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How Can One Deny How Revolutionary John MELLISH Was?

By

Masatsugu MINAMI

The following article was written intended for an Editor's Note in the preceding issue, but could not appear because of a lack of space: Here we let it appear after reviewing it again.

Nowadays it is not so hard to detect some craters or cracks on Mars, if we put aside the problem whether they look always like craters or cracks as 3-D objects.

It will be interesting if we look upon the problem of John MELLISH from this point of view. In fact the craters of Mars are not discussed so frequently in this respect: They are not like those seen on the Moon which frequently waxes and wanes.

Bill SHEEHAN made us aware in his article "*The Craters of Mars*" in CMO/ISMO #383 that LOWELL's canal theory and its associated ideas like the flatness of the surface remained alive for about 50 years after the period of J MELLISH's observation though we imagined it had ceased in 1909 with the observations of E M ANTONIADI at Meudon. As a matter of fact, as was sarcastically noted by G KUIPER, the observers belonging to the school of W PICKERING continued to compete with each other by counting the numbers of canals on their drawings in "*Report on Mars*".

We scarcely know the past controversy of canals:

We are not so aware of the fact how they believed that the Martian surface should be flat. In the period of P LOWELL, "*He [LOWELL] also thought that the surface of Mars must be quite flat and far less rugged in its topography than the earth, drawing his conclusion from the appearance of the planet's terminator which was not only relatively smooth but seemed to him to give its sphere somewhat the look of an irregular polygon.*" (W G HOYT, 1976, p73)" In fact in his "*Mars*" (1895), LOWELL denied the existence of the mountains (e.g., at p. 43). He then discussed the canals, and because the surface was flat the Martians used what little water they had, and because of that, they must have been highly intelligent (see e.g., p. 142 in "*Mars as the Abode of Life*"(1908)). So we should not forget the Martian surface had long been believed to be flat. But we did, alas, forget the fact that we have long believed that the planet was flat.

Even in our case T NAKAJIMA and I were uneasy and rather lacking interest somewhat in the observations (though we started from 1954) until 1969 when Mariners 6 and 7 brought the results when the long spell was broken. In 1956, even

Tsuneo SAHEKI recorded many fine and straight canals under the great dust storm. On the other hand a lot of the same people who believed they had emancipated themselves from the canals remained captive to the "flat" surface images. In other words, the canals were denied by ANTONIADI in 1909 or before (they had already been denied by E E BARNARD) while it is only quite recently that the flat surface spell was finally exorcised.

So, if we hurry to our conclusion, the person from Cottage Grove must have been among the first persons who rebutted LOWELL's world. In that case he was quite revolutionary. We may say a decisive reason why he was not accepted was not because his papers were burnt, but because he was too revolutionary.

Perhaps at least two points worked as obstacles: One was the fact the angular diameter of Mars was just 7.7" when MELLISH observed; another is the fact the terminator is not so easily observed just like the case of the Moon which easily waxes and wanes.

However let us try to set up an equation from the viewpoint of the resolution power *à la* Rei-ichi KON-NAÏ as $1/102 : 1/35 = 7.7" : x$. Then we have $x = 23.5"$ which implies the following: At Yerkes the planet of 7.7" is the same under the best condition as the planet of the angular diameter $\delta = 23.5"$ when we use an excellent 35cm SCT. If we take into account that Bill FLANAGAN's image which KON-NAÏ picked out was really under $\delta = 20"$ the reader will be aware that Mars which MELLISH saw was extraordinary. We should not however forget that one may have an occasion when the 35cm will meet a 23.5" Mars, while it is absolutely impossible for any 35cm to catch the planet Mars with the phase angle $\iota = 38^\circ$ under the same angular diameter (this is a repetition of an statement in CMO #383 Note (11) Appendix I, but one of best recurrences of 1915 occurred in 1994 of which Ephemeris we neatly have, so that we know 13 Nov 1915 with $\delta = 7.7"$ corre-

sponds to 16 Nov 1994 with $\delta = 7.7"$, and at the same time we readily know that the phase angle is $\iota = 38^\circ$, the tilt is 21°N , the season is $\lambda = 018^\circ\text{Ls}$ and so on, and hence we are sure on the very day in 1915 these elements were not so different). The second point about the terminator, we first should know it is difficult to see the terminator of such a large Mars, and so the rugged terminator which MELLISH saw when $\iota = 38^\circ$ cannot be so easily reproduced. Furthermore in the case of the Moon it does not rotate, but the planet Mars more rapidly rotates so that the indentations near the terminator show much more complex aspects of the uneven craters and cracks. One hour is enough to reveal several features of the jagged perimeter side of the egg-like but big Mars.

SHEEHAN did not discuss much about the role of BARNARD (perhaps this can be the subject of a future article), and did not allude to the exact date in which period MELLISH "published" his observation. (The fullest account is in his letter to Walter Leight from 1935.) But it is completely scurrilous to say that SHEEHAN's article is pseudo-scientific. Though the original sketches no longer exist, we know, in detail, the situation under which the observation was made. We know the angular diameter, and the phase angle, and the Martian places MELLISH observed. In this case, MELLISH's assertion is refutable. In general, any proposition is not scientific if it cannot be proven to be not wrong by any means. In other words any proposition is scientific when it is *falsifiable* if we borrow the terminology of Karl POPPER. Thus any non-scientific statement is unfalsifiable or disprovable. In SHEEHAN's case his statement allows falsifiability, so it is scientific. Because the sketch in question was lost, one may say the case is not falsifiable, but MELLISH said enough about the circumstances of the observation for it to be falsifiable. We leave the further affirmative discussion to KON-NAÏ's LtE in the preceding CMO/ISMO.

