our prefecture's dentist's association, have no time to cry!

I have just finished translating your New Year on Mars: 2016 Note for CMO#442 Japanese version.

I'd like to direct you some questions on your possible punning/quotation in your note to refine (if I can) my translation:

1) In your last sentence, I think, your soul must have gone wandering back to San Francisco where two giants met in person some 123 years ago: Is the phrase "sends shivers down my spine" from "Bohemian Rhapsody"? ...we have many many Queen fans in our country!

2) In the previous sentence, "their tiny satellitic quarry in the field near Jupiter" is a metaphor as a field where the tidal force of Jupiter is strong enough to break larger satellites into pieces, from which they can extract the tiny Amalthea?

I really envy you that you'll have many opportunities to observe Mars with the refurbished famous refractor! Good Health, Good Seeing with Excellent Telescopes! **Reiichi KONNAÏ**

Bill SHEEHAN (MN→ AZ, the US)

●·····***Subject: Mars - December 21st***
Received: 23 December 2015 at 01:32 JST

Hi Mr. Masatsugu and all!, Here is my latest session of mars on december 21st. Merry christmas to All!.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151221/EMr21Dec15.jpg

○····***Subject: Mars - December 23rd, 26th, 28th and 29th***
Received: 1 January 2016 at 09:10 JST

Hi Mr. Minami!, A Happy New Years to you and group!. Here are some images taken on December 23, 26, 28, 29th.

○····***Subject: Mars - January 5th***
Received: 7 January 2016 at 01:04 JST

Hi Mr. Masasutgu and All!, Here is my latest session from january 5th at average conditions.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151223/EMr23Dec15.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151226/EMr26Dec15.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151228/EMr28Dec15.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151229/EMr29Dec15.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160105/EMr05Jan16.jpg

Efrain MORALES (Aguadilla, Puerto Rico)

●·····***Subject: Mars 02 November 2015***
Received: 26 December 2015 at 17:33 JST

Dear Sirs, Enclosed find my first Mars image of this apparition. Regards,

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151102/JSb02Nov15.jpg

John SUSSENBACH (Houten, The NETHERLANDS)

●·····***Subject: Tr: Mars-CME***
Received: 30 December 2015 at 21:45 JST

Dear Masatsugu, Here is an alert on Mars that could interest CMO/ISMO observers.... Best wishes,

---

Message du : 30/12/2015 12:24
De : "Agustin Sanchez Lavega "
A : "Marc Delcroix", "Christophe Pellier" .....
Subject : Mars-CME; Alert on Mars limb observations:

Dear observers, In December 28th a Solar flare M1.9 and a CME occurred on the Sun. Models of CME propagation indicate that the CME edge could reach Mars between 1-2 January. Currently Mars is at λ = 090°Ls which is the season when the 2012 March plume was observed by amateur astronomers in Terra Cimmeria region, as we reported in *Nature* this year. Recently it has been proposed that a CME

could be behind the plume origin. For these reasons I think important to look the region of interest on Mars these days in spite of the difficult observing conditions on the planet. Thank you very much. Regards

Prof. **Agustin Sanchez-Lavega**, UPV-EHU

Christophe PELLIER (Nantes, FRANCE)

●·····***Subject: Mars in IR 29th December 2015***
Received: 31 December 2015 at 19:19 JST

Good evening to all at the CMO! Please find attached an image of Mars taken on the 29th December UT in IR passband. Hopefully this is the first of many for me for the forthcoming 2016 apparition.

Happy new year to all. Best wishes

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151229/MVl29Dec15.jpg

Maurice VALIMBERTI (Melbourne, AUSTRALIA)

●·····***Subject: 01～30 Dec_15***
Received: 1 January 2016 at 18:14 JST

A Happy New Year! I wish you all the best for the year and the 2016 apparition of Mars.

Please find attached my images taken in December 2015 which I just got through. Best regards.

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151230/Mo30Dec15.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151229/Mo29Dec15.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151219/Mo19Dec15.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151208/Mo08Dec15.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151206/Mo06Dec15.jpg
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/151201/Mo01Dec15.jpg

Yukio MORITA (Hiroshima, JAPAN)

●·····***Subject: Mars images***
Received: 8 January 2016 at 21:46 JST

Dear Sirs, Please find the attached Mars image set from the 6th January. Set taken in good seeing. Best regards,

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2016/160106/MJs06Jan16.jpg

Mark JUSTICE (Melbourne, AUSTRALIA)

●·····***Subject: RE: RE: questions for your note***
Received: 9 January 2016 at 17:25 JST

Dear Bill, Thanks a lot for your detailed English language teaching. I can refine my translation of your Note for CMO n°442 Japanese version!

Yes, I know well the legendary rock guitarist Brian May defended his PhD thesis in Astrophysics at the Imperial College London (where Dr. M. Minami had studied). The stereo image pair of Pluto he arranged as a science team collaborator with NASA's New Horizons Pluto mission was great! (Please refer to my LtE dated 3 August 2015 in CMO n°437.)

Quite unfortunately, I'll be too busy in this coming fall in conducting (almost every day!) audits on our Dental Association's accounts to attend your Lowell Conference. Best wishes.

Reiichi KONNAÏ (Fukushima, JAPAN)

☆ ☆ ☆

International Society of the Mars Observers (ISMO)

Advisory Board: **Donald PARKER † , Christophe PELLIER, William SHEEHAN, and Tadashi ASADA, Reiichi KONNAÏ, Masatsugu MINAMI**

Bulletin: **Kasei-Tsûshin CMO** (**http://www.mars.dti.ne.jp/~cmo/ISMO.html**)

CMO n°442/ ISMO n°68 (10 January 2016)

Editorial Board: **Tadashi ASADA, Masatsugu MINAMI, Masami MURAKAMI, Takashi NAKAJIMA and Akinori NISHITA**

☆ *Any e-mail to CMO/ISMO including the image files is acknowledged if addressed to*

cmo@mars.dti.ne.jp (Masami MURAKAMI in Yokohama)

vzv03210@nifty.com (Masatsugu MINAMI at Mikuni-Sakai, Fukui)

☆ *Usual mails to CMO are acknowledged if addressed to*

Dr Masatsugu MINAMI, 3-6-74 Midori-ga-Oka, Mikuni, Sakai City, Fukui, 913-0048 JAPAN