

MARS

No. **414**

25 September 2013

No. **40***Published by the International Society of the Mars Observers*

**The Great Opposition of 2003: Ten Years Later,
From the Personal Notebook**

Of

William P SHEEHAN

On August 28, 2003, Mars not only came to a perihelic opposition, one of the 15- or 17-yearly events that serve to punctuate the lifespan of the avid Mars observer, but it came to an exceptionally favorable opposition in which the planet's approach to the Earth was slightly closer than at any time since before the Upper Paleolithic.

Minami-san having asked me to contribute something for CMO/ISMO, and having recently been looking through the notebook I kept in 2003, I thought to excerpt some of the passages for the possible amusement of the reader, in the hope that it might evoke again some of the themes and excitements of the Great Opposition. For me, it will always be remembered as the occasion when I had two weeks of unrestricted access to the 36-inch refractor at Lick Observatory, and in collaboration with Tony Misch and Rem Stone, astronomers on Mt. Hamilton, and Laurie Hatch, a remarkably gifted artist and photographer used the grand old telescope to make a series of visual observations of the

red planet as has been described on the web site "Two weeks on Mars" which is accessible at:

<http://mthamilton.ucolick.org/public/TwoWeeksOnMars/>

The following notes reflect some of the thoughts and preoccupations that were swirling around behind the scenes, as the author recouped and gathered thoughts and impressions in a hermetic retreat beneath the 120-inch Shane telescope dome.

August 28, 2003.

I went out to Granite Falls yesterday (for work), then drove to the Cities where I gave a talk on Mars for the Minneapolis Planetarium Society. Now on the flight to San Jose.

"The Eye of Mars" (Solis Lacus) should be on view tonight, and the HAD-CAM on Mt. Hamilton showed horsetail clouds last evening; typically, a harbinger of good seeing. The Mars dust clouds which threatened in early July seem to have dissipated, though they did scatter a thin veneer of dust that decreased the contrast of the albedo features.

There has not been a global dust storm so far as some had predicted. Now I look forward to a golden time, with the clutter of interviews, work, and preparations of travel behind me, with Mars, and among astronomers living in their "eeyrie" far from the madding crowd.

On the plane, I'm reading Bruce M. Ross, *Remembering the Personal Past*: "One needs to acknowledge that one's memory, at a given time, of the specific events (past events) that are the origins of and subjects of one's personal memory continue to be revised-adapted-modified throughout the lifespan. The memory - or one's memoir based on it - is one in a series of 'drafts' it's a work-in-progress.

"The professional historian and the psychologist of personal memory are both faced with the serious problem of verification. Historians have uncovered fallacies in relation to determining what actually happened' that have their counterparts in long-term memory research." [One reason why reviewing one's notes written at the time of an event is a useful aid in recalling what actually happened.]

At 5.15 p.m.

I arrived in San Jose after a flight marred only by the presence of some loud and obnoxious males sitting - and standing - in the aisles, and at times directly behind me.

Tony Misch picked me up at the airport, and we had a great afternoon (joined by Rem Stone). A number of wild fires are burning in the area around the mountain-east and southwest. There are low-lying clouds in the Santa Clara Valley - smog over San Jose - but

here on Mt. Hamilton, clear blue skies and not a breath of wind. My room is below the Shane telescope. It's extremely satisfactory - a monastic abode, and utterly quiet and still; a place for profound meditations.

I'm here, in a perfect place, in perfect weather, haunted by the ghosts of legendary observers (like E. E. Barnard) and doing what anyone, even the professional astronomers up here, would do if they could - look with their own eyes through the big telescope at the red planet, Mars!

Tony Misch is professionally trained as an artist. He's gifted, and has been drawing Mars. He saw Olympus Mons on a couple occasions as a white patch. He also remarked - and this recalls what Schiaparelli said in 1877 - that there must be clouds in the Northern Hemisphere of Mars; there seem to be no details. Of course I have an explanation for that. The dust storms have left a thin veneer of dust, which have decreased the intensity of albedo features. But also - and this is important - the eye is more sensitive to gradations of tone in darker-hued areas than in lighter ones, which helps to explain why the dark areas may break up into a leopard-skin of delicate spots while the brighter areas remain almost a blank.

Tried to relax for a while; without success. The mood of anticipation is too great. As the sun set, wild fires burned in the distance - Mars rose above an orange glow in the eastern sky like something out of "War of the Worlds." The Moon was a slender crescent. Venus 5 degrees above the horizon - it was my first glimpse of it emerging from superior conjunction.

{Later} Back in room beneath the Shane

dome at 3:45 a.m.

What a magnificent world is Mars!

It's brighter than Jupiter now, and seems goldenly splendid through the shutter of the dome, the sky's "lord-paramount" (as Walt Whitman called it in 1877).

Solis Lacus was on view. The Valles-Marineris was visible as the Coprates "canal," and the whole region broke up into intricate beads on threads. I could well understand how in 1892 W. H. Pickering, from Peru, could have imagined he was seeing forty lakes. The more one looked, the more one realized just what kind of world Mars is. It is windswept, streaked, spotted, but not artificial. (One could see the basis of the canal-and-oasis masquerade in the intricate details that actually streak and dot the surface).

The steadiness of the seeing over hours was exceptional even for this mountain. We enjoyed views better than any Barnard got in the 1890s when the telescope was new (the objective was refigured in the Santa Cruz optical shop a few years ago, and among other things the crown and flint elements of the lens were reversed. Sea salt in the air had considerably crazed and degraded the lens, but now it's optically perfect - better than the figure Alvan Clark gave to it in the 1880s).