Let us try to re-cite what MELLISH said later,

from SHEEHAN's article:

[Mars] is not flat but has many craters and cracks. I saw a lot of the craters and mountains ... with the 40" and could hardly believe my eyes and that was after sun rise and mars was high in a splendid sky and I used a power of 750.

Apparently his statement is quite abridged, but we can say he says about the aspects of the terminator or the continuous movement of the terminator. Perhaps MELLISH has not any deep knowledge of the Martian geography. Instead SHEEHAN supplemented that MELLISH may have seen Agathodaemon and possibly the group of Nereidum Montes to the north of Argyre.

Usually even the dark line of Agathodaemon cannot be seen as a crack, but Isao MIYAZAKI in 1988 detected a crack near Agathodaemon in contrast with the bright but fine Ophir at the terminator by the use of a 480×, 600×40cm Newtonian [on 17 Aug 1988 ($\lambda=254^\circ\text{Ls}$) at $\omega=139^\circ\text{W}$, $\phi=20^\circ\text{S}$, $\delta=19.8''$, $\iota=32^\circ$; 18 Aug 1988 ($\lambda=255^\circ\text{Ls}$) at $\omega=120^\circ\text{W}$, $\delta=20.0''$, $\iota=31^\circ$; 19 Aug 1988 ($\lambda=256^\circ\text{Ls}$) at $\omega=101^\circ\text{W}$, $\delta=20.1''$, $\iota=31^\circ$]. There will be no reason for us to *apriori* deny the possibility that the 750×, 1100×102cm gave a better image in the calm morning of the Indian summer sky than the crack images seen by MIYAZAKI.

The rumour of 50°S may have been based on a retrospective appreciation since MELLISH was clearly not intimately familiar with the Martian geography (and yet he must have been very voluble as if he was a regular observer). However, even if he did not know well the geography of the planet, his impression should not be ignored.

We repeat that the main reason MELLISH could not be accepted was not that his drawings were burnt or that they were inartful: instead it seems to have been that his discovery was quite revolutionary. Many people would have found a stumbling block in the angular diameter $7.7''$, while most could not escape from the pitfall of the spell that the Martian surface is flat.

In a previous article, the present writer wrote that there was a dubious point in MELLISH's observation in Appendix I in Note (11): It was because we discussed the problem of Olympus Mons and on the other hand MELLISH did not say anything about Olympus Mons. If he referred afterward to BARNARD's drawings in 1894, he must have said something about Olympus Mons. However he must have been unfamiliar with the geography with the "forests", and also because of the season, at $\lambda=018^\circ\text{Ls}$, the summit must have been covered by a spring cloud.

Finally we roughly touch upon the article entitled "*Can We See Martian Craters from Earth?*" by Jeff BEISH in the following site:

http://www.alpo-astronomy.org/jbeish/Martian_Craters.htm which we discovered just after the deadline of the preceding CMO.

The main defect of this article is to pretend to have refuted by a series of images which were all taken as if on the same condition of 13 November 1915. However the images from Fig. 4 to Fig. 8 are composed from a flat projection map in 2007, and since the terminator is flat, it is impossible to reproduce the true terminators. That is, it says tautologically the planet is flat in terms of the flat map. This kind of demonstration deserves the appellation of pseudo-science.

It should be further remarked his discussion has another apparent defect in elementary calculations. As KON-NAI pointed out (*private communication*) that if the illustration of Fig. 2 is correct, $s=h\tan\alpha$ does not hold, where s and h are the length of shadow of the wall and the height of the wall respectively: If α is the "angle of the sun", the equation in Fig. 2 should be $s=h/\tan\alpha=hcot\alpha$. Let us check the discussion a bit further. First, the phase angle is not the height of the sun. If ι is the phase angle the equation $s=h\tan\iota$ holds, but in this case the α in the illustration in Fig. 2 should be replaced by $(\pi/2-\alpha)$. Note further that this does effectively hold only when the wall is at the CM. On the other hand, we

need to see the shadows of the walls near the terminator: Let γ be the areocentric angle inside from the terminator of a wall. Then we have the equation $s = h \cot \gamma$. The smaller γ becomes, the longer the shadow s . If γ is 20° , $s = h \times 2.75$ and hence $s = 8.2 \text{ km}$ when $h = 3 \text{ km}$, while it will soon become $s = 17.0 \text{ km}$ as γ becomes down to 10° from 20° (40 minutes later). Here we should remark that the position of the wall is at $\gamma + \iota$ so that the areocentric angle of the wall is comparatively large even near the terminator when ι is large. However s is the real length of the shadow, which should be replaced by the apparent length of shadow s_e seen from the Earth: It is simply given by $s_e = h \cot \gamma \cdot \sin(\gamma + \iota)$. [Note $\sin 48^\circ = \sin(10^\circ + 38^\circ)$ is about 0.74; not so far from 1.] If γ points to the CM, we have $\gamma + \iota = \pi/2$ so that $s = h \cot((\pi/2) - \iota) = h \tan \iota$, where ι should be reminded to be the phase angle and not the angle of the Sun. We should further remind the reader that the discussion near the CM is scientifically useless in the present case even if the phase angle is large. We essentially need the discussion near the region of terminator.

