

MARS

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OBSERVATIONS

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On the Observations of the BAA Mars Section
Made during the Period 1913~1914. Part I

By

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AS to the planet Mars which shined in the sky one hundred years ago, Bill SHEEHAN often alluded in the CMO. For example, in CMO #419 (25 February 2014 issue), he touched, under the title "A Triptych of Planetary Themes", on *Mars in 1914*. Mars was really at opposition on 5 January 1914, and as he writes "This was the second to last opposition observed by Percival LOWELL, who had just recovered from a late-1913 'breakdown', briefer and less severe than that which had immobilized him after he returned from Mexico but no doubt due to the same causes of overwork and discouragement." One drawing of Mars made by LOWELL in 1914 is reproduced at the first page of the opening essay of #419: The LOWELL disk is full of several oases and fine doubled canals. As the planet Mars (God of War) in 1914 began to recede, the Peace began ironically to end. That is, the outbreak of WWI was approaching.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn4/CMO419.pdf>

See also

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn4/CMO383.pdf>

IT is said that a serious historical happening, that is, the so-called Sarajevo assassination, occurred on 28 June 1914 in Sarajevo, where Archduke Franz Ferdinand of Austria, the heir to the Austria-Hungarian throne, was shot dead together with his wife Sophie, and this event precipitated Austria-Hungary's declaration of War against Serbia. Eventually this happening was destined to give rise to WWI which was said to have started on 28 July 1914:

Since the 1914 opposition visited in January, this political trouble must have been not serious to the Mars observations in Europe. In Japan, although already in 1888, the Tokyo Observatory (belonging to the University of Tokyo) had been established, while we don't hear that any observation of Mars was performed. The establishment of the OAA (Oriental Astronomical Association) was made in

1920; and from around the period, the pioneer Kanamé NAKAMURA (1904~1932) who belonged to the Kwasan Observatory, Kyoto University, started to constantly observe Mars. The late professor Shotaro MIYAMOTO however was born in 1912. Hence there is no hope for us to find any set of serious Mars observations in Japan accomplished one hundred years ago.

ACCORDING to Jean MEEUS, the planet Mars in this 1913-1914 apparition was closest to the Earth on 1 January 1914 at 06:00 TDT with the maximal angular diameter $\delta=15.04''$. The planet was at opposition on 5 January 1914 at 18:28 TDT, and at that time the apparent declination was $26^{\circ}34'N$, and hence the planet was shining quite higher in the sky (for the observers on the northern hemisphere). Of course this apparition is not similar to our case in 2013~2014. To find the years which are similar to our case in recent opportunities, one just has to try to consult an article in CMO #106 (25 June 1991 issue) written by the present writer:

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn2/Cahier03.htm>

One easily sees that the apparition repeatable by a 79 year cycle must be most appropriate, namely we can readily find that the apparition in 1992~1993 is our only recent hope within our reach. In fact, Mars was closest to the Earth on 3 January 1993, and was at opposition on 7 January 1993. The maximal angular diameter was $\delta=14.95''$. As is easily compared, these are quite a set of data similar to the case in 1913~1914. (Next plausible years occurred in 2007~2008.)

At the Lowell Observatory, Earl C. SLIPHER started his long career of Mars photographer from 1903. In 1914, the record

says that he secured 1000 images. The reason is not clear, but in the following aphelic opposition in 1916, he obtained a total of 4000 images. According to the same data, in the case of the opposition in 1907 (maximal angular diameter, $\delta=22.97''$) they secured 13000 images by the expedition to the southern hemisphere: This is well comparable with the activities at the later expeditions. At the case of the perihelic opposition in 1909 (maximal angular diameter $\delta=24.03''$), he secured a total of 4500 images at Flagstaff, and even then several results are found in his books. However in the case of 1914, it looks difficult to find more than the image taken on 21 January 1914 at $\omega=254^{\circ}W$. The season must be around $\lambda=061^{\circ}Ls$.

Originally the Lowell Observatory was more interested in the perihelic oppositions in order to detect the so-called canals. They looked to avoid the meteorological aspect of the planet, so that they were not much interested in the aphelical oppositions.

WE here so try to see how was the activity provided by the members of the BAA Mars Section (BAA=British Astronomical Association) one hundred years ago. In the case of the opposition in 1913~1914, the BAA Mars Section was directed by E. M. ANTONIADI (at Meudon and La Frette, France). "*The Report of the Section. 1913~1914*" written by the Director is rather bulky. A note described at the end of the text shows that this was published in April 1919, while this report is found in *Memoirs of the British Astronomical Association (edited by A. S. D. MAUNDER, F. R. A. S.) Vol.XXI*, which was printed by His Majesty's Printers in 1920. The reason why "*His*" is because it was during

the reign of King George V (the period of his reign was from 1910 to 1936).

IT begins with **PART I**. At first, PROLEGOMEA is written, which consists of four items:

1. **The Apparition of 1913~ 1914:** It says "This opposition occurred early in January 1914, and was rather an unfavourable one. For, notwithstanding the very high altitude of the planet in Europe, its distance from the Earth, on the first day of the year, was not less than 0.622 (AU) (58,000,000 miles)", and then this data is compared with the previous 1911 case. Next a paragraph of "*Phenomena*" comes where some details of the ephemeris are shown. "Mars in W. Quadrature with Sun on 2 October 1913, Vernal Equinox of N. hemisphere on 1 December 1913, Mars in Apparitional Perigee on 1 January 1914, Diameter of Mars in Apparitional Perigee is 15.04" (very identical with the data by ↗

MEEUS), Mars in Opposition with the Sun on 5 January 1914, and so on. The season seems to be noted by the Heliocentric longitude of Mars. "Position angle of the N. pole of Mars" is described for the day of Opposition. Furthermore, "Mars in Aphelion on 27 April 1914, Winter Solstice of N. hemisphere is on 18 June 1914" and so on. There follows a description how the latitude of the centre of the disk varied. For example, it went up to $+10.1^\circ$ on 18 November 1913, and then back to $+1^\circ.1$ on 9 February 1914, and then increased constantly attaining $+17^\circ.8$ by 31 May 1914, and so on. And then comes the second item:

2. **The Members of the Section and their Instruments:** This is given by a Table, though we roughly cite. The members and the instruments (OG , Spec, described by inches) are as follows. The number of the drawings is given by (x):

ANTONIADI, E.-M	France	8.5" Spec & 12.5" Spec	(13)
BACKHOUSE, T. W.	Sunderland	4.5" OG	(-)
McEWEN, H.	Glasgow	5" OG	(96)
O'HARA, C.	Derrylin	8½" Spec	(3)
PHILLIPS, T. E. R.	Ashted, Surrey	12¼" Spec & 8" OG	(15)
PORTHOUSE, W.	Manchester	8.5" Spec	(3)
THOMSON, H.	Newcastle-on-Tyne	12¼" Spec & 8" OG	(17)

That is, seven members joined. A total number of the drawings obtained was 147. "The observations covered a period of 8 months and 25 days" from 15 August 1913 until 10 May 1914, which was the period obtained by H. McEWEN. There is no description about the drawings by T. W. BACKHOUSE, perhaps because there were some correspondences between BACKHOUSE and the Director, but perhaps no report of the drawing

reached. This person must have been Thomas William BACKHOUSE (1842~1920) who was famous with some guiding books on catalogues of stars, on variable stars, on zodiac light and so on. He was also an FRAS (RAS=The Royal Astronomical Society). There are four persons from FRAS in the above member list including E.-M. ANTONIADI. PHILLIPS (1868~1942) is also a well-known planetary observer and here written as Rev.

Theodor E. R. PHILLIPS, MA, FRAS. As for PHILLIPS, we once wrote about him in CMO #176 (25 June 1996) in linkage with Alan W. HEATH (Nottingham). See the later part of <http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn2/AHtIntro.htm>

The relationship of A HEATH (an old member of the CMO) with Rev. T. E. R. PHILLIPS is this: In 1963 the BAA made available to Alan HEATH on loan the 12¼" Spec (originally made by George CALVER (1834~1924)) which was owned and used by PHILLIPS. Alan HEATH directed the BAA Saturn Section with this Spec more than 30 years. When he retired from the work of Director, we suppose the famous Spec was returned to the BAA. Unfortunately however I remember Alan HEATH had no chance to see Rev PHILLIPS who died in 1942 before the end of WWII.

We also remember some of drawings of H. THOMSON, FRAS, are well known. Next comes

3. Observational Notes: Here are written some comments concerning the seeing conditions and instruments. For example, it is written "PHILLIPS had some good seeing". However, "PORTHOUSE was somewhat disappointed with the thick air of Manchester" and so on. Also written is that "THOMSON and the Director complain of the bad definition prevailing". Final item is the following:

4. The Colour of the Disk: We don't understand the importance of this kind of description, but ANTONIADI puts a Table after writing "The relation between the yellowness of the planet and the faintness of the dusky areas has shown, in 1914, the following phenomena to the Director." The Table is made

of columns of "Date," " ω ," "Colour of Disk," "Intensity of Dark Spots." The column of Date shows about one dozen dates in Feb. Mar. and Apr. Colour of Disk is of three kinds: Ruddy, Yellow, and Yellowish. Intensity of Dark Spots is also of three kinds: Darkish, Faintish, and Faint. For example, some lines read "on 1 Feb 1914 at $\omega=350^\circ\text{W}$ | Ruddy | Darkish," or "on 12 Apr 1914 at $\omega=083^\circ\text{W}$ | Ruddy | Faintish," or so on. But how can we read between the lines?

Notable however is the sentence shown under the Table: "No very remarkable cloudy formations were noted during this apparition."