The air was exceptionally steady - I wondered whether it wasn't because of the wild fires, injecting a thin layer of dust into the atmosphere and stabilizing it, and recalled that in 1889, E. E. Barnard got his best views of Venus under just such conditions, when wild fires were burning around Mt. Hamilton at that era. He made specific note of it at the time.

August 29.

Some thoughts on drawing Mars. I've been reading John Ruskin, *Elements of Drawing*, and the following seems apt:

"Nearly all expression of form, in drawing, depends on your power of gradating delicately; and the gradation is always most skillful which passes from one tint to another very little paler.... The perception of gradation is very deficient in all beginners (not to say, in many artists), and you will probably, for quite some time, think your gradation skillful enough, when it is quite patchy and imperfect...."

"When your eye gets keen, you will see gradations in everything."

10 pm.

The wind has picked up from the east, and this afternoon and evening ash has been blowing across the mountain. This means we can't open the dome at all, for fear that some of the ash will end up on the objective. (I could tell that the possibility of a live ember being flung onto the mountain and causing a fire was weighing heavily on Rem Stone's mind.)

We couldn't observe, alas, and rather than retire to bed, which would have been pointless - not least because I'm trying to acclimate myself to a nocturnal schedule - I've started reading Kai Bird's, *The Color of Truth*, a biography of the Bundy Brothers (McGeorge and Bill Bundy). They were Percival Lowell's great-nephews; their grandmother, Katherine, was one of Percival's sisters. I see a lot of similarities in personality and intellectual style between Percival and Mac Bundy.

The following passage from Kai Bird is of interest {*ed. note*: August 2003 was just months after the US invasion of Iraq got underway, and what was going on there was still very much weighing on everyone's mind. One no longer remembers that the year of Mars's favorable opposition was also a year of war}:

"The Bundy saga is an emblematic story of the American Century. Smart and gifted, this Boston Brahmin family endowed their sons with all the privileges and opportunities of the American establishment.... Both were educated at Groton and Yale, and both were extraordinarily clever boys.... McGeorge - at the age of twenty-eight - had edited Henry Stimson's memoirs, *On Active Service in Peace and War*. Published in 1948, just as the Cold War was unfolding, the book became a bible of the establishment's worldview....

"In 1949, having established himself as an up-and-coming young policy intellectual, McGeorge Bundy began teaching government and world affairs at Harvard.... At the precocious age of 34, he was appointed dean of Harvard's Faculty of Arts and Sciences.

"When John F. Kennedy occupied the White House in 1961, intellectuals who had demonstrated a political instinct for what Arthur Schlesinger, Jr. called the 'vital center' suddenly found themselves being courted by politicians. As Henry Kissinger put it with wry understatement, 'professors for the first time moved from advisory to operational responsibilities.'

"As anti-communist liberals - and particularly as men steeped in Stimsonian internationalism - the Bundy brothers were instinctively goaded to meet any Cold War crisis

with the threat of military force... The Bundys and other architects of Lyndon Johnson's war thought they could so calibrate their intervention against Vietnam's nationalist, anti-colonial revolution that America could be seen by the rest of the world to be taking a stand against communist-directed wars of national liberation.... Ultimately, much of America's foreign policy in the post-World War II era can be traced back to the Stimson Doctrine of the early 1930s: America could and should intervene unilaterally and impose peace on the world."

[I'm reading this partly for topicality - the War in Iraq, not yet clearly and definitively a disaster - was much on everyone's mind, as was the "intelligence" that connected the dots to provide the "weapons of mass destruction" rationale for the US-led invasion. There's some similarity to the "intelligence" involving Mars that led to connecting the dots into the canals, as I wrote for a talk that was given at Harvard on Opposition Night and was later published in CMO. But I'm also exploring - through his great nephews - Percival Lowell's personality, and the role that played in how he envisaged Mars. Consider the following statement, quoted by Bird, *Color of Truth*, p. 36, by Mac and Bill Bundy's sister Hattie:]

"Mother [Elizabeth Lawrence (Putnam), Percival's niece]... was quite peppery, strong in her arguments and quicker to judgment.

"Mother's sense of righteousness was very deep, and so's Mac's. Mother always conveyed to us her profound belief in the clear difference between right and wrong... For her, things were black and white. It's an

outlook that descends directly from the Puritans, and we all have it."

Also [p. 50]: "Mac always displayed the sharper wit [of the two brothers], together with that sometimes abrasive Lowell decisiveness and the jarring self-confidence of a Putnam."

Mac Bundy's role in the Cuban missile crisis. Roswell Gilpatric was annoyed by Bundy's behavior. "I think he just grasped at this initial concept of a strike, and then formulated arguments in support of it. He tends to light initially on an absolute proposition... he's very intolerant of obfuscation and ambiguity and uncertainty."

Mac Bundy after the Gulf of Tonkin incident "sat listening to the intelligence briefings and doodling in his microscopic handwriting. He filled a page with his usual motif, a series of tiny rectangles firmly drawn in black ink. They were the doodles of a mathematical mind, creating a delicate image of geometric patches."

Note that Percival Lowell had some of the same characteristics, including "sometimes abrasive Lowell decisiveness" and "jarring self-confidence." One might say "he just grasped at this initial concept of life on Mars, and then formulated arguments in support of it. He tends to light initially on an absolute proposition.... He's very intolerant of obfuscation and ambiguity and uncertainty." And in his case, the doodles of a mathematical mind were drawings of Mars, also creating "a delicate image of geometric patches."