The fact that this map is composed from the 2007 images is apparent as judged from the aspect around S Margaritifer. Since BEISH does not seriously belong to the CMO circle, he may not know the particular feature; but the CMO repeatedly documented the comparative faintness of the area around S Margaritifer in 2007 due to the preceding dust event. In reality the HST produced the 2007 projection map in

<http://hubblesite.org/newscenter/archive/releases/2007/45/image/g/format/web/>
and the rotation map is composed from four images made by HST WFPC2 in 2007 as:

http://imgsrc.hubblesite.org/hu/db/videos/hs-2007-45-a-high_quicktime.mov

These rotation maps also do not show any real surface relief including the terminator. They are composed from the central areas so that the cloud near Alba Mons can be seen from the morning to the evening. Because it says they were taken at the beginning of December 2007, the phase angle must have been around $\iota = 17^\circ$ but this does not mean an-

anything. Ridiculous is the image in 2003 (Fig. 8), which is also made from the images in 2007. The faded Margaritifer S is present, and a small cloud located to the west end of Noachis in 2007 is shown up. Novus Mons was at the most interesting season, but it could not be reproduced.

Returning to the 1915 images here, the terminators composed from the flat projection map are necessarily flat. This is meaningless, so we can say that BEISH's assertions are falsified. What we need are the cracks and the shadows near the terminators.

The MIYAZAKI case in 1988, aforementioned, really detected a clear notch when ι is large. Such a case cannot be reproduced from the flat projection map.

The present writer's conclusion is as follows: The legend that John MELLISH saw several indentations and jagged aspects along the terminator on 13 November 1915 cannot be refuted. Because of the lack of his knowledge and experience it may be difficult to identify exactly what features were observed, but he may have seen some shadows of the walls of craters and some dark spots inside some craters and also the cracks near the terminator. He must also have seen some cloud. Anyway it must have been for a long enough time for him to convince himself that the Martian surface could not be completely flat. Those who hesitate to admit this story are those who may be unable to give up the images of the flatness of the Martian surface, of which Bill SHEEHAN made us aware.

The problem is not far from the case of CH HUYGENS who discovered the ring of Saturn. It was not suddenly found. He gradually became aware that all the curious aspects would go down with him if he could assume a ring around the planet Saturn. In that sense he was revolutionary. In the case of MELLISH, he had a hard time because those concerned with the red planet long believed that the surface of the planet was flat just like the projection map. Nevertheless he was revolutionary. One difference is that in the case of

HUYGENS his idea was proved later by the development of the telescopes, whereas in the case of MELLISH he ironically used the biggest one available at the time and no development was made any more (some just mocked). Nor was it customary to observe so far from opposition. So in the case of MELLISH, some spacecraft will be able to justify if it continues to look down at the terminator. How-

ever if the world of the red planet is governed only by the foolish persons, they will rarely investigate the terminator. (The present writer often claims that they should continue to look down the dawn terminator to detect the generations of the dust disturbances in some seasons, and this is well falsifiable, but so far there has been no action.) □

CMO 09/10 Mars Note (14)

Olympia Observed in 2010

+Chasma Boreale

As the npc becomes smaller, Olympia is isolated from the main body of the npc to the direction of 180°W . When the npc is entirely inside the disk, it is completely seen at the outskirts, but in 2010 it was only observed partially for the most part. CMO #202 (25 April 1998) may be interesting in this respect where the case in 1996/97 was treated at the season from $\lambda=080^\circ\text{Ls}$ to $\lambda=140^\circ\text{Ls}$. ISHADOH (*Id*)'s drawings as well as several images from the HST are shown. These images will be instructive in the coming apparitions.

In the following we shall list up the observations of Olympia in 2010: We note first we can see Chasma Boreale as a rift like an inlet from $\omega=080^\circ\text{W}$ to 120°W , and in fact PEACH (*DPc*) might have caught its initial state on

05 Apr ($\lambda=073^\circ\text{Ls}$) at $\omega=090^\circ\text{W}$ when $\delta=8.9''$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100405/DPc05Apr10.jpg>

and really caught it clearly on

11 May ($\lambda=089^\circ\text{Ls}$) at $\omega=118^\circ\text{W}$, 122°W , and
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100511/DPc11May10.jpg>

12 May ($\lambda=090^\circ\text{Ls}$) at $\omega=110^\circ\text{W}$, 114°W
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100512/DPc12May10.jpg>

which also be instructive in the coming apparitions.

Now we shall move on to the main theme of Olympia: The most significant image was given by FLANAGAN (*WFl*) on

30 Mar ($\lambda=071^\circ\text{Ls}$) at $\omega=260^\circ\text{W}$, $\phi=14^\circ\text{N}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100330/WFl30Mar10.jpg>

where the first stage of Olympia seems to have been trapped at the eastern corner. Note the season

was $\lambda=071^\circ\text{Ls}$. At the western corner there must have been an activity of a dust. The angular diameter $\delta=9.4''$ and hereafter the diameter became smaller. MORALES-RIVERA (*EMr*)'s image on

31 Mar ($\lambda=071^\circ\text{Ls}$) at $\omega=255^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100331/EMr31Mar10.jpg>

however does not show it well. On the other hand *DPc* separated Olympia at the eastern end of the npc on

16 Apr ($\lambda=078^\circ\text{Ls}$) at $\omega=345^\circ\text{W}\sim 357^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100416/DPc16Apr10.jpg>