NEXT page begins to show **PART II**. The title is "**THE OBSERVATIONS.**" After the description of some abbreviations used (for example, W.=Areocentric West=f=following, and so on),

SECTION I intends to treat the area around **Sinus Sabæus**, the area within the range: $\Omega=310^\circ\text{W}\sim 010^\circ\text{W}$, $\Phi=60^\circ\text{S}\sim 60^\circ\text{N}$. In what follows, every Section deals with the further ranges at intervals of 60°W .

ANTONIADI's descriptions are somewhat complicated and detailed so that we will not much get involved with the minor details. The first marking that appears here is

HELLESPONTUS: The Director writes that this marking "was frequently veiled by yellow cloud in 1913-1914" based on all drawings: All "show that this "strait" was apparently very faint on 15 September 1913, faintish on 27 November 1913 (PHILLIPS; See the Figure here), indiscernible on 28 December 1913 (PORTHOUSE), *darkish* on 29 December 1913



Drawing of Mars by PHILLIPS on 27 Nov 1913
(001° La, $\omega=339^\circ\text{W}$, $\phi=12^\circ\text{N}$)

(PHILLIPS, at $\omega=005^\circ\text{W}$, $\phi=5.8^\circ\text{N}$), and so on. The drawing by PHILLIPS on 27 November however shows that Hellespontus must be located near the southern limb so that we should say the angle is not good to say about Hellespontus. On the PHILLIPS drawing on 29 December at $\omega=005^\circ\text{W}$, Hellespontus is quite near the p . terminator and hence it will not be appropriate to say about it. The darkish part is around the southern part of M Serpentis, though it is not connected with S Sabæus. ANTONIADI also picks out his drawing on 1 February 1914 at $\omega=350^\circ\text{W}$ where he writes that Hellespontus is *faintish*. However as we see, the configuration is quite akin to PHILLIPS' on 29 December at $\omega=005^\circ\text{W}$ so that we judge here that the faintness and darkness difference belongs to the personal equation. Just we could say that the observation by PHILLIPS on 3 January 1914 at $\omega=319^\circ\text{W}$ and THOMSON's excellent drawing on 3 January 1914 at $\omega=323^\circ\text{W}$ show the large southern area including Hellespontus looks faded.

At the next paragraph, the Director interestingly reports that "On 21 and 22 March, McEWEN recorded a bright protruding spot hereabout" (at $\omega=308^\circ\text{W}$ and $\omega=292^\circ\text{W}$ respectively. See Figures here).



FIG. 3. -1914, March 21, $\omega=308^\circ$. FIG. 4. -March 22, $\omega=293^\circ$.
White cloud over S.W. Hellespontus. (McEwen.)

Next comes a description about

NOACHIS: There follow eight lines (rows) with some details: one says Noachis is whitish near the CM, some shaded, another bright risen, and so on. The third item is about

PANDORÆ FRETUM: This channel was "faint in 1913-1914." Data were provided by all: Very faint on 20 October and on 27 November 1913 (PHILLIPS; Figure at the preceding page). Invisible on 26 December, rather conspicuous on 27 December, invisible on 28 December, very faint on 29, 30, 31 December, invisible on 6, 7 January, very faint on 1, 4, 5, 10 February and so on. The drawing of PHILLIPS on 27 December was obtained at $\omega=028^\circ\text{W}$ shows Fretum quite clearly at the afternoon side. However the drawings by THOMSON and PHILLIPS on 7 January at $\omega=316^\circ\text{W}$ and on 3 January at $\omega=319^\circ\text{W}$ respectively don't equally show Pandoræ Fretum on the morning side though Sinus Sabæus is quite conspicuously drawn. The above says Pandoræ Fr was very faint on 29 December, while on PHILLIPS's drawing on the day at $\omega=005^\circ\text{W}$, it is very clearly depicted. Next, given is about



Drawing of Mars by PHILLIPS on 3 Jan 1914
(019° Ls, $\omega=319^\circ\text{W}$, $\phi=07^\circ\text{N}$)

VULCANI PELAGUS: This naming was the one introduced by ANTONIADI himself in 1911-1912, named after an old Roman god of fire. The nomenclature has been known to us because it was put on his famous Mars Map at ($\Omega=015^\circ\text{W}$, $\Phi=35^\circ\text{S}$). However we have never felt it necessary to check, and we have never mentioned about it. Here is stated as: dusky, unnoticed, moderately dark, exceedingly faint, not seen, darkish, obliterated by white cloud on 16 April, faint and indiscernible.

DEUCALIONIS REGIO: The comment says that it "showed its usual form, but, like all 'lands,' looked slightly larger, owing to the greater distance of Mars and to our less

powerful equipment." One point to be noticed is the detection of "a very bright whitish spot" inside the region by O'HARA on 30 December at $\omega=320^\circ\text{W}$, and this was "supported by THOMSON's drawing on 7 January at $\omega=316^\circ\text{W}$ where an area of elliptical shape is featured at the middle of Deucalionis Regio.

SINUS SABÆUS: It looked "narrowed," because of "increased diffraction." Comments are generally "dark", "faintish", "very dark", "less intense" and so on. "McEWEN speaks of the visibility of Xisutri Regio ($\Omega=340^\circ\text{W}$, $\Phi=12^\circ\text{S}$), which no other Member could descry."

"**PORTUS SIGEUS** is recognisable as a more or less shallow dark notch in the drawings of McEWEN, O'HARA, PHILLIPS, PORTHOUSE, THOMSON and the Director."

SINUS FRUCOSUS ($\Omega=000^\circ\text{W}$, $\Phi=05^\circ\text{S}$): About it commented is that "it presented nothing abnormal." Can you follow what ANTONIADI is writing? Note that here is not yet used the nomenclature SINUS MERIDIANI, which was quite later introduced in 1924 by ANTONIADI himself, and hence SINUS FRUCOSUS (named also by ANTONIADI in 1907) is used instead. "McEWEN writes that on 28 December he saw the 'forks....beautifully,' and that the 'E. fork was darker than the W. one.' Yet the prongs were inaccessible to O'HARA and PORTHOUSE, difficult to the Director, and often confused to PHILLIPS and THOMSON." However, it was apparent to PHILLIPS on 27 November (see a previous Figure), and on 27 December at $\omega=028^\circ\text{W}$, and also to THOMSON on 3 January at

$\omega=323^\circ\text{W}$, notwithstanding the nails were located quite near the morning limb ($12\frac{1}{4}$ -in Spec). The term Dawes' Forked Bay is also used here.

"**FASTIGIUM ARYN** looked well defined to PHILLIPS and THOMSON." However it was "shaded" to ANTONIADI on 1 February at $\omega=350^\circ\text{W}$. His S Meridiani here is nicely described in a halftone, where the two nails are well shown *à la* ANTONIADI.

THYMIAMATA appeared variously. Set bright to PHILLIPS on 22 December, to ANTONIADI, especially To S. on 16 April, and so on.

"**EDOM PROMONTORIUM** appeared often bright by contrast" (see the case here by PHILLIPS on 3 January at $\omega=319^\circ\text{W}$).

Here **EDOM PROPONTORIUM** and **EDOM** are treated differently.

"**AERIA** was seen 'brighter and of a more orange tint than the rest of the planet' by O'HARA" and so on.

"**HAMMONIS CORNU** comes out blunted on almost all drawings." However PORTHOUSE depicted as a large notch clearly cut on 6 January at $\omega=286^\circ\text{W}$.

"**ARABIA** appeared slightly shaded."

"**EDEN** was seen dusky between Hiddekel and Gehon by the Director on 1 February," and so on.

"**ARETHUSA FONS** is drawn as a knot. 8° across, by McEWEN on 26 December."

"**ISMENIUS LACUS** had the form of an irregular ellipse, under good conditions" for example on THOMSON's drawing on 3 January at $\omega=323^\circ\text{W}$. But usually several adjectives appear like "rather faintish," "darkish," "dark," "dusky," etc. In the case of ANTONIADI: indiscernible on 1 February at

$\omega=350^\circ\text{W}$.

"*DIOSCRIA* seemed shaded to PHILLIPS and the Director," but "on 7 January THOMSON caught here a white streak, jutting into Meroe."

"*CYDONIA* is also shaded by PHILLIPS and the Director. On 29 December, PHILLIPS saw a white spot just *p.* the Achillis Pons."

Here a review of the main text of **SECTION I** ended. However, the corner of **MINOR DETAIL** still follows where further several names of markings (inside the range: $\Omega=310^\circ\text{W}\sim 010^\circ\text{W}$, $\Phi=60^\circ\text{S}\sim 60^\circ\text{N}$) are picked out, and minor details of the observations are presented. We would like to skip these descriptions (originally shown by the use of a smaller font by closing up the space between the lines). It seems that ANTONIADI wanted to search how the minor markings (mostly canals) have been caught. In his mind, in the beginning was a detailed map, and then the 147 drawings came there. What follow are names of markings in this corner: *Arnon*, *Deuteronilus*, *Euphrates*, *Gehon*, *Hiddekel*, *Orontes*, *Oxus*, *Phison*, *Protonilus*, *Sitacus* and

Typhoni. The longest description is given to *Gehon*. (To be continued)

NOTES added by the present writer: 1)

We suppose that this tedious series of the BAA Mars Section in 1913~1914 will need at least 6+polar Parts because $360^\circ=60^\circ\times 6$. 2) The text of the BAA Memoir was provided to us several years ago by Takeshi (Ken) SATO to whom we would like to express our sincere thanks again. 3) As to the observations during the 1992~1993 Apparition (79 years cycle after 1913~1914) given by the Members of the OAA Mars Section, some statistics were made by Takashi NAKAJIMA, Secretary of the OAA Mars Section, in CMO #136 (25 August 1993 issue). According to his statistics, 20 domestic observers in Japan joined who contributed a total of 2325 observations. The observers included 10 visual observers: (MINAMI secured 838 drawings, NAKAJIMA did 362 drawings, T. IWASAKI 343 drawings, MURAKAMI 117 drawings + 7 TP photos+11 Colour photos, ISHADOH 116 drawings, HIKI 111 drawings, and so on. The most active domestic Mars photographer in 1992~1993 was Yukio MORITA who gave 133 sets of TP + 128 sets of Colour photos.)