August 31. 5:20 a.m. I held up well for

about seven hours at the eyepiece - and Mars did not disappoint! The amount of detail was bewildering, and I had the telescope essentially to myself (Rem was with me part of the night, but he demands little). I was attempting to finish up my drawings - I've completed eight full disks on two nights on the telescope. The Valles Marineris was a remarkable sight - full of detail - but no one could have guessed what it was before the spacecraft era. It's a complex of lines and dots - especially, as I've said before, dots.

Mare Erythræum breaks up into dark and light masses - Solis Lacus, and Thaumasia Fœlix, are intricate, demanding studies for the artist's pencil or brush.

Not least of my pleasures has been looking at Mars as it glares down from the night sky as I return to the Shane dome (my sleeping quarters). It is glorious beyond description.

***Pondering a bit, on getting back to my monastic apartment, the differences in how different observers depict Mars. Some of the differences have to do with cognitive differences - and the capacity of various observers for "imagistic" thinking. "Images are important as an 'engineering' feature of the mind... as a memory aid and as a computational tool. Imagery is the functional ability to perform visually mediated tasks requiring internal, nonverbal representations. In retrospect, it appears that the better observers of Mars had memories that were hyper-imagistic (like Titchener's) rather than image - weak like William James's.

Lowell was prone to see things in black-and-white - maybe it was the puritan thing, as Hattie said of her mother, Percival's

niece - and to draw hard sharp lines, boundaries between areas of different shade. Ruskin has a wonderful discussion of this when discussing the exercise of his students drawing a sphere:

“If he makes the ball look as oval as an egg, the degree of error is simply pointed out to him, and he does better next time.... But

his mind is always fixed on the gradation of shade... No pupil in my class [is] ever allowed to draw an outline, in the ordinary sense. It is pointed out to him, from the first, that nature relieves one mass, or one tint, against another; but outlines none.”

Lowell would have failed Ruskin’s class!... □

ISMO 11/12 Mars Note (17)

NPC in Feb-Mar 2012 ($\lambda=066^\circ\text{Ls}\sim\lambda=082^\circ\text{Ls}$)
Compared with the Images by the MRO-MARCI

Masatsugu MINAMI & Masami MURAKAMI

This Note is a sequel to the preceding Note (16) in CMO #413, where we treated the aspects of the inside of the north polar cap (npc) during the season $\lambda=066^\circ\text{Ls}\sim\lambda=082^\circ\text{Ls}$ seen from the angles $\omega=160^\circ\text{W}\sim\omega=180^\circ\text{W}$; by focusing especially on Efrain MORALES (*EMr*)’s image produced on 11 February 2012 ($\lambda=069^\circ\text{Ls}$) at $\omega=173^\circ\text{W}$. Afterward we were informed that Reiči Konnaĭ (*Kn*) already compared *EMr*’s very image with a possible image obtained by the MRO-MARCI (Mars Reconnaissance Orbiter-Mars Color Imager) on the same day. This was published in the Japanese Web’s LtE in CMO #395 (25 March 2012) (received on 20 February 2012 00:12 JST). Since this is an interesting correspondence, we here try to further compare the details of some other ccd images employed in Note (16) with the possible MRO-MARCI image contents.

First we pick out *EMr*’s image on the following day, that is, his image on 12 February 2012 ($\lambda=069^\circ\text{Ls}$) at $\omega=159^\circ\text{W}$. Next we pick out Manos Kardasis (*MKd*)’s image on 8 March 2012 ($\lambda=081^\circ\text{Ls}$) at $\omega=154^\circ\text{W}$. Thirdly we compare Damian Peach (*DPc*)’s image on 12 March ($\lambda=082^\circ\text{Ls}$) at $\omega=178^\circ\text{W}$ with an MRO-MARCI image: The MRO-MARCI images were those extracted from the images shown in the MRO MARCI Weather Report in the following site:

http://www.msss.com/msss_images/subject/weather_reports.html

The comparisons are interesting not only concerning the npc aspects, but they also show us how we should regard the rotating images of the MRO-MARCI.

Figure 1 here is to show a correspondence between MORALES (*EMr*)’s image on 12 February ($\lambda=$



$\lambda=069^\circ\text{Ls}$) at $\omega=159^\circ\text{W}$ as noted above and a similar MRO-MARCI image on the same day. Notable on the side of the MRO-MARCI is that the inside of the npc looks different: The eastern side of the npc looks to have lost the details to be compared because the colour is too deeply brownish. This however may prove that the brownish part is really a kind of drift or fallout of the dust. The Korolev crater is not isolated in *EMr*’s image.

Note however that it is stupid to consider from this MRO-MARCI image that a very conspicuous white cloud governs a part of Elysium. This has been so from the era of MGS-MOC, but the composite images made from the narrow swaths or the stripes all taken in a similar time of the day (maybe

around 2h PM Martian time). That is, the globe looks to rotate, but we should not forget that it does never record the real time variations.

Just the aspect for example that a lengthy area along the northern boundary of M Cimmerium is dusty is real, and this corresponds to the yellowish light of the corresponding area on *EMr's* image. This suggests hence that we are allowed to regard such a light area on any image on our side as being covering by a dust disturbance.

Also, since the complex dusty markings of the region to the south of the npc are equally checked on *EMr's* image and on the MRO-MARCI image, we should be accustomed to this kind of situation.