GERSTHEIMER (*R Gh*)'s image on

17 Apr ($\lambda=079^\circ\text{Ls}$) at $\omega=334^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100417/R Gh17Apr10.jpg>

and *DPc*'s on

17 Apr ($\lambda=079^\circ\text{Ls}$) at $\omega=341^\circ\text{W}\sim 351^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100417/DPc17Apr10.jpg>

show Olympia well. MAKSYMOWICZ (*SMk*) also visually detected it on the same day:

17 Apr ($\lambda=079^\circ\text{Ls}$) at $\omega=359^\circ\text{W}$, 004°W
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100417/SMk17Apr10.jpg>

Olympia is also apparent in *DPc*'s

20 Apr ($\lambda=080^\circ\text{Ls}$) at $\omega=315^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100420/DPc20Apr10.jpg>

while how about on ABEL (*PAb*)'s drawing on the same day?

20 Apr ($\lambda=080^\circ\text{Ls}$) at $\omega=334^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100420/PAb20Apr10.jpg>

DELCROIX (*MDc*)'s image on

24 Apr ($\lambda=082^\circ\text{Ls}$) at $\omega=293^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100424/MDc24Apr10.jpg>

it was not so clear, but PARKER (*DPk*)'s image shows Olympia just like a cloud on

28 Apr ($\lambda=083^\circ\text{Ls}$) at $\omega=330^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100428/DPk28Apr10.jpg>

The image of *DPc* on

03 May ($\lambda=086^\circ\text{Ls}$) at $\omega=190^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100503/DPc03May10.jpg>

is interesting because the angle is different and Olympia looks to cover the outskirts of the npc from SW direction: *DPc*'s images on

04 May ($\lambda=086^\circ\text{Ls}$) at $\omega=180^\circ\text{W}$, 185°W
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100504/DPc04May10.jpg>

also show similar situation. A bit cloudy?

Olympia is seen at the lhs in the image of *DPk* on

05 May ($\lambda=086^\circ\text{Ls}$) at $\omega=257^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100505/DPk05May10.jpg>

Next *DPc*'s excellent images abovementioned concerning Chasma Boreale follow: Furthermore we have

11 May ($\lambda=089^\circ\text{Ls}$) at $\omega=118^\circ\text{W}$, 122°W
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100511/DPc11May10.jpg>

12 May ($\lambda=090^\circ\text{Ls}$) at $\omega=110^\circ\text{W}$, 114°W
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100512/DPc12May10.jpg>

where Olympia is seen at the following side.

From Japan MORITA (*Mo*) shows Olympia in R on the east (preceding) side on

14 May ($\lambda=091^\circ\text{Ls}$) at $\omega=318^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100514/Mo14May10.jpg>

Similarly *Mo* shows it vaguely on

16 May ($\lambda=091^\circ\text{Ls}$) at $\omega=295^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100516/Mo16May10.jpg>

Visually MINAMI (*Mn*) checked it on the preceding side on

16 May ($\lambda=091^\circ\text{Ls}$) at $\omega=294^\circ\text{W}$, and

17 May ($\lambda=092^\circ\text{Ls}$) at $\omega=286^\circ\text{W}$, 314°W

MELKA (*JMI*) observed it on the western side on

19 May ($\lambda=093^\circ\text{Ls}$) at $\omega=150^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100519/JMI19May10.jpg>

Next *DPc*'s cases: Olympia is seen in the east:

02 June ($\lambda=099^\circ\text{Ls}$) at $\omega=276^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100602/DPc02June10.jpg>

03 June ($\lambda=100^\circ\text{Ls}$) at $\omega=258^\circ\text{W}$, 261°W
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100603/DPc03June10.jpg>

where already $\delta=5.9''$. PELLIER (*CPI*) shows it vaguely on the image on

03 June ($\lambda=100^\circ\text{Ls}$) at $\omega=271^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100603/CPI03June10.jpg>

DPk' image interestingly shows it like a cloud to the ES direction on

14 June ($\lambda=104^\circ\text{Ls}$) at $\omega=244^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100614/DPk14June10.jpg>

where, $\phi=24^\circ\text{N}$. *Mo*'s image on

19 June ($\lambda=107^\circ\text{Ls}$) at $\omega=334^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100619/Mo19June10.jpg>

does not show well, but the opposite Hellas is very bright. When the npc is well seen, it may be difficult to observe the details of Hellas.

We finally note again that *DPc*'s images on

02 Apr ($\lambda=072^\circ\text{Ls}$) at $\omega=116^\circ\text{W}$, 123°W
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100402/DPc02Apr10.jpg>

04 Apr ($\lambda=073^\circ\text{Ls}$) at $\omega=098^\circ\text{W}\sim 119^\circ\text{W}$
<http://www.hida.kyoto-u.ac.jp/~cmo/cmons/2009/100404/DPc04Apr10.jpg>

show that from the main part of the npc a mist is blown out, and so this implies the season where the Chasma Boreale and Olympia are being cleared.

(*M MINAMI & M MURAKAMI*)

Letters to the Editor

●.....*Subject: Proposal of note for the IWCMO*
 Received: Sat 07 May 2011 22:17:25 JST

Dear Masatsugu, Sorry for my long silence - over the last week-ends I have been occupied and I did not take time to answer to many e-mails. I have been thinking a lot about writing a new note for our ISMO. To my regret last year I found that many of the ideas I had first either brought no added value to what was already written (like on the appearance of the NPC) or still speculative (like what I think to be a sudden change in the wind pattern over Acidalia near Ls 350).