During the 1992~1993 apparition, we also received with thanks as much as 646 observations from the overseas observers. \square

How Did Vary the Configuration of the North Polar Cap During the Period from $\lambda=054^\circ\text{Ls}$ (in 2012) to $\lambda=141^\circ\text{Ls}$ (in 2014) Seen from the Narrow Window of Angles $\omega=170^\circ\text{W}\sim\omega=180^\circ\text{W}$?

By

Masatsugu MINAMI & Masami MURAKAMI

ISMO 2013/14 Mars Note (#04)

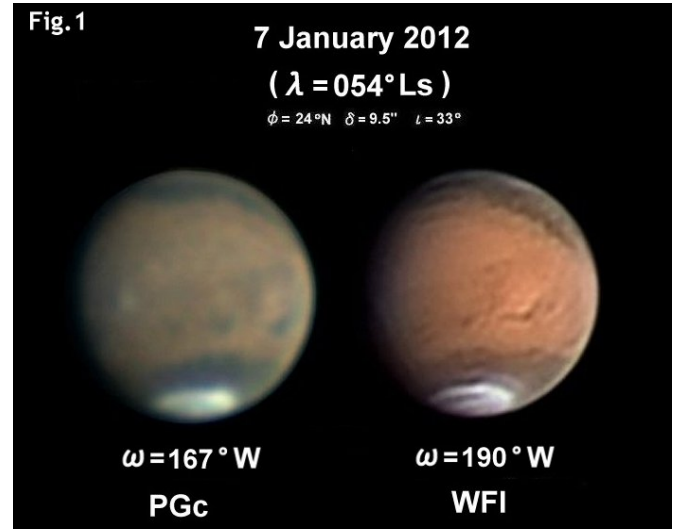
WE already gave a survey in ISMO 11/12 Mars Note (16) of CMO #413 (25 August 2013 issue) of the transforming of the north polar cap (npc) during the period from $\lambda=066^\circ\text{Ls}$ to $\lambda=082^\circ\text{Ls}$ observed from the window of the angles

$\omega=160^\circ\text{W}\sim\omega=180^\circ\text{W}$. Especially we could show how Rima Borealis appeared by detaching the so-called Olympia from some excellent images obtained in 2012. The first essential key was provided by Efrain MORALES (*EMr* at Puerto Rico, by the use of a

31cm SCT) on the images taken on 11 February 2012 ($\lambda=069^\circ\text{Ls}$) at $\omega=173^\circ\text{W}$: The npc was then looked covered by the icy ingredient, while the almost all preceding part appeared to be more or less contaminated by a slightly dusty matter (whose temperature must have been slightly higher), especially the middle part suggesting a density which might turn out to be a deep rift, though the following corner of the npc was left very whitish bright. This configuration connoted well an arrival of the period of fission of the npc. The remaining whitish-bright tip of the npc thus showed itself as a germ of Olympia. The excellent RGB image was stately cited as Fig. 1 in ISMO 11/12 Mars Note (16) (CMO #413). One month later, Damian PEACH (DPc) put forward another excellent set of images on 12 March 2012 ($\lambda=082^\circ\text{Ls}$) at $\omega=178^\circ\text{W}$ where Rima Borealis was quite bluntly revealed together with Olympia: On this image it was also apparent that the western perimeter part in the *EMr* image had melted away. The set of images was shown in a pairwise way in Fig. 4 in 11/12 Mars Note (16). This time also the pair was put at the bottom of Fig. 3 below.

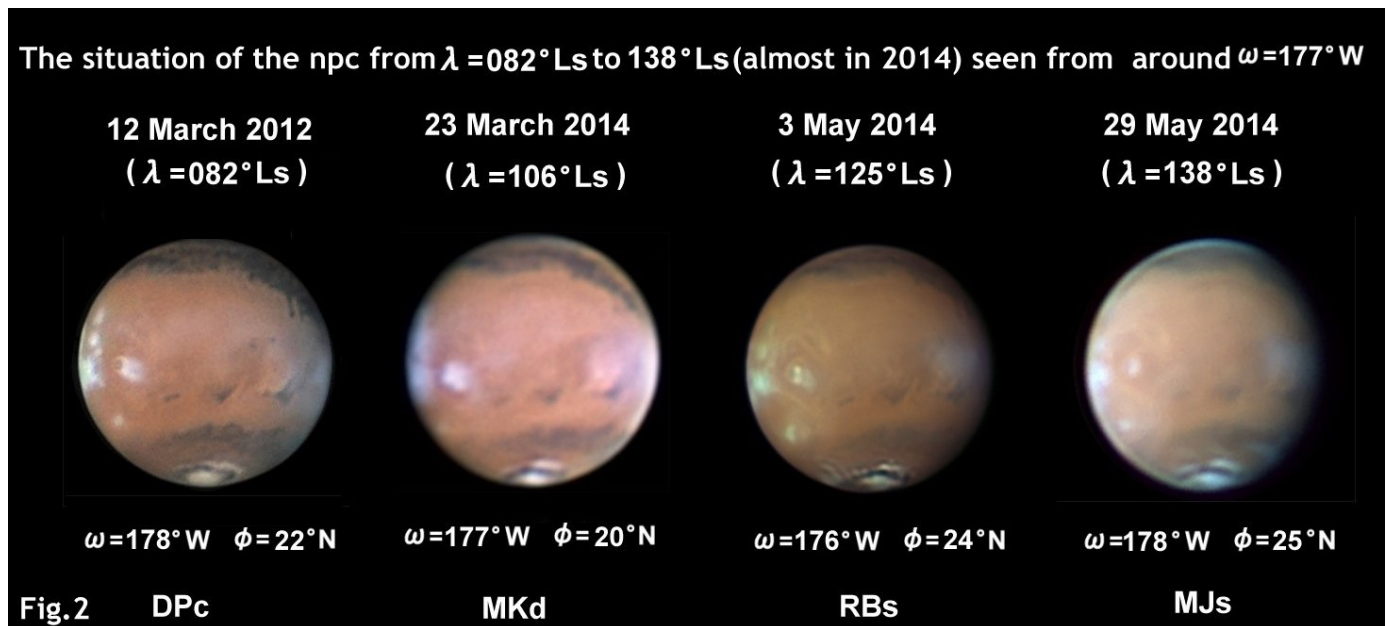
Grossly speaking, it can generally be said that the npc in 2012 was rather thick until the time of *EMr*: $\lambda=069^\circ\text{Ls}$ (11 Feb 2012). However if we try to

tracing back to the day of 7 Jan 2012 ($\lambda=054^\circ\text{Ls}$), we can find a set of images taken by Bill FLANAGAN



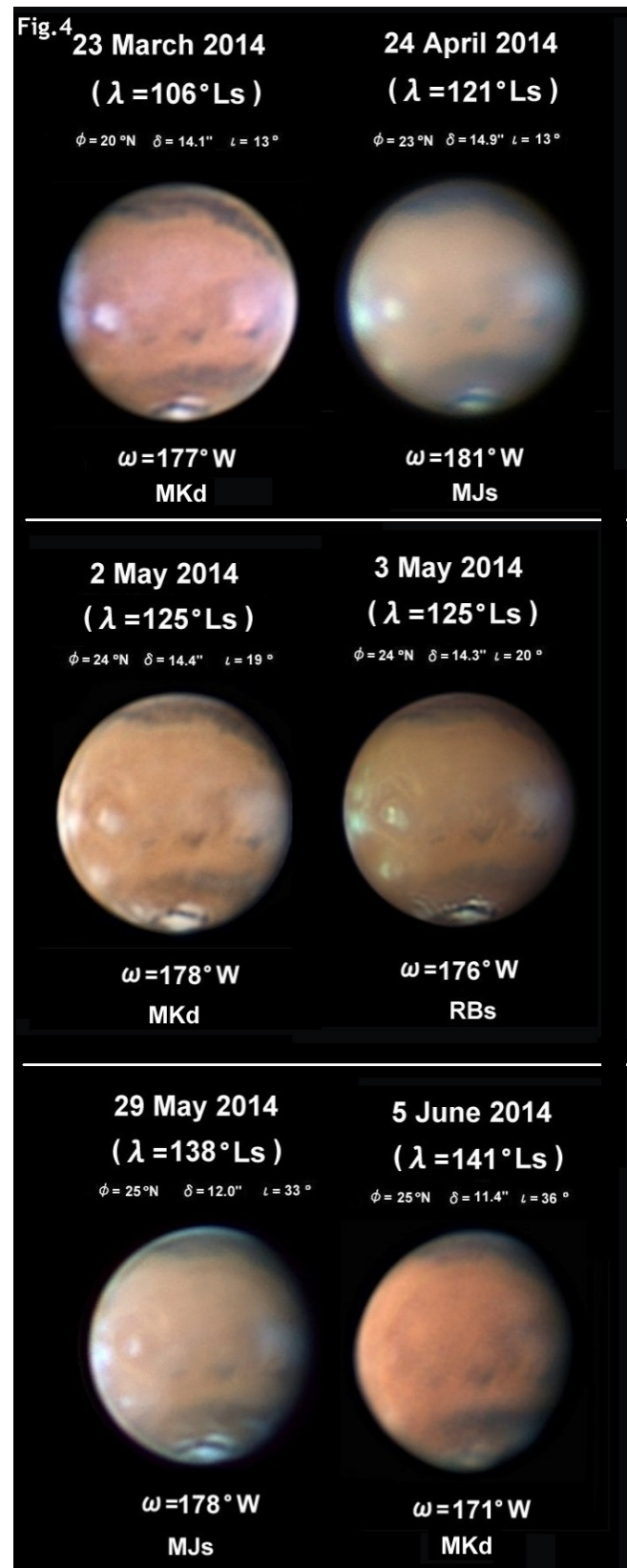
(WFI) at $\omega=190^\circ\text{W}$ in which we may dare to discriminate a part of ring-like preceding shadowy band (assumed Rima Borealis), and hence if both of the seeing and the instrumental conditions were aligned much better, the curved cracked part which was surely about soon to show up gradually must have been visible even after even $\lambda=057^\circ\text{Ls}$. We here show WFI's image together with an image of Peter GORCZYNSKI (PGc) on the day at $\omega=167^\circ\text{W}$ as Fig. 1 here. PGc obtained on the day six Red images from $\omega=152^\circ\text{W}$ to $\omega=170^\circ\text{W}$, and we can say the image at $\omega=170^\circ\text{W}$ suggests vaguely the half ring inside the npc.