Next, the comparison in Fig. 2 is about the image of KARDASIS (*Mkd*) on 8 March 2012 ($\lambda=081^\circ\text{Ls}$) at $\omega=154^\circ\text{W}$, nearly one month later from *EMr's*. Apparently the description of the npc on the MRO image is excessive. Olympia is also too shadowy. Perhaps this is because the area was shot in a different time. On the other hand, the description of the trailing white cloud from the summit of Olympus Mons is beautifully made on the MRO-MARCI case, perhaps because the shot time was chosen in a best time in the afternoon. We should be equally cautious about the “morning” limb side since the white cloud at Elysium taken at around 2h PM looks located near the “morning” limb ironically as if it’s a morning mist on the MRO-MARCI image.

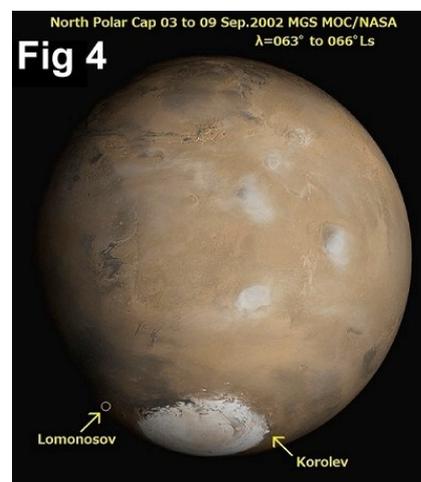
However we should note that it is not easy to identify on *MKd's* image a whitish light small patch

which is visible on the Utopia region of the MRO-MARCI image.



Figure 3 shows PEACH (*DPc*)'s image taken on 12 March 2012 ($\lambda=082^\circ\text{Ls}$) at $\omega=178^\circ\text{W}$ with the corresponding MRO-MARCI image on the day. *DPc's* image is excellent together with several other images on the night, though Korolev is not isolated. However the aspect of Rima Borealis is quite detailed. It is also stupid to discuss the Elysium cloud here on the MRO-MARCI image as a morning event. We on the other hand note that the gradation of dusty spreads at the Utopia region from the area to the south of the npc on the MRO-MARCI image is apparently recognisable on *DPc's* image.

We finally inform that KONNAĪ (*Kn*) recently communicated an interesting image made in September 2002 by the MGS-MOC as was cited in the Japanese LtE Web (received on 14 September 2013 at 21:36 JST) which we here share as Fig. 4. The season is said to be in the period $\lambda=063^\circ\text{Ls}\sim 069^\circ\text{Ls}$, and hence it corresponds to the images of *EMr* on 11 February and 12 February 2012. We may say this MGS-MOC npc image



looks much nicer than those by MRO-MARCI in the

sense the description of the npc looks mild but detailed. It is dusty, but looks not so thick. However at present because of a lack of data we cannot say about the strength difference of the dusty phenomena in 2002 and 2012, that is, we cannot compare the amounts of the dust spreads over the npc in

2002 with those in 2012.

We should also keep in mind that the white clouds around Montes on the MGS-MOC image must be carefully treated when they are to be mentioned. □

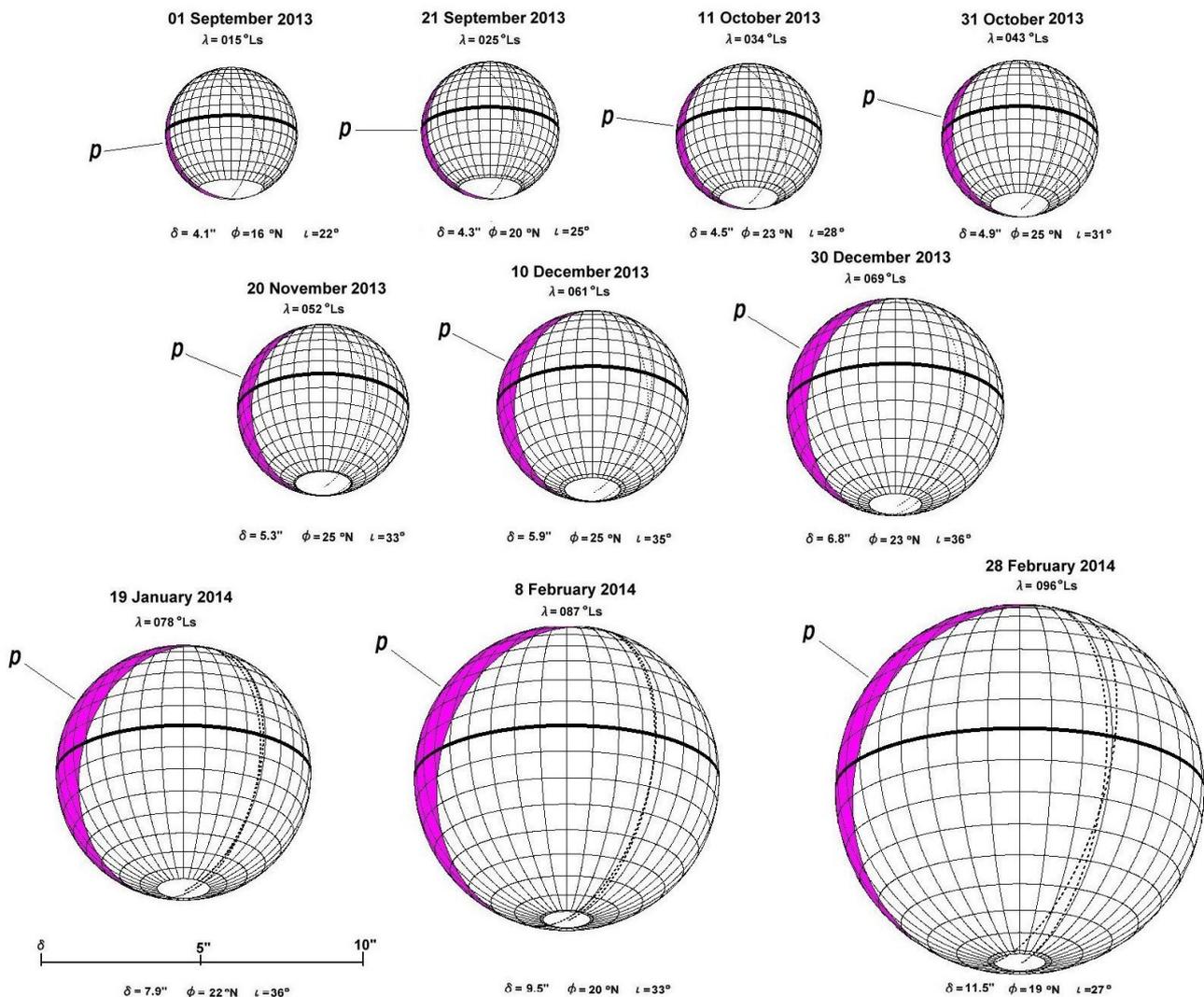
Forthcoming 13/14 Mars (3)