Now I would like to propose for the review a note on the apparition of the equatorial cloud belt during the last apparition (with probably extended view on

2007). If I'm not mistaken, you did not write any full note on it, did you?? I have no special ideas about it still. The core of the article would be a comparison with the MGS data as compiled by Helen Wang, to see if the evolution is steady over the martian years or does vary. The paper would also review basic things for readers, what is the ECB, when does it appear, how to observe it... I hope that you will find the idea interesting.

I'm also preparing an e-mail about the craters on Mars. Best wishes,

○.....*Subject: Craters on Mars*
 Received: Sun 22 May 2011 00:36:14 JST

Dear Masatsugu, Bill (FLANAGAN), Rei-ichi, I have worked a bit about the crater's topic today and here are a few elements on my side.

First, "seeing" a martian crater on an image is a question of detecting *relief*. A crater is above all a relief structure (though not only - read below). We

know that martian relief can be detected from the Earth, even on amateur images, and even again visually, providing it casts shadows. The Tharsis volcanoes and the Valhalla slope are recognized ones, but they are either extremely high and big (volcanoes) or extremely extended (Valhalla).

So the question could be whether we can detect the change on a given crater, from meridian to terminator, as it gets more and more shadowy. I'm sure that this phenomenon is impossible to detect from the Earth for all the middle-size craters that we see on probe images, for example.

The question deserves consideration about Argyre; that is the core of the current discussion if I have well understood. Argyre is largely big enough, and its relief could cast shadows large enough to be detected. Bill's image on 16th october 2005 could be a candidate for this. Bill took many excellent images that week, just before the dust storm invaded the region a few days later, providing many views of the basin. I have taken one on the 19th, when Argyre is found farther from terminator, in a position where it must not be shadowy, or much less than on the 16th. If it was shadowy on the 16th, the outline of the basin should be emphasized. But on the mapped comparison I have made (see attached) it's not. The outlines look much more visible on the 19th.

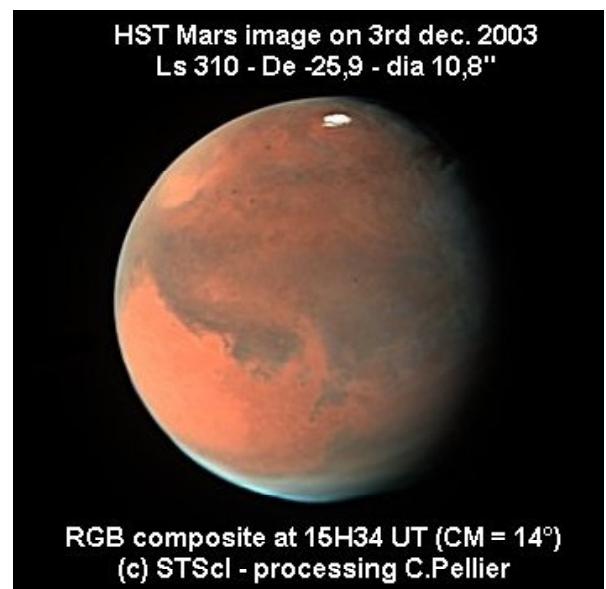
The problem here about Argyre is that many of its rims look to be confounded with a darkened albedo. This is what we see on the 19th: albedo markings outlining the relief, but not the relief itself. I don't see any emphasized rims on the 16th image in comparison.

Does this mean that we can't pretend to see the basin? That's the point for me. These dark markings clearly outline the basin. I can't say that we can "see" it. But we certainly can detect it. (As the dis-

cussion also turned around scientific issues, here is also another one: maybe the verb "to see" is not a good one to describe the situation; maybe this is not a scientific word. Let's prefer "detect".)

I think that some others craters can be outlined, or detected, like this from Earth (but "seen" no). There is a big one near Syrtis Major whose name I can't recall... In comparison, the caldera of Olympus Mons can clearly be outlined on amateur images near midday, when it's not shadowy, and it has roughly the size of the biggest craters, impact basins excepted.

I have attached one HST image from 3rd december 2003 that caught Argyre near terminator (although from the other side), for your interest. You can de-



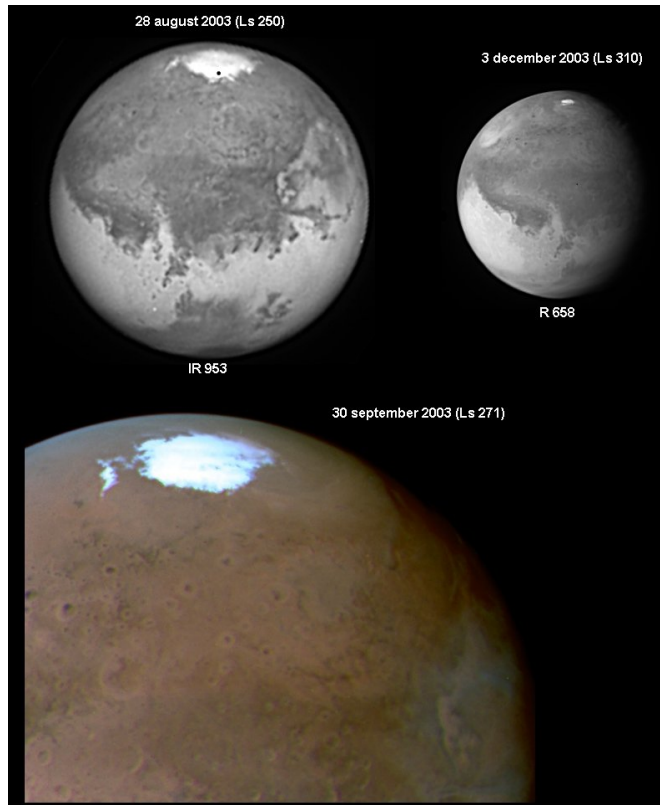
tect Argyre easily; however, it can be outlined even more easily near opposition (28th august 2003), near meridian, when the Sun is high above the basin. I also know an interesting HST shot on 30 september that year at the highest possible resolution but it's a bit heavy to send by mail? I can't find it on internet. Best wishes,