On the other hand, in the present 2014 opposi-



tion, every image continued to show inside the area of the npc the pair of Rima Borealis and Olympia facing each other. Thus the configuration was akin to that of the *residual cap*. Figure 2 on the previous page shows here some representative images of the

period from March to May 2014 seen through the window of angles $\omega=176^\circ\text{W}\sim 178^\circ\text{W}$. The first one is *DPC's* image at $\lambda=082^\circ\text{Ls}$ in 2012. Then follow the image of Manos KADRASIS (*MKd*) at $\lambda=106^\circ\text{Ls}$, Richard BOSMAN (*RBs*)'s at $\lambda=125^\circ\text{Ls}$ and Mark



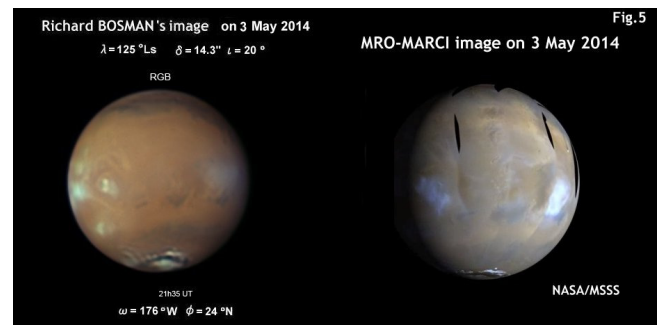
JUSTICE (*MJs*)'s at $\lambda=138^\circ\text{Ls}$. *MJs* uses a 30cm Newtonian.

Figure 3 at the preceding page shows a set of the npc images in 2012 which follow the case of *WFl* on 7 Jan 2012 ($\lambda=054^\circ\text{Ls}$, Fig. 1) until *DPc*'s $\lambda=082^\circ\text{Ls}$; observed from the same window. Here we recall the following: Any reader could try to refer to ISMO 11/12 Mars Note (17) in CMO #414 where *MKd*'s image on 8 March 2012 ($\lambda=081^\circ\text{Ls}$) from somewhat different angle at $\omega=154^\circ\text{W}$ is shown. *MKd* uses a 28cm SCT. This image of course reveals a pair of Rima Borealis and a bit of Olympia. The observers who contributed in Fig. 3 are Freddy WILLEMS (*Fwl*), Yukio MORITA (*Mo*, by the use of a 25cm Newtonian at that time), Tomio AKUTSU (*Ak*), Sean WALKER (*SWk*) (who uses a 31cm Newtonian), *EMr* & *DPc*.

Figure 4 on the preceding page also collects the images in 2014 in the same way as we did for the 2012 npc in Fig. 3. Naturally some images duplicate with those in Fig. 2. We would like to repeat again here that the relation of Rima Borealis with Olympia similarly persists during the period suggesting a residual state of the npc. Note that in Fig. 4 there are adopted *three* images produced by *MKd* from Greece: This might not be superficially accidental,

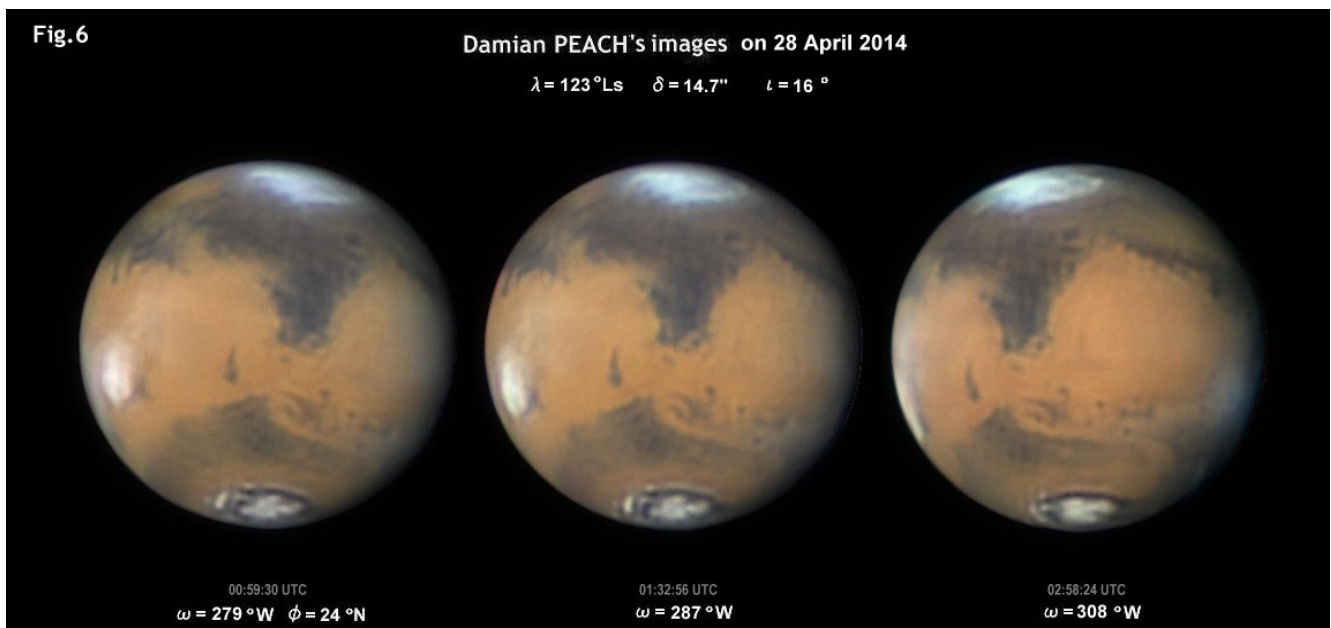
but *MKd* must have felt it to the bones that the window of angles was very vital in this case. The observers who contributed to Fig. 4 naturally overlap with those in Fig. 2.

Contrary to *MKd* in Fig.4, *RBs* contributed no more than *five* sets in 2014, while his image set on 3 May 2014 ($\lambda=125^\circ\text{Ls}$) at $\omega=176^\circ\text{W}$, here cited in Fig. 4, was excellent from our standpoint: He well described interestingly Olympia and its preceding part. So here we tried to compare *RBs*'s image with a cut of the MRO-MARCI rotating sphere on the



very day in Fig. 5. The crater Korolev (073°N , 195.5°W) is quite apparent as a tiny white spot on the MRO-MARCI image. It is poor on *RBs*'s image, but we can also pin down though in a vague form.

Finally as a Fig. 6, we cite three superb disks produced by *DPc* on 28 April 2014 ($\lambda=123^\circ\text{Ls}$) to show how the npc and Olympia look like if seen from the rather opposite angles. □



2013/2014 Mars Observations in November & December 2014

♂..... The planet Mars in November 2014 moved from the area of the Sgr to the Cap constellation, and at the end of December 2014 it reached the eastern part of the Cap constellation. The apparent declination recovered back to around 10°S , while it set as early as around 20 hrs Local Time and the apparent diameter went from $\delta=5.6''$ on 1 November down to $\delta=4.8''$ at the end of December 2014. The tilt varied from $\varphi=3^{\circ}\text{S}$ to $\varphi=21^{\circ}\text{S}$ during the two months. The phase angle also went from $\iota=36^{\circ}$ down to $\iota=28^{\circ}$ from 1 November to 31 December. The Martian season proceeded from $\lambda=224^{\circ}\text{Ls}$ finally to $\lambda=263^{\circ}\text{Ls}$, quite near the southern summer solstice. During this period, it was paid attention about the dust disturbances, but any explicit observation was reported. During the period the centre of the shrinking south polar cap (spc) must have deviated from the southern pole of Mars. Hence the apparent position of the spc does not exactly suggest of the southern pole so that we should be careful if we want to determine any positions of minor markings we should first find the NS axis precisely by finding the $p \leftarrow \rightarrow f$ line.

♂..... This period the contributed observers just counted two, one is Clyde FOSTER (CFs) from Centurion, South Africa and the other is Yukio MORITA (Mo) from Hiroshima, Japan. According to CFs, fine skies did not necessarily continue in November, and just ten evenings allowed him to observe. In December he just met two evenings to catch the planet annoyed by a series of bad weather. Mo also stood by every day, but he could observe no more than one evening.