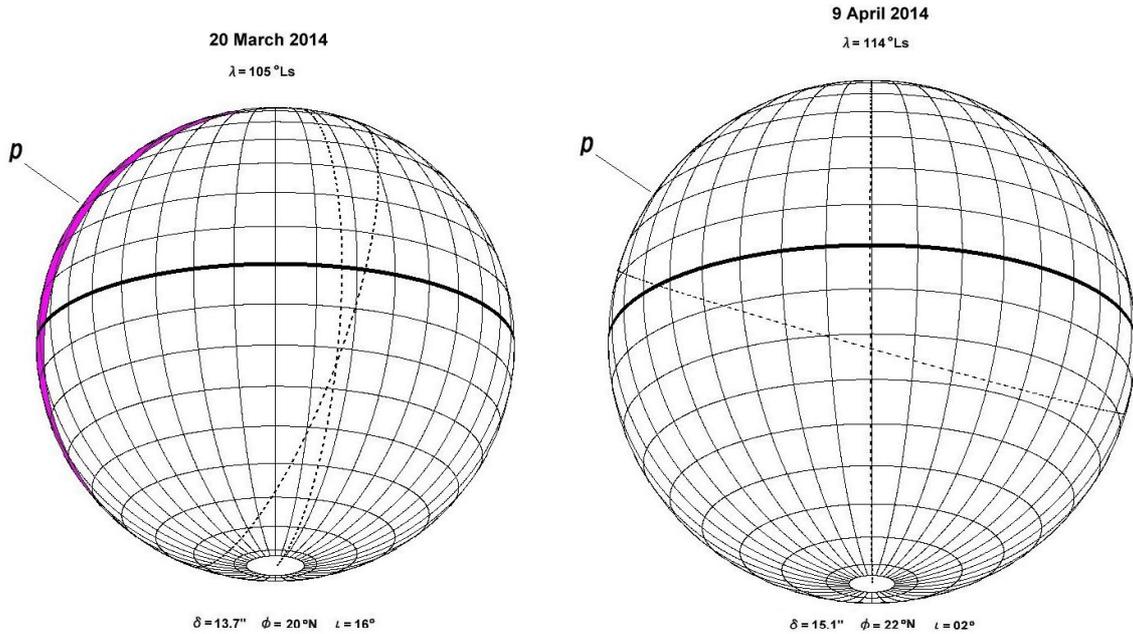
Disks with Grids. I

Akinori NISHITA

The following images show the expected Martian disks with the grids and the phases from 1 September 2013 to 9 April 2014, just after the 2014 opposition. The opposition will occur on 8 April 2014, while the planet will be closest to the Earth on 14 April 2014. The bold-faced circular line shows

the equator, so that the northern hemisphere largely faces toward us this season. Meanwhile the npc will be completely inside the surface. The possible sizes of the north polar cap (npc) are shown. The direction indicated as p is the preceding direction of the planet seen inside the eye-field when we stop the motor drive, so indicating the direction of the celestial west. The noon line (N -line) is shown as a dotted line: The intersection with the other line (M -line) is the sub-Solar point.





□

Letters to the Editor

●.....Subject: Mars image on 6 August 2013
Received; 8 August 2013 at 23:33 JST

Mars image on 6 August 2013:
<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmoms/2013/130806/Ak06Aug13.jpg>

Tomio AKUTSU (Cebu, the PHILIPPINES)

●..... Facebook Timeline
Sent: 11 August 2013 at 08:32



This looks like a nice observatory! Where is this located?

Tyler WHITBY (Prince George, VA, the USA)

●..... Facebook Timeline
Sent: 12 August 2013 at 15:51

Hi, Tyler, It's a great pleasure of mine to hear from you. Thank you for your enquiry. The place is atop Mt Hamilton, CA. The big dome belongs to the Lick Observatory, Univ. of California and contains inside the famous 90cm Refractor whose first light was made in 1888. This is still the second biggest refractor on the Earth, and the biggest telescope I ever used to watch the planet Mars.