○ **Subject: Re: Craters on Mars**
Received: Sun 22 May 2011 02:09:55 JST

Hi again, Here is a montage with different HST views of Argyre in 2003 :

- On opposition day, fully enlightened ;
- The R component of the 3rd dec. image already sent
- A crop on the 30 sept image I was talking about

on the first e-mail.



One could believe he "sees" the rims of Argyre, shadowed in the morning on the 3rd dec image; however, these outlines are also fully shown on aug 28th with no shadows involved.

The 30 sept image is very interesting: apart of Argyre, we detect a great deal of craters in the ancient terrains. Their shapes are clearly defined; but we do not at all detect the rims nor any relief. Do we "see" them? Or no? Definitely, we "detect" them, yes. Best

○.....**Subject: Re: RE: Re: Craters on Mars**
Received: Sun 22 May 2011 19:32:50 JST

Dear Masatsugu, No problem. The topic will make an interesting point for the ISMO! Best wishes

○.....**Subject: Re: Still have a hope of seeing Martian craters**
Received: Mon 23 May 2011 03:48:09 JST

Dear Reiichi, dear all, Indeed I was looking again at the 30 sept image yesterday - and it does gives me as well a feeling of sighting true relief on the ground, perhaps with some mist in the center of the basin (well the image is btw spectacular !).

I find it hard to compare with the 24 august image, though not really because of the time delay (if we're talking about shadows, this must not matter that much), but because of the dark feature of the ACS camera (I believe) crossing just across the western

part of Argyre: (Relief or not relief, I'm still agree to say that yes, we are identifying the geological basin quite clearly, this is also a truth that we must not forget...

Now about other HST images - I have reviewed the ones I have before sending my messages (and I think I must have almost all that have been taken, including a great deal never released in public - just found in the HST archives). I have not found any that gave evidences of craters other than by albedo contrasts or frost filling. One big problem is, the images that have the best spatial resolution are of course those taken during opposition when very little shadow effect can be detected...

By the way, to open this discussion to a different but similar topic, I find curious that the Elysium mons does not seem to behave like its Tharsis cousins; I don't remember to have seen it dark near terminator.

Even if it's spatially smaller, it must still be tall enough to get shadowy even on amateur images? [maybe a note for ISMO ?] Best wishes

Christophe PELLIER (Nantes, France)

●.....**Subject: About Bill Sheehan article on Mellish**
Received: Fri 13 May 2011 23:49 JST

Dear Mister Murakami, I read with a great interest the paper of William Sheehan "*The craters of Mars*" where the author provides new interesting insight about this controversy.

Recently, I discovered the work of a totally forgotten French amateur astronomer, Father Lamey (1842 - 1903), who claimed to have observed huge circular features on the martian surface during 1880's with a modest refractor.

This strange character has done many weird and fanciful observations, but it was curious that he developed a picture of Mars so far away of that of his contemporaries and so near of the reality.

Needless to say that he never really observed any craters on Mars with his modest instruments but it seems to me that it was interesting to shed some light on his curious speculations on the red planet

so I enclose a short note on this subject.

I apologize for my poor English. I'm not sure the correct translation for the French word "cirque" (geologically a depressed circular feature) is "circuit" but I have not found another one and because Father Lamey doesn't explicitly use the word "crater" I've not used it in his original quotes.

I hope you'll have the same interest as me in discovering this old page of martian's observations history. Sincerely yours

Stéphane LECOMTE (SAF, France)

DOM LAMEY AND MARS CRATERS

Stéphane LECOMTE

In 1965, when Mariner 4 has sent us back pictures of the martian surface showing numerous craters, it was a great surprise for many people still imbued with Lowellian visions of the red planet. Yet many astronomers had already evoked the presence of craters on its surface, including John Mellish, who in 1915 with the large telescope at Yerkes Observatory, has reported having seen several.

Yet, thirty years before a French amateur astronomer, now completely forgotten, had claimed to have observed on the surface of the Red Planet "huge circuses which diameter sometimes exceeds the radius of the planet."

In 1884 in the "*Mémoires de la Société Eduenne*", Father Lamey published a paper "Note on the discovery of eruptive geological system of Mars" in which he described his strange discoveries from many observations he conducted of the red planet. He announced that he made sixty-five drawings using an equatorially mounted refractor, with an aperture of six inches, from his observatory at Grignon, in Burgundy. He concluded that the geological system of this world is eruptive and he wrote:

"Contrary to what we have concluded too quickly before, the dark spots are not oceans, parts of seas, canals, they are shadows or at least they're less enlightened parts of hills and mountains. The less-dark parts, regarded as continents, are indeed dry lands; depressed sometimes on a very large extent, they are therefore the only areas where a liquid like our ocean's water might exist."