♂..... The following are the observers list and data concerning their observations they performed.

FOSTER, Clyde (CFs) Centurion, SOUTH AFRICA

12 Sets of RGB + 1R + 12 IR Images (1, 5, ~7, 9, 14, 16, 18, 20, 26 Nov; 2, 29 Dec 2014)
36cm SCT @f/33 with an ASI 120MM

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

1 Set of RGB + 1 LRGB Colour + 1 L Images (23 December 2014) 36cm SCT with a Flea 3

♂..... We shall now give a short review to each observation in Nov & Dec chronologically as before

1 November 2014 ($\lambda=225^{\circ}\text{Ls}$ ~ 226°Ls , $\delta=5.6''$ ~ $5.5''$)

Clyde FOSTER (CFs) took two sets of R, G, B and IR742 ingredients and produced two RGB composites at $\omega=148^{\circ}\text{W}$ and at $\omega=156^{\circ}\text{W}$. The tilt has moved to the southern hemisphere from around 20 October, and now $\varphi=4^{\circ}\text{S}$ so that the south pole faces toward the Earth. Every ingredient shows clearly the south polar cap (spc), and the spc is white in RGB. The darkest marking is the eastern part of M Sirenum, and Solis L is not so conspicuous, may be weaker than Agathodæmon. The R image at $\omega=148^{\circ}\text{W}$ and the RGB image at $\omega=156^{\circ}\text{W}$ show several dark spots on the northern hemisphere, while to determine the positions of those minor markings it is necessary first to find and fix the SN line of the axis exactly. Especially after $\lambda=230^{\circ}\text{Ls}$, the centre of the spc deviates from the south pole and so every image should be accompanied by the data of $p \leftarrow \rightarrow f$ with a reference to the Position Angle II of the axis rotation, measured eastwards from the north point (as given by Akinori NISHITA (Ns) in CMO Ephemeris) as always done by Don PARKER (DPk) and Yukio MORITA (Mo). Without this data, every image will lose half its value.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmns/2013/141101/CFs01Nov14.jpg>

5 November 2014 ($\lambda=227^\circ\text{Ls}$ ~ 228°Ls , $\delta=5.5''$)

CFs gave a set of images at $\omega=113^\circ\text{W}$. The spc is definite while the opposite arctic area is slightly misty. Solis L is very evident in the evening, and Tithonius L is clearly visible. Ophir-Candor is ordinarily light. Phoenicis L is clearly seen and the Tharsis trio Montes are also visible. On the northern part of the disk, the northern district of M Acidalium lies.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/141105/CFs05Nov14.jpg>

6 November 2014 ($\lambda=228^\circ\text{Ls}$ ~ 229°Ls , $\delta=5.5''$)

CFs obtained a set of images at $\omega=116^\circ\text{W}$. These are similar to the previous ones, but look smoother. The R image is good where the dots of Phoenicis L and Arsia Mons show up in a pairwise way. Ascræus Mons is seen as a dark spot while Olympus Mons is obscure near the morning terminator. Araxes may be seen downward from the eastern part of M Sirenum. An arctic thick mist is shot on G and B, so that it's evident on the RGB.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/141106/CFs06Nov14.jpg>

7 November 2014 ($\lambda=229^\circ\text{Ls}$, $\delta=5.5''$)

CFs gave a set of images at $\omega=091^\circ\text{W}$. Ophir-Candor is bright and stays near the centre, Ganges is also seen broad. It is however strange that Thaumasia preceding Solis L is not light and the area looks shadowy. Tithonius L is definite and seen on the morning side. Phoenicis L is quite evident preceding Arsia Mons. The description of the contour of the disk in B is not to our liking. Auroræ S shows up dark in IR.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/141107/CFs07Nov14.jpg>

9 November 2014 ($\lambda=230^\circ\text{Ls}$ ~ 231°Ls , $\delta=5.4''$)

CFs's next set of images was given at $\omega=076^\circ\text{W}$. The tilt went up to $\phi=7^\circ\text{S}$. Solis L moved to the morning side, while Thaumasia is obscure. In R, the spc seems to have much shrunk. In G it is quite bright and clear. It is about time for the spc to deviate to the direction of $\Omega=060^\circ\text{W}$. Tithonius L is quite clear, and Ophir-Candor is bright along Ganges. The Nilokeras complex began to be seen. Outside the dark fringe of the spc, Argyre looks to begin to show in a sandy colour.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/141109/CFs09Nov14.jpg>

14 November 2014 ($\lambda=233^\circ\text{Ls}$ ~ 234°Ls , $\delta=5.4''$ ~ $5.3''$)

CFs took a set of images at $\omega=030^\circ\text{W}$. The western part of S Sabæus is now quite inside the disk. Meridiani S is visible and the line from Oxia P to Margaritifer S is clearly seen. Aram is slightly light. The dark markings on the southern hemisphere show some light and shade configurations but it's difficult to discriminate them. Argyre is faintly visible. The perimeter of the spc is not smooth, but rather zigzagged and sends a slight projection towards Argyre. M Acidalium on the northern district does not make a shape but has a darker area near the northern limb.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/141114/CFs14Nov14.jpg>

16 November 2014 ($\lambda=234^\circ\text{Ls}$ ~ 235°Ls , $\delta=5.3''$)

CFs sent us an R single image at $\omega=005^\circ\text{W}$. The spc is bright, and the irregularity of the perimeter at the morning side is shown. The fringe of the spc is quite dark. The depiction of the preceding

limb is poor, while Sabæus S is more inside and both nails of Aryn are evident. M Serpentis curved upward and extends to Noachis. The northern part of Margaritifer S is visible, and it looks M Acidalius stays near the morning terminator. No evidence is shown of any large dust disturbance, as quite nicely shown for $\delta=5.3''$.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/141116/CFs16Nov14.jpg>

18 November 2014 ($\lambda=236^\circ\text{Ls}$, $\delta=5.3''$)

CFs gives a set of images at $\omega=350^\circ\text{W}$. Near the preceding limb Syrtis Mj is shown slim. Adjacent to the dark fringe of the spc, a faintly light belt is visible. Margaritifer S is now near the morning terminator. The R image is softer than the preceding day's result concerning S Meridiani and so on, while the area of M Serpentis looks somewhat more extraordinary than before: It appears fat and broader.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/141118/CFs18Nov14.jpg>

20 November 2014 ($\lambda=237^\circ\text{Ls}$, $\delta=5.3''$)

CFs produced a set of images at $\omega=328^\circ\text{W}$. Hellas is well mapped also in G, and its inside shows a tint of the ground. Syrtis Mj looks quite large. S Meridiani is now near the morning terminator. The preceding area of Hellespontus is faded. The area of M Serpentis is nicely shown. It is surely broader. This apparition it was not so conspicuous when Hellas was very whitish at around $\lambda=130^\circ\text{Ls}$. Even at around $\lambda=160^\circ\text{Ls}$ (still the tilt was quite northward) it was not so darkish, and at around at $\lambda=180^\circ\text{Ls}$ (late August) it was similar. In September, no effective image was given of M Serpentis.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/141120/CFs20Nov14.jpg>

26 November 2014 ($\lambda=241^\circ\text{Ls}$, $\delta=5.2''$)

CFs gives a set of images at $\omega=278^\circ\text{W}$. A total image of Hellas is inside the disk. Syrtis Mj moved to the morning side, and M Cimmerium is now seen. The spc, smaller and roundish, declines towards us because $\phi=12^\circ\text{S}$. Already the centre of the spc must have deviated: To identify the positions of markings, we need to find the NS line of the rotation axis by referring to the value of I shown in any of the CMO Ephemeris.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/141126/CFs26Nov14.jpg>

2 December 2014 ($\lambda=245^\circ\text{Ls}$, $\delta=5.1''$)

CFs succeedingly gives a set of images at $\omega=223^\circ\text{W}$. Now $\phi=14^\circ\text{S}$. M Cimmerium is totally visible, with M Sirenum being coming in. The eastern part of M Tyrrhenus is well seen. There is a dark spot, maybe identified as Tiphys Fretum. There are also seen several dark spots on the northern hemisphere, but it is difficult to identify them convincingly without the determination of the NS line.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/141202/CFs02Dec14.jpg>

23 December 2014 ($\lambda=258^\circ\text{Ls}$, $\delta=4.9''-4.8''$)

Yukio MORITA (Mo) had a rare chance to have a set of images (including L) at $\omega=263^\circ\text{W}$, but the seeing condition remained very poor here in Japan. The tilt was $\phi=19^\circ\text{S}$. The aspect of the spc is obscure. Just barely Syrtis Mj is caught near the morning terminator in R together with somewhat of Hellas.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/141223/Mo23Dec14.jpg>

29 December 2014 ($\lambda=262^\circ\text{Ls}$, $\delta=4.8''$)

CFs gives a set of images at $\omega=317^\circ\text{W}$, $\phi=21^\circ\text{S}$. The smaller spc faces towards us. A large Syrtis Mj and Hellas make a configuration when we see at the perihelic apparitions. M Serpentis is broad and dark, whose fact is reminiscent of the deformation observed just after the July 2003 dust disturbance near M Serpentis. See item F in the following site:

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmo/2003News.html>

www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/141229/CFs29Dec14.jpg

Masatsugu MINAMI & Masami MURAKAMI

Letters to the Editor

●.....Subject: Mo03Jan_15

Received: 12 January 2015 at 22:37 JST

Dear Dr. MINAMI, Please find attached Mars images taken on 3 January 2015. With best wishes

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/150103/Mo03Jan15.jpg>

Yukio MORITA (Hiroshima, JAPAN)

●.....Subject: RE: A Happy New Year

Received: 4 January 2015 at 21:48 JST

Dear Reiichi, I was delighted to see your e-mail, and thank you very much for sharing your comments and also previous e-mails to Christophe and Bill. I hope you don't mind if I also copy Masatsugu and Masami on this e-mail, as there may be a few things of interest to them, and I have been meaning to send an e-mail to them in response to an earlier email they sent me.