Masatsugu MINAMI (Fukui, JAPAN)

Peter GORCZYNSKI's image
on 17 August 2013
λ = 008°Ls δ = 4.0'' l = 20°
10:25 GMT
ω = 290°W φ = 12°N
C14, 1.5x Barlow, ASI 120MM
Astronomik 742 IR Filter, Resized 150%
Oxford, CT USA

●.....Subject: Mars - August 11, 2013
Received; 12 August 2013 at 06:56 JST

Gentlemen,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmoms/2013/130811/PGc11Aug13.jpg>

This is my first Mars post of the season. Regards,
 ○····· *Subject: Mars - August 17, 2013*
Received; 18 August 2013 at 03:00 JST

Gentlemen, This image was captured in poor seeing. I only used 5% of the 30000 captured frames for this one. Regards,

Peter GORCZYNSKI (CT, the USA)

(*Note*) As to the above Peter GORCZYNSKI's image, which was already shown on Facebook, we received the following messages:

●····· *Facebook Timeline*
Sent: 21 August 2013 at 18:36 via mobile

Impressive image of Mars at such a small apparent diameter (4"). Thank you for sharing it with us all. Hope you are doing well. My best to the OAA Mars Section.

Carlos HERNANDEZ (Miami, FL, the USA)

●····· *Facebook Timeline*
Sent: 22 August 2013 at 02:46

A very good result at this early stage.

Damian PEACH (Selsey, West Sussex, the UK)

●····· *Facebook Timeline*
Sent: 17 August 2013 at 23:52.

M MINAMI wrote on Ethan T ALLEN's Timeline.

"A Happy Birthday to Ethan. Hope many happy returns of the day! The planet Mars will come back soon and I hope you will be active as before.

●····· *Facebook Timeline*
Sent: 19 August 2013 at 02:27

"Thanks Masatsugu! Getting my observatory set up at my new place for the upcoming apparition. Can't wait! "

Ethan T ALLEN (Ashland, OR, the USA)

●····· *Subject: Re: From MINAMI*
Received: 23 August 2013 at 07:37 JST

Dear Masatsugu,

I am glad to hear that you have been so productive and busy, and hope your health remains strong.

I am very sad to hear of MURAYAMA's death. I don't recall whether I had the chance to meet him when I was in Japan in 2004 -- I checked the *NOTO* book where I had all the Japanese signatures, hop-

ing to find it, but it was not there. Do you remember? Our friend Nakajima is quite remarkably active for having had recent illness--I do not believe I could walk 60 minutes a day.

Re-reading the inscriptions from many friends made me miss Japan. I hope I may visit again some day. I suppose that Japan must feel somewhat different these days than when I was there. I loved Nagasaki, and found utterly unforgettable the grand journey across the Japanese Alps to Noto, with you and ASADA. I am glad that I have written many notes about this.

***I have been doing well. I had some health problems addressed earlier in the year -- the atrial fibrillation was successfully corrected by the procedure I had done in February. I am now back in normal sinus rhythm. I left my position working with autistic children at end of June, and devoted the time since then (between jobs) to finishing work on a Galaxies book and caring for a new puppy. Now I am back to working fulltime again.

I am hoping to write a proposal for a new Mars book for University of Arizona Press -- basically one that will replace those I published in 1996 and 2001.

So this will take some time. They want academic reviewers, so if you would be willing to review the proposal that would mean much. Brad SMITH and Jim BELL have so far agreed.

I am also working on bringing out (through Springer) an English translation of FLAMMARION's *La Planète Mars*, and have to revise and edit a book on eclipses, transits and occultations with John WESTFALL.

So perhaps I can write something for the next issue on the question of what I should write in the Mars book about Japanese observers, amateur astronomers and the like? Best,

○····· *Subject: CHAMBERLAIN's Guide to Japan*
Received: 5 September 2013 at 08:51 JST

Dear Masatsugu, I am working on a book proposal for a new Mars book (for U of Arizona Press), and am revising the chapter draft on Percival LOWELL.

I am recalling our trip to *Noto* in 2004 it seems

that LOWELL had a guidebook, probably Murray's, but it was not the 3rd edition by Basil Hall CHAMBERLAIN which appeared in 1891. I am unable to find any references to the earlier editions (or the authors thereof). Do you know this reference?

It would be interesting sometime to read those old guide books to see what they had to say about Japan at the time, and to compare the accounts

therein with what Lowell wrote in *Noto* and elsewhere.

***I should have some material for you on Mars 2003 from my notebooks in a few days. I have been rereading the notebooks and marking passages of interest. Meanwhile, my very best to you,

Bill SHEEHAN (Willmar, MN, the USA)

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TEN YEARS AGO (221)

---- CMO #278 (10 September 2003),
CMO#279 (25 September 2003) ----

<http://www.hida.kyoto-u.ac.jp/~cmo/cmomn0/cmo278/index.htm>

<http://www.hida.kyoto-u.ac.jp/~cmo/cmomn0/cmo279/index.htm>

The Observation Report in CMO #278 (10 September 2003 issue) was counted 13th of this season and treated the fortnight period from 16 August 2003 until 31 August 2003 where the Martian season proceeded from $\lambda=242^\circ\text{Ls}$ to 252°Ls . During the period the planet was at opposition inside the constellation Aqr on 28 August, while already closest to the Earth on 27 August ($\lambda=249^\circ\text{Ls}$) when the angular diameter attained $\delta=25.11''$: This was quite a rare case in history. On 16 August the angular diameter was $\delta=24.5''$ while it was rather surprising that the diameter surely grew night by night inside the eye field of the telescope, and the nights where δ was larger than $25.00''$ continued for ten days from 22 August. According to Jean MEEUS, the case of $\delta \geq 25''$ occurred first ever since 1924 (when $\delta_{\max}=25.10''$), and the next will not visit until 2050 (where $\delta_{\max}=25.02''$).