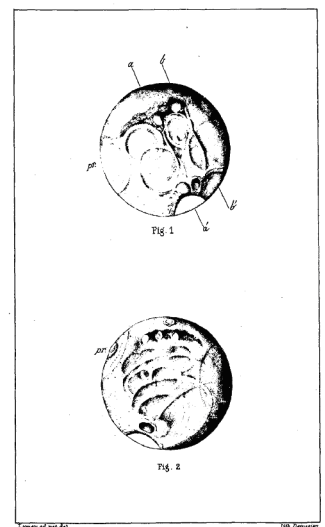
Continuing his description, he wrote: *"These circuses are often located inside each other; concentric or eccentric, joined to each other or isolated, they often intersect in a way impossible to describe, and the eye can see only the most accented parts (...) these circuses being very depressed generally, don't carry accented shadows; they stand out against the dull and red background of the planet by contrast, rather than*

otherwise, and displays the tangled appearance of Moon's craters when full. Others of these circuses are lined by dark spots, the claimed seas of Mars, these spots are formed by mountain masses usually dappled, hemispheric, may be shaped like craters, and whose color is obviously bluish."

He explains that to reach these conclusions it's necessary to have a practice reverse to the habit which is to focus on the mapping of the dark parts. Thus when he was only interested in bright portions, it could then recognize a full system of circular lines, sometimes very delicate but with great clearness each time the atmosphere is steady.

He added that as Schiaparelli before him, or as Mellish later, he didn't just observe the planet at opposition. Thus he realized that the more one observes the planet away from the opposition, more pronounced is the phase and due to irregularities on the surface, the shadows, will be more important.

In support of these explanations he attached two drawings of March 17, 1884.



Cirques crateres et montagnes hémisphériques de la planète Mars dessinés le 17 Mars 1884, à trois heures d'intervalle à l'Observatoire de Grignon. (cote 402)

Charles Arthur Lamey was born in Strasbourg on March 17, 1842. At ten, he developed an interest in natural science and astronomy. Thus as early as 1864 he observed Mars with a 4 inches refractor. In 1866, he entered the seminary to take up a priest career. His theological studies lead him to the French Seminary in Rome where he met the Father Secchi (1818-1878), director of the Vatican Observatory and attended his class of astronomy. In 1869, upon his return to France, he was offered the professorship of astronomy at the Lille Catholic University's, that he refused. After being ordained in 1870 and following the war with Prussia, he moved to Dijon, where he continued his observations, particularly of Mars during his perihelic opposition of 1877. From 1879, after joining the Benedictines order, he established an observatory in his monastery, at Grignon, where he developed, during almost ten years, an intense scientific activities, notably in astronomical field, leading to numerous publications, some in the French science academy journal. In 1894, he moved with his community at Souvigny, then in 1901, following a legal reform, he went into exile in Aosta, Italy, where he died June 15, 1903.

Unfortunately, if the Lamey's ideas of the martian surface was certainly closer to reality than that of his

contemporaries, we must add that he has also claimed to have done many weird observations. For example, his observations of the red planet in 1864 and 1865 led him to conclude that there was a swarm of asteroids moving around Mars. Furthermore, he has identified such craterlike structures on the surface of Venus and even on the Sun! Despite intense activity, we must admit that we can ask many questions about his observing abilities or the quality of his instruments.

Thus, in his report of his work on 1877's martian opposition, we learn that he owned a 108 mm refractor. But he added that sometimes, when images were too agitated, he reduced the aperture to 55 mm and even 27 mm!

Needless to say that in no way did the Father Lamey observe craters on our nearest neighbor with the modest instruments available to it, nevertheless it remains surprising that a modest amateur astronomer could develop from all of its observations, original ideas about the nature of the Martian surface, far from the ideas of his time but so close to reality.

Bibliography: -Note sur la découverte du système géologique éruptif de la planète Mars -Mémoires de la Société éduenne Vol 12 p381-385 (1883)

<http://gallica.bnf.fr/ark:/12148/bpt6k408074x.image.langFR.r=mémoire%20de%20la%20société%20éduenne>

-Sur les cirques de Mars- L'Astronomie Vol 82 p 301 (1968)
<http://articles.adsabs.harvard.edu/full/1968Astr..82..301>.

-Figures: Crédit GALLICA (<http://gallica.bnf.fr>)

●.....**Subject: Mars essay**

Received: Sat 21 May 2011 02:31:25 JST

Dear Masatsugu, Thank you for sending the essay in advance. I have made a few changes to make it read more idiomatically (smoothed the English), and removed the paragraph or two about Tom Cave as I did not entirely understand them.

I believe that you have put the matter squarely into the right frame. If Mellish had simply stated vaguely he "once saw Martian craters," but went no further, that statement would not be testable. However, Mellish described in enough detail the circumstances of his observation—I have even set up the Yerkes refractor under the conditions that held, and Mars was already just past the meridian (west) as the sun rose—I will send you some images later. The letter Mellish wrote to Walter Leight in 1935 exists; and Tom Cave told me, emphatically, he saw the drawing Mellish made in 1940 or so. Mellish's description of Barnard's drawings also proved to be

correct; I would add that they were also said to have "disappeared." I might have taken this on faith, but I went to Yerkes to search for them and with Richard Dreiser they turned up in 1987. As soon as I saw them (I can't tell you how thrilling this was!) I knew right away that these drawings were exactly as Mellish described. So there is enough for CMO observers to test just what is visible under conditions such as those Mellish experienced. He may have been mistaken; but at least the proposition is testable, and deserves more than the sarcastic pseudoscientific treatment that some have offered. These questions are to be decided by proper discussion and study and not by bullying and invective.