Thank you for the compliments on my Mars imaging. It is very rewarding to get feedback, comment, and yes, even criticism (!!) on my images particularly from highly experienced observers. Although I have had a lifelong interest in astronomy (from about the age of 9, and I am now 56....), work, family and financial commitments limited my activities. It was therefore a privilege for me to be able to invest in a nice (motorised) roll-off roof observatory with a new C14 SCT earlier this year. Commissioning took place a little after Mars opposition, and at

that stage I only had a colour camera, so there was limited value from an analysis perspective. Despite that I was very excited to capture my first dust storm in early July, and I committed to taking images on every possible opportunity. I developed a positive relationship and interaction with the Mars Sections of ALPO (Roger and Jim) and the BAA (Richard). It became very evident to me the value of filtered images, and in August I purchased a mono camera and filterwheel set, and commenced climbing the huge Image processing mountain! When I look back on some of the early attempts, I am a bit embarrassed, but it is all part of the learning curve that every serious imager must go through. Advice from Christophe and a number of other experienced imagers was very much appreciated. One thing I do know is that I still have a lot to learn (I was privileged to get advice from Don Parker, which as yet, I have not managed to incorporate in my image processing procedures, so I hope that that will improve my images even further). Colour balance is certainly one of the biggest challenges for me.

It was shortly after this that I became aware of the CMO/ISMO and started submitting my images. I was very impressed with the commitment and effort that was (and is) put in to comment on every image that is submitted in the CMO. This is what I would call a "labour of love", and provides an excellent service and resource for Mars observers.

Together with the imaging, I purchased a number of good reference books on Mars so that I could

better understand the planet and what I was imaging. I also discovered the MRO MARCI weather report, and as you have already noted, I found it fascinating to see "my" dust storms imaged from a Mars orbiter (albeit 1-3 weeks later). One thing I noted in comparing my images with MRO is that the main albedo features are often seen better from the Earth than they are from Mars orbit!

It is certainly my intention to continue imaging in this apparition as long as I can, although with us in the middle of summer now, the elevation of Mars is dropping by the time it starts becoming dark. I have also found that seeing conditions are best during twilight, so a few things are starting to work against me. It is very difficult to capture a reasonable blue image under these conditions, so I may shortly be limited to R and IR images. One good thing about this is that it should still be possible to identify any major dust storm activity. We shall see, as weather conditions have been poor for a number of weeks now in the area where I live.

I was interested in your comments regarding visual observing and imaging. If I understand you, you see imaging as a direct/natural extension of visual observing, rather than competing with visual observing. As an engineer, I have really enjoyed the full experience from the setting up of the equipment and imaging train, to the capturing of the images, and the multi-step processing procedures, through to assessing the quality and information in the final image. Let me also add that one of the greatest pleasures for me after a hard days work is to retreat to my back garden, roll the roof off the observatory and look to the skies..... What a privilege, and a wonderful way to relax and de-stress! I guess what I am saying is that this hobby goes far beyond a purely technical pastime but definitely extends to aesthetic if not even spiritual levels. I have huge respect for those who still prefer to do visual (I believe this is your speciality?) observing. At the end of the day, I believe we are all striving for the same thing- to capture, interpret and understand what we

can, to the best of our abilities.

I am not sure that at this stage I can be classified as a "thinking/analysing imager", but I can assure you that this is a title that I can (and will) definitely aspire to!!

Just as a bit of a side anecdote, I see that there is a Mr ASADA who is on the Advisory board of the CMO/ISMO. This reminds me of when I was a young Chemical Engineer back in the 1980's. I was involved in a pilot(test) project at one of the South African Power stations where Japanese technology was being considered for purifying contaminated water. It was EDR (Reverse Electrodialysis) technology from a company called Asahi Glass Co (if I recall correctly). The point being is that they sent out a young Japanese engineer (also Mr ASADA) who I worked with at the power station. We worked well together and spent a lot of time discussing Japanese culture, and also drank a bit (maybe it was more than that....!!) of Suntory whiskey! As friends, I would refer to him as "Asada-san" and he called me "Foster-san". I do not know how common this name is in Japan, and if there may be any connection between the two "Mr ASADA's"?

Thank you again for your comments and feedback, and I look forward to further interaction with you and the CMO/ISMO

Finally, I would like to wish you (and Masatsugu and Masami), a happy, healthy and prosperous 2015. Let us hope for clear skies and good seeing, and possibly a major dust storm on Mars in the next few weeks!! Best regards, Clyde

*Sent: 04 January 2015 11:24 AM
To: Clyde Foster
Subject: A Happy New Year*

Dear Clyde (if I may),

Checking emails sent to me last year, I have just discovered your email dated 28 October 2014 in my spam folder! (don't know the reason why) ...Most sorry for not contacting you sooner!

Your indefatigable focus on your observing Mars is really great, and I am happy to learn your recovery from the back surgery to be able to get still detail-rich

images of the red planet below 5"!...I fancy observers on the imaginary antipodal-on-orbit-Earth would be enjoying a favorable approach of Mars with its southern summer... Though the MRO MARCI weather reporter commented as "Based on recent major regional storm activity and comparisons with the historical storm records, a planet-encircling dust event (PEDE) is unlikely (< 50%) to occur in the remainder of this martian year" in their release for the week of 1 Dec.-7 Dec., it's still in the major dust season, and the Earth-based patrol is still valuable for the early detection of the outbreak of the major meteorological event, because the images (though superb) of HST and the Mars orbiting probes are quite sporadic in releasing (even MRO MARCI Weather Report takes 1~3 weeks in updating).

One more your special characteristic I noticed is that you are an "thinking/analysing imager". Let me here paste the copy of my email to Christophe PELLIER (Cced to Bill SHEEHAN also) on 21 Dec. 2012, and the one to Bill SHEEHAN on 2 March 2013, sorry they're a bit lengthy:

Dear Christophe, I have just completed and submitted my translation of your 11/12 note #7 for CMO #405 Japanese version. It's very interesting! I think I could have managed to catch the Tharsis bright morning fog a few times visually in the last apparition, as a bit light (not bluish) triangular area in the morning side. Attached are some of such drawings. I guess the bright fog was still visible/imageable until at around $\lambda=120^\circ\text{Ls}$.

By the way, I have also translated Bill SHEEHAN's very important opening essay for #405 Japanese edition. Did you read that? The theme is quite heavy and oppressive, related to the fate and the future of ISMO/CMO, but I think someone have to take on the subject sooner or later, and Bill is one of the best persons for now. I myself have a plan to write something on the theme with a title "CMO or Earth-Sized Argus--The Brain of the Hundred-Eyed Super Giant is An Super Experienced Visual Observ-

er", in which I will admit that the rare species of classical visual observers is a dying breed, but the way of thinking like our GM have acquired through his sheer length of visual observation time will remain useful in analysing digital images, because, I believe, CCD planetary observation in a way is very much alike visual observation, an experienced CCD imager's telescope/imaging/processing system is practically within his visual system, his telescope is his "Big Eye" projected deep into the Solar System, his "Digital" processing is very much analogue in handling processing, results in an image pleasing to his "Eyes". I certainly recall that my old good friend Tomio AKUTSU in Cebu once suffered from severe psychosomatic problem when a violent typhoon blew down his C-14 to crash onto the floor ; that's quite understandable ; he lost his Big Eye!

GM (for Grand Massy : our secret nickname for unreplaceable Masatsugu, Bill), the brain of the Earth-Sized Hundred Eyed Giant (mostly digital eyes for now!) is carrying out the final image processing in the center of ARGUS : for : "the Areoholic Reconnaissance Global Union consists of hundreds of observing Stations" or "Areoholic Reconnaissance Group with Uninterrupted longitudinal coverage of observing Stations" or "Areoholic Reconnaissance Group United by Sympathy (or Soul or Show-off, or Self-assertiveness(!))"Whoops,

I'm no good at punning! Best Regards,

Reiichi KONNAI

Dear Bill,

This time I am deeply moved by your "well-planned program" of stimulation therapy to encourage our irreplaceable Masatsugu in his failing health, and to reactivate CMO/ISMO with hosts of pending problems such as the chronic shortage of writers/analysts, uncertain successors to the present editorial board, and etc.,etc..... You are certainly an admirable pschiatrist, as well as an exquisite astronomy historian!

I remember your writing in your LtE the other day that my ARGUS essay might offer a more optimistic assessment of the situation than your ones. Actually however, I am rather (not quite) pessimistic about the future of CMO/ISMO. CMO is, as you know well, an unprecedented and probably the last singular field which had been created some thirty years ago by Masatsugu MINAMI as an antithesis of the previous defective observing/analysing systems of Mars, with which the dream of well-planned program of classical Mars observation finally came true, to which visual/digital observers world over could have been submitting their records to find their *raison d'être* promptly. It's astonishing (and it feels unstable at the same time/on the other hand) that the integrity of the Martians' *Shangri-Laish* zone has been preserved practically solely by Masatsugu, an unprecedented and presumably the final PURE MARTIAN/visual sketcher on this blue planet. As for your phrase in your Night Thoughts essay Part One, "Can replacements even be found?"...Can't at all, I dare say for now. So, I believe, we have to be confronted with some changes in the system of CMO/ISMO in the near future.