For this super period, a total of 78 observers contributed to us with 392 observations: From Japan 15 members contributed 296 observations (here the observations by H ISHADOH (*Id*), T NAKAJIMA (*Nj*) and T WAKUGAWA (*Wk*) were not counted because *Id* and *Wk* were very near *Mn*, and *Nj* was very farther than usual from *Mn*), from the American Continents 27 observers joined with 168 observations (here were not counted Bill SHEEHAN (*WSh*)'s observations at Lick et al), from Europe 28 observers with 163 observations, and from Asia and Oceania 8 observers with 32 observations. On 31 August the angular diameter decreased to $\delta=25''$. The phase angle returned to $\iota=6^\circ$. The defect of illumination went to the morning side after rounding the northern side at the opposition time with $\iota=5^\circ$. The central meridian ϕ kept 19°S .

The 13th report began with a general remark, and picked out several points to be noticed. First it appeared that a dusty disturbance must have occurred at Hellas and Trinacria, and then it was pointed out that the sandy ground was recovering its reddish colour. As to the darkish markings with a wine colour each case and every day variations were described. The wine-coloured area must have been the area where the airborne dust was weaker. As a possible dust at the higher latitudes the one on the image by S BUDA (*SBd*) on 19 Aug ($\lambda=244^\circ\text{Ls}$) at $\omega=233^\circ\text{W}$ was picked out. It was located near the spc at $\Omega=210^\circ\text{W}$. This light patch was chased until 28 Aug ($\lambda=250^\circ\text{Ls}$) from

Japan and Asia but looked dispersed by 31 Aug ($\lambda=252^\circ\text{Ls}$). This phenomenon occurred near the spc where the thawing speed was rapid, and hence must have been the local disturbance because of the rapid melting of the peripheral part of the spc. The inside of the spc and the spc vicinity were described under the subtitles: (1) Novus Mons, (2) drastic changing of Thytes Mons, (3) detachment of Argenteus Mons, (4) final stage of Parva Depressio, (5) deviation of the centre of the spc. Otherwise, there were described the morning mist or frost at the southern higher latitudes as well as the morning and evening mists at the medieval latitudes. Both were well chased from around 20 Aug ($\lambda=245^\circ\text{Ls}$). Especially the west follower of Syrtis Mj was thickly white, and subsequently there were made a lot of observations from around Syrtis Mj to the northern hemisphere. The aspects of Ætheria Dark Patch as well as Nodus Alcyonius were well checked. The evening Arsia white cloud was still active, while Olympus Mons was bright simply because of the opposition effect. The excellent observations of the nph were a few because of the tilt. M Cimmerium including the *grasshopper leg* was thickly observed also this occasion. Some observational remarks on the Martian satellites were given. See the following for more details:

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn0/278OAA/index.htm>

At the latter part of the report, the life of M MINAMI (*Mn*) at Okinawa was a bit described. He quitted his observations at Naha at the end of August, and returned to Fukui. He stayed at Naha from 23 June ($\lambda=209^\circ\text{Ls}$) for 70 days: He secured 436 drawings during the period from Mn-244D ($\omega=094^\circ\text{W}$ at 16:30GMT on 23 June) to Mn-679D ($\omega=200^\circ\text{W}$ at 17:00GMT on 30 Aug ($\lambda=251^\circ\text{Ls}$)): Just clouded only for three nights.

The LtE corner of CMO #278 collected the emails received during the period from 25 August to 9 September: They were from John BARNETT (VA, the USA), Nicolas BIVER (France), Jeffrey BEISH (FL, the USA), Stefan BUDA (Australia), Rolando CHAVEZ (GA, the USA), António CIDADÃO (Portugal), Brian COLVILLE (Canada), Daniel CRUSSAIRE (France), Tom DOBBINS (OH, the USA), Mario FRASSATI (Italy), Martin GASKELL (NE, the USA), Ed GRAFTON (TX, the USA), David GRAHAM (the UK), Alan HEATH (the UK), Silvia KOWOLLIK (Germany), Paolo LAZZAROTTI (Italy), Ralph MEGNA (CA, the USA), Frank J MELILLO (NY, the USA), Eric NG (吳偉堅, Hon Kong), Don PARKER (FL, the USA), Damian PEACH (the UK), Christophe PELLIER (France), Francisco RODRIGUEZ (Spain), Kai-Li RUE (Taiwan), Richard SCHMUDE, Jr (GA, the USA), Clay SHERROD (AR, the USA), Elisabeth SIEGEL (Denmark), José SURO (FL, the USA), TAN Wei-Leong (陳韋龍, Singapore), Randy TATUM (VA, the USA), Gérard TEICHERT (France), Maurice VALIMBERTI (Australia), John WARELL (LPL, AZ, the USA), and Ferruccio ZANOTTI (Italy). Domestically we received from T AKUTSU (Tochigi), T ASADA (Fukuoka), H ISHADOH (Okinawa), T IWASAKI (KitaKyushu), T KUMAMORI (Osaka), I MIYAZAKI (Okinawa), Y MORITA (Hiroshima), K OKANO (Tokyo) and T WAKUGAWA (Okinawa).