In my future essay, I'm going to classify the astronomers (both amateur and professional) constitute the CMO/ISMO according to the motivations of continuing their observations to seek ways for the individualistic "loners" to coexist peacefully and fruitfully as have been proven impossible by Dr. Masatsugu MINAMI.

Best Wishes, Reiichi KONNAI

...Yes, I feel, our GM with his charisma: exceptional brain, over ten thousand career visual observations, and the excellent command of languages as well...have built up the world of amateur Mars observation to a kind of "vertical specialization/division of labor" system: the central analyst, and the

imagers and the sketchers the world over. The system have been working quite successfully..., but GM is now 76 years old with serious illnesses (I am aged 64 by the way!). Now is the time we need "thinking/analysing imagers"...in this sense also, you are one of the stars of hope! Belated but a Happy New Year 2015 with a good health!

With Best Regards, Reiichi

○...*Subject: Mars 7 January 2015*
Received: 8 January 2015 at 04:19 JST

Good evening all, Managed to capture a set of images this evening. Elevation was low and seeing conditions fairly poor, so I am afraid the result is not great. I can maybe make a few comments: Mare Cimmerium is visible and dominates the image (no global dust storm as yet....!). Hellas is on the south western terminator, and shows no indication of any significant brightness. Unfortunately no obvious indication of the SPC- I suspect due to the seeing conditions and elevation. Amazonis appears to be bright. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/150107/CFs07Jan15.jpg>

○...*Subject: Re: Mars 7 January 2015*
Received: 8 January 2015 at 14:21 JST

Thanks for the comments Richard. I see that there was an image by MORITA on the CMO website, which was fairly close in orientation (23 Dec), and was similar. Maybe just a hint of the SPC in his red image at that stage. In comparison, the SPC was quite spectacular given the orientation on 29 Dec.

Best regards,

○...*Subject: Mars 8 January 2015*
Received: 9 January 2015 at 03:37 JST

Good evening all, Managed to capture a set of images earlier this evening, with better conditions and results (although no usable data apparent in blue....). M Cimmerium again dominates the image, although Hesperia and M Tyrrhenum also visible towards the west. M Chronium also evident as well as some darkening on the edge of the SPC. A little bit of detail visible in the Elysium region. Possibly just a hint of the SPC in R and G? Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/150108/CFs08Jan15.jpg>

○...*Subject: Mars 12 January 2015*
Received: 13 January 2015 at 03:29 JST

Good evening all, Managed to capture R and IR images this evening through a tiny gap in the clouds (+90% cloud cover) . Mare Sirenum and M Cimmerium prominent. M Chromium visible in IR, with some detail south of M Sirenum. Indication of SPC with extension to the east (left)? Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/150112/CFs12Jan15.jpg>

○...*Subject: Mars 13 January 2015*
Received: 14 January 2015 at 04:32 JST

Good evening all, Similar view to yesterday evening. There appears to be some lightness just below the SPC, most noticeable in G. Could this be cloud? However at this size, I would be hesitant to make any absolute comment on detail this fine. Colour balance a bit of a challenge this evening.

Best regards

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/150113/CFs13Jan15.jpg>

○...*Subject: Mars 16 January 2015*
Received: 17 January 2015 at 05:43 JST

Good evening all, Set of images taken under very poor conditions. Mare Sirenum central and SPC evident.

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/150116/CFs16Jan15.jpg>

Best regards,

○...*Subject: Mars 18 January 2015*
Received: 19 January 2015 at 04:00 JST

Good evening all, Conditions a bit better this evening (and also caught Mars a bit earlier). The RGB data is not great, but I was fascinated with the IR image. This is the first time I have captured Solis Lacus so clearly as the "Eye of Mars". Also in IR, Mare Sirenum and Aonius Sinus are clearly seen. The SPC is very clearly seen and is bright across the IR, R and G images. Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/150118/CFs18Jan15.jpg>

○...*Subject: Mars 20 January 2015*
Received: 21 January 2015 at 03:41 JST

Good evening all, Single Red image from this evening. Solis Lacus fairly central. Mare Sirenum, Aonius Sinus and Mare Erythraeum region all evident. SPC bright and clear. Is it possible there is just

a hint of the 3 Tharsis volcanoes? A new milestone for me at 4.5". Best regards,

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/150120/CFs20Jan15.jpg>

○...*Subject: Re: Mars 20 January 2015*
Received: 21 January 2015 at 11:10 JST

Thanks for that valuable feedback Roger. I have Winjupos, so will try and replicate what you did, for my own interest and experience. I am trying various settings both in AS2! and registax, and you can end up with quite differing results. Also trying not to "overcook" the processing, but its always a judgement call!. Best regards,

○...*Subject: Re: Tharsis Trio and Olympus Mons*
Received: 26 January 2015 at 03:32 JST

Dear Reiichi, Thank you for your comments and also the comparison images. I suspected that the dark spots may be Tharsis Montes, but I did get some feedback from someone who did an analysis of my image in WinJupos software, and apparently the locations did not match. So unfortunately it is possible that the dark spots may just be noise from the processing. I also have Winjupos, so I will try and replicate what he did and see if I get the same result. I appreciate your continued interest in my images. Thank you also for the comments regarding my friend Asada-san! Best regards,

○...*Subject: Mars 28 January 2015*
Received: 29 January 2015 at 03:50 JST

Good evening all, Weather conditions have been poor over the last week. I had a little bit of clear sky this afternoon and managed to capture a few R avi's (looks like that is going to become my standard for any remaining images this apparition), with the attached image being the best result I could get. Seeing was very poor, and altitude was 23 degrees.Best regards

<http://www.kwasan.kyoto-u.ac.jp/~cmo/cmons/2013/150128/CFs28Jan15.jpg>

Clyde FOSTER (Centurion, SOUTH AFRICA)

●...*Subject: Re: Mars 7 January 2015*
Received: 8 January 2015 at 04:52 JST

Dear Clyde, Thank you. This is by no means an abnormal image, to my eyes. You may like to know that the SPC is asymmetrically displaced away from

the S. pole as it shrinks, and on this side of the planet its N. edge would be close to the limb, so its absence is not so surprising given the disk diameter and seeing. All the best,

Richard McKIM (Peterborough, the UK)

●...*Subject: Re: Mars 8 January 2015*
Received: 9 January 2015 at 04:43 JST

Hi Clyde, Great details! You've definitely recorded the SPC in IR and Red shown as the bright 'cap' in the South polar regions. As Richard said it is offset to the left. And the IR shows the SPC to be mottled. Continued success,

Jim MELKA (Chesterfield, MO)

●...*Subject: Re: May I ask a favour of you?*
Received: 12 January 2015 at 01:43 AM

Dear Masatsugu, I just got back from Flagstaff - this is the first time I have visited the place in Kachina Village where our son is living while in college - and I spent some time in the new Collections Center at Lowell Observatory researching Lowell's "X" calculations for a book I am writing on Pluto with Dale Cruikshank. As you know, this is Pluto's year, with New Horizons arriving on July 14 (also the 50th anniversary of the Mariner 4 Mars flyby), while on January 13 we will celebrate the centennial of Lowell's summary of the "X" investigation for the American Academy of Arts and Sciences.

These things are, therefore, fresh in my mind, so I will write something perhaps about Lowell and "X" or Pickering and "O" or E. C. Slipher's Mars drawings or???? Let me think on it today.

I will also send you some pictures of the Clark dome and other pictures from Lowell Observatory under snow - we had about 17 inches snowfall on New Year's Eve.

As for Don Parker, I believe I have heard he is very ill, though I don't know details. All the best,

○...*Subject: Re: May I ask a favour of you?*
Received: 12 January 2015 at 07:35 AM

Dear Masatsugu, Let me put together an article on

Pickering v. Lowell, with reference to their trans-Neptunian planet calculations. I will try to get it to you next few days. Best,

Bill SHEEHAN (Willmar, MN)

●...*Subject: Re: Mars 20 January 2015*
Received: 21 January 2015 at 06:08 JST

Thanks, Clyde. It's a very good image, considering the apparent size of the planet. I put your image in WinJUPOS and measured the locations of the dark spots on its lower right. They do not correspond to any of the locations of the Tharsis Montes or O.M. I do not think that they are shadows of the volcanos, either. It's more likely that they are created by the noise in the image. I hope that you can continue to image Mars as long as possible as it becomes less and less favorable in the western sky.

Roger VENABLE (ALPO Mars Section Coordinator)

●...*Subject: Tharsis Trio and Olympus Mons*
Received: 26 January 2015 at 01:18 JST

Dear Clyde, On your R Martian image on 20 January 2015, I believe the three Tharsis Montes are quite plainly discernable as a trio of diagonal dark spots. While Olympus Mons on the dawn terminator is delicate, but I guess the southeastern lobe of the Olympus Mons Aureole may be shown as a larger shadowy patch near the terminator. Please compare your image with Teruaki KUMAMORI's ones on 8 Oct 2003, just on the same season day with similar conditions of the viewing angle.

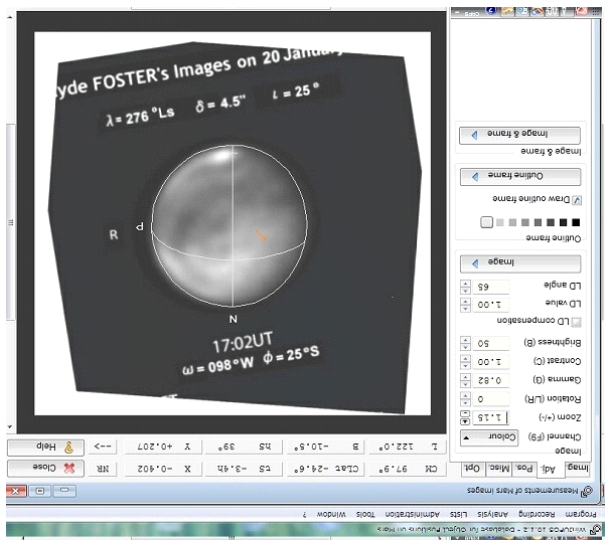
Best Regards,

PS: As for your good old friend ASADA-san you remembered fondly in your email the other day, I don't think it's likely to be any connection between two ASADAs. Asada is relatively a common family name in our country. Dr. Tadashi ASADA on the Advisory Board of the CMO/ISMO is a professional planetary astronomer.

○...*Subject: Tharsis volcanoes*
Received: 26 January 2015 at 23:18 JST

Dear Clyde, Yes, I read ALPO Mars Section Coor-

inator Dr. Roger VENABLE's comment in his L&E on your 20 Jan image. I also find WinJupos to be very useful for various purposes. When judging the existence of large-scale delicate markings on a Martian image, however, I often prefer "my eyes" over the sophisticated software; the configuration of the three dark spots with other major dark markings as Solis L., Tithonius L., Phoenicis L. and M. Sirenum feels quite natural to my eyes. Also, it is said that near the terminator darkening zone is less critical than the sharp-edged limb area for planetary imagers in terms of producing artifacts by excessive processing.



Just to make sure that my feeling above hits the mark, I have WinJuposly measured the location of the dark patches myself, and found all of them showing good matches to their real geographic positions. Please find attached the measurement of the possible Arsia Mons (red arrowed) on your 20 Jan R image. Good Seeing, Good Health!

Reiichi KONNAI (Fukushima, JAPAN)

●...Subject: from bill sheehan: various
Received: 12 February 2015 at 23:19 JST

Dear Masatsugu, I received some communications from Tom Dobbins about Don Parker. As you know, he is very ill, and apparently failing. He may not have much more time to live. I would appreciate it if you kept this private at this stage, but thought you needn't to know what the situation is.

○...Subject: Re: Sad news

Received: 23 February 2015 at 22:27 JST

Dear Masatsugu, Thanks for letting me know this. I had heard that he was not well but had not expected the end so soon.

○...Subject: FW: Don's obituary on S&T
Received: 24 February 2015 at 05:57 JST

The last URL below is of Don's obituary on S&T written by S WALKER, Minami

Sent: Tuesday, February 24, 2015 2:51 AM
Subject: Fwd: Don's obituary on S&T

Date: February 23, 2015 at 10:55:38 AM CST
Subject: Fwd: Don's obituary on S&T

Bill: Don passed away at about 6 PM yesterday, surrounded by his children and grandchildren. Lucid to the end. He spoke at the Winter Star Party on Wednesday, but was hospitalized on Saturday suffering from severe abdominal pain -- acute pancreatitis.

Dobby

----- Forwarded message -----

From: Walker, Sean
Date: Mon, Feb 23, 2015 at 11:42 AM
Subject: Don's obituary on S&T

<http://www.skyandtelescope.com/astronomy-news/donald-c-parker-1939-2015/>

BILL SHEEHAN (Willmar, MN)

●...Subject: Loss of a titan
Received: 23 February 2015 at 09:27 JST

It is with a heavy heart I share with the group that our friend and long-time planetary observer, Donald C. Parker, has passed away this evening in Miami, Florida.

Sean WALKER (Manchester, NH)

●...Subject: RE: Sad News
Received: 23 February 2015 at 19:41 JST

Dear Jeff, It is really sad news. I feel sorry for you, because you have been one of the best friends of him. You certainly have my sympathy.

Sent: Monday, February 23, 2015 9:50 AM
Subject: Sad News

My best friend of 40 years, Don Parker, just passed away at 7 p.m. today. He died with his family and fight the good fight against cancer. He is in our prayers. He was a good man.

Jeff BEISH

Masatsugu MINAMI (Fukui, JAPAN)

●...*Subject: Re: Loss of a titan*
Received: 23 February 2015 at 09:31 JST

Thanks, Sean. So sorry to hear this sad news! He was one of the first amateur astronomer that I first became acquainted with, many years ago, imaging Jupiter.

Padma YANAMANDRA-Fisher
(Space Science Institute, CA)

●...*Subject: Re: Loss of a titan*
Received: 23 February 2015 at 09:38 JST

I am in shock. Don was an incredible observer, amateur astronomer, imager and an all around good person. Very sad news.

Jim PHILLIPS (Charleston, SC)

●...*Subject: Re: Loss of a titan*
Received: 23 February 2015 at 09:54 JST

That is very sad news indeed.

Anthony WESLEY (NSW, Australia)

●...*Subject: Re: Loss of a titan*
Received: 23 February 2015 at 10:06 JST

Oh my gosh indeed what a huge loss for everyone; Don was admired and liked by everyone who ever met him. It has not been that long ago that Don posted his last images of Jupiter. An amazing man through the growth and influence of amateur astronomy.

Clay SHERROD
(Arkansas Sky Observatories, AR)

●...*Subject: Re: Loss of a titan*
Received: 23 February 2015 at 10:17 JST

This is sad, I last met Don back in 2003. Please send my condolences to Don's family. Best Regards

Wei-Leong TAN (SINGAPORE)

●...*Subject: Re: Loss of a titan*
Received: 23 February 2015 at 10:59 JST

Very sad news.

I can honestly say without the inspiration of this mans work and dedication to photographing the planets over his life i may never have come to do this Myself. He always remained one of my astronomical hero's and i had the great pleasure of spending a week with him back in 2008. I know he had been ill but only emailed me recently so this quite a shock. He sounded upbeat and joking, but

didn't he always! My sincere condolences to his children and grandchildren at this difficult time.

Damian PEACH (Selsey, West Sussex, the UK)

●...*Subject: Re: Loss of a titan*
Received: 23 February 2015 at 12:27 JST

I am very saddened by his passing. He was a goodcordial friend, quick wit and a fabulous planetary imager. He will be missed in many, many ways

Rik HILL (Tucson, AZ)

●...*Subject: Re: Loss of a titan*
Received: 23 February 2015 at 12:27 JST

I was first introduced to Don Parker by Charles Capen in the early Seventies. Since then we never lost contact. He will be missed greatly. You will live further in my mind. My condolences to his family.

Leo AERTS (BELGIUM)

●...*Subject: Re: Loss of a titan*
Received: 23 February 2015 at 22:06 JST

Hello everyone: I first met Don in about 1988 at ALCON 88 in Council Bluffs Iowa. He will be greatly missed.

Richard Schmude, Jr. (Barnesville, GA)

●...*Subject: Re: Loss of a titan*
Received: 23 February 2015 at 22:11 JST

This is very sad news. Don sent us his last images of Jupiter just last month. Don pioneered hi-res photography of the planets in the 1980s, and CCD imaging in the 1990s, and was still in the first rank of observers in the webcam era. For several years, he and Isao Miyazaki were unrivalled in the quality of their images with the new technology. He really led the way in enabling amateurs to achieve the great uality of images that is now common. He was also one of the amateurs most respected by professional planetary scientists. His name will forever be remembered. I regret that I never had the chance to meet him, though I know he was always courteous and helpful to everyone in correspondence. May I offer my condolences, and those of the BAA, to his family.

John H. Rogers
(Jupiter Section Director, BAA, the UK)

●...Subject: *Re: Loss of a titan*

Received: 23 February 2015 at 23:37 JST

I have been corresponded with Don since the 1980s and he was an icon at the ALPO meetings and other places. He encouraged many amateurs how to be a great imager and to do first-class planetary science. The world of amateur astronomy lost a great friend and he will be greatly missed.

Frank J MELILLO (Holtsville, NY)

●...Subject: *RE: Sad News*

Received: 24 February 2015 at 07:01 PM

Dear Masatsugu, This is indeed very sad news. Don was a true gentleman & will be sorely missed. Thank you for letting me know.

My very best wishes

Maurice VALIMBERTI
(Melbourne, AUSTRALIA)

●...Subject: *RE: Sad News*

Received: 24 February 2015 at 09:43 PM

It leaves many of us at a loss without Don to trade jokes and stories with. Chick Capen describes Don Parker, Bill Douglass, me and himself as the Black Hole Gang many years ago. I am the only one left now. Silly things grown men do.

Jeff BEISH (Lake Placid, FL)

●...Subject: *A giant star has fallen*

Received: 24 February 2015 at 16:18 JST

Dear all, I feel the deepest sorrow to learn of the passing away of Donald PARKER. He himself was the history of evolution in the amateur planetary imaging from the silver-salt photography to the present-day digital imaging. Every old planetary photographer remembers the "Chick and Don's Golden Combination": gas-hypered Tech Pan film/diluted Rodinal development. And we have been so many times surprised and stimulated by his superb planetary images including the Martian one still decorating the CMO/ISMO Façade taken on 8 February 2014 when the red planet was only 9.5 arcseconds across, showing that his imaging/processing performance was just surpassing the classical theoretical limit of optical resolution. For us Japanese amateur astronomers he was like the fastest skilful driver in an big American car leading the planetary imaging race, often defeated contemporary professional images. Yet, it was most pleasing to me to translate his New Year Opening Essays for CMO/ISMO into the Japanese versions; his every line radiates his love for his family, friends, colleagues, and planetary astronomy as well. He really was a Genial Giant.

Best Regards,

Reiichi KONNAI (Fukushima, JAPAN)

☆ ☆ ☆

International Society of the Mars Observers (ISMO)

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

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

CMO #431/ ISMO #57 (25 February 2015)

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