Next we review CMO #279 (25 September 2003 issue) where the 14th Report of the 2003 great Mars was given during the period from 1 September ($\lambda=252^\circ\text{Ls}$) to 15

September 2003 ($\lambda=261^\circ\text{Ls}$). The season of the dust came, but no big disturbance occurred. The planet was still in Aqr. The angular diameter went down from $\delta=25.0''$ to $\delta=23.4''$. The phase angle increased from $\iota=6^\circ$ to 15° , the defect of illumination being now at the morning side. The tilt was at 19°S , and so the southern hemisphere was largely seen.

After the great opposition, the observers quite decreased in number just like the tide ebbs though the angular diameter was still larger than $\delta=20''$. However, T IWASAKI (*Iw*) and M MURAKAMI (*Mk*) increased their observation rates perhaps because the weather recovered in Japan. On 13 September ($\lambda=260^\circ\text{Ls}$) when the angular diameter was still $\delta=23.9''$, H TSUNEMACHI (*Ts*) could pin down the tiny *Iuventæ Fons* and the light *Aurea Cherso* clearly by the use of a 12.5cm Fluorite Refractor based on her experiences in August at Naha.

The total number of the observers was thus 59 this period with 487 observations: Domestically 12 members reported with 277 observations, from the American Continents 21 observers joined with 103 observations, from Europe 17 observers with 75 observations, and 9 observers with 32 observations reported from Asia and Oceania.

The report described, after some remarks made by M MINAMI (*Mn*) who returned home, first the observations concerning the disk's limb, morning/evening mists and southern high latitudes. Since the season was near the summer solstice, the water vapour was much sent northwards: The condensed fogs or mists were seen rich equally at dawn and evening side, though still the high latitudes looked still yellowish. The morning mist vanishes as the planet rotated, while the airborne yellowish haze survived even at noon. As to the water vapour phenomenon several observations brought interesting results. Next the observations about the southern higher latitudes and the wine-coloured areas were picked out especially at the region from *Aonius S* to *Solis L*. The colour was complex, at some part wine-coloured, but at some area the brownish tint prevailed. This might have been caused by a de-concentration of the water condensates mingled with the airborne dusts. Third, a very interesting phenomenon was touched which was clearly described by Canon LAU (*CLa*) at Hong-Kong: This is a kind of de-concentration and appeared as a darker wine-coloured patch. This spot could be detected earlier on several occasions, and furthermore it appeared also on later occasions. Fourth, there was witnessed a column vaguely seen from *Trinacria* to *Hellas* which might be a fallout. Fifth, a light spot was seen at the east coast of *Syrtis Mj* which might be *Osidis Promontrium*; first seen on 24 June. Sixth, a decay of *Thyles Mons* was suggested as the same phenomenon observed in 1988 and 1971. See the details on the Web site:

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn0/279OAA/index.htm>

Furthermore, as to the *spc* and its vicinity, a detailed description was given on *Argenteus Mons* and *Rima Angusta* as well as on the observation of *Novus Mons* and its preceding area.

At a final corner, the episode of Bill SHEEHAN (*WSh*) was storied at the Lick Observ-

atory made from 28 August until 12 September by the use of the 91 cm refractor. Refer also to the opening essay of the present issue.

The LtE in CMO #278 recorded those received during the period from 10 September to 24 September 2003. From abroad, we received from Peter BERRY (FL, the USA), Nocolas BIVER, Jeff BEISH, Rolando CHAVEZ, Tom DOBBINS, Mario FRASSATI, Ed GRAFTON, David HANON (GA, the USA), Silvia KOWOLLIK, Paolo LAZZAROTTI, Canon LAU (劉 佳能, Hong Kong), Eric NG, K C PAU (鮑 國全, Hong Kong), Don PARKER, Damian PEACH, Christophe PELLIER, Bill SHEEHAN (MN, the USA), Clay SHERROD, Elisabeth SIEGEL, Johan WARELL, Sam WHITBY (VA, the USA), Bill WILLIAMS (FL, the USA), Barbara WILSON (TX, the USA), and Ferruccio ZANOTTI. Domestically we heard from T AKUTSU, T ASADA, T KUMAMORI, I MIYAZAKI, and Y MORITA.

The Ten-Years-Ago (097) corner was written by Toshiaki HIKI (*Hk*, Nagano) concerning CMO #137 (25 September 1993). In September, 20 years ago, the period of observations had already ended and the following period of analysis came with 1992/93 CMO NOTES (7) and (8): The former dealt with the case of the southern Ausonia which appeared suddenly conspicuous on 29 Dec 1992 ($\lambda=018^\circ\text{Ls}$) based on NISHITA (*Ns*)'s images. The latter was concerned with the perimeter of the npc at the season near the spring equinox, especially seen at the area from $\Omega=080^\circ\text{W}\sim 180^\circ\text{W}$; this being related with a dark segment seen through the nph observed at the end of November 1992. It was concluded that the dark fringe of the npc was apparent through the nph.

Mn's essay "Yogoto-yogoto" was counted XXXVIIIth where an opinion concerning destruction of nature and the recycle system. In another column, the difference of ISBN and ISSN was introduced. Also a photo is shown which shows the movements of the southern polar stars taken by *Ns* in Australia.

Masami MURAKAMI (Mk) and Masatsugu MINAMI (Mn)

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CMO #414/ ISMO #40 (25 September 2013)

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