Mellish was not a Mars specialist, but he was a good observer who had discovered several comets and also (by the way) played a significant role in astronomical history by discovering the nebula that was later made famous by his Yerkes colleague Edwin Hubble. My friend Tom Williams has written about this little-known episode, and his account also sheds light on conditions at Yerkes in 1915:

"In the summer of 1915, amateur astronomer John Edward Mellish joined the staff of Yerkes Observatory as an unpaid observer. Soon after arriving, Mellish discovered what he thought was a comet in the dawn twilight. Yerkes director Edwin Brant Frost promptly notified Harvard Observatory of the discovery only to learn later in the day, too late to prevent distribution of an international telegram, that the object Mellish observed was actually the diffuse nebula NGC 2261. Edwin Powell Hubble, a graduate student in his first year at Yerkes, was assigned the task of determining whether, as Mellish insisted, the nebula had changed. This led to Hubble's first professional papers and his initial fame as the discoverer of 'Hubble's Variable Nebula.' Frost's choice, assigning the investigation to Hubble rather than Mellish, reflected his irritation with Mellish over matters that went well beyond the mistaken comet discovery. When Mellish discovered another comet a few weeks later, Frost delayed his notification to Harvard for several days to allow photographic confirmation of the discovery by George Van Biesbroeck, another newcomer at Yerkes.

"These events highlight staffing problems at Yerkes in 1915, problems that were common to other American observatories. Mellish and Van Biesbroeck were likely the last two amateur astronomers to have an opportunity to 'try out' as professionals at Yerkes. By

1915 a stronger requirement for educational credentials was emerging in the astronomical community. On the other hand, like other observatory directors, Frost was experiencing considerable difficulty employing graduate astronomers. With S. W. Burnham already retired, Frost adopted stopgap measures for staffing as E. E. Barnard and others from an earlier generation prepared for retirement. The assignment of the nebula investigation to Hubble indicates that Frost had likely already concluded that Mellish would not be an acceptable substitute for a degreed professional."

These comments suggest that perhaps there was some tendency to discount Mellish's contributions because he was an amateur. Barnard saw in Mellish something of his earlier self who had risen from a hardscrabble existence in part by discovering comets. Also, Barnard had been the person who helped Mellish to get this position at Yerkes. Frost was a professionally trained spectroscopist, and so may not have appreciated Mellish's "enthusiasm." (I can't imagine Edwin Hubble, for instance, tackling the Great Refractor for Mars viewing early that morning in 1915!) Because Mellish was self-taught, he did not "know" what any trained astronomer would have known: that Mars seen under those conditions would not repay the attention. It was his naïve enthusiasm which led him to identify in his "non-comet" a nebula which changed over time, and perhaps to have made a discovery about Mars that others had missed.

Perhaps this also answers why Mellish did not publish his observations of Mars since doing so undoubtedly would have incurred the wrath of Frost who famously—in responding to a newspaper reporter's request for an answer, in 100 words, to the question "Is there life on Mars?"—telegraphed back "Nobody Knows" fifty times.

○.....*Subject: Re: Craters on Mars*

Received: Sun 22 May 2011 21:21:47 JST

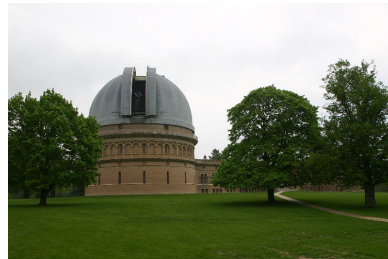
To all, I must agree with Christophe's analysis above. I have never believed that Mellish could have seen craters as relief features. We need to keep in mind that Mellish was a self-taught amateur; he was an enthusiast, not necessarily well developed in his knowledge. He had been invited to work at Yerkes because of his comet discoveries which won

the attention of Barnard.

I would suggest that, as with his "discovery" of NGC 2261 (now famous as Hubble's variable nebula) which was announced at Yerkes as that of a comet—to the keen embarrassment of the Director, Frost—his observations of Mars in November 1915 were those of a "naïve" observer who had not followed in detail the discussions about Mars. Whatever he saw that morning gave the impression of craters and cracks—to him. However, a more experienced observer might have described seeing the usual features—oases and canals. Perhaps there were some clouds on the planet.

Add the way that time may enhance one's conviction about something in the far-distant past—or even the way that memory can completely revise an original impression—and we can see what happened next. The experience grew and was elaborated over the years. The qualifiers were dropped, and the memory gilded. So: What Mellish wrote in 1935 or 1966 is not to be taken as a reliable recollection of what he actually saw in 1915.

I regret the invective I wrote against Beish, and even more the fact that CMO published it. I agree that Mellish could not have seen craters as relief features. Despite the fact that our planet is that of War, we ought to maintain a decent civility in the pages of CMO. I intend now to abandon the Mellish affair for other topics and encourage CMO to do so as well. Perhaps I shall write up Barnard's drawings



which Mellish saw in 1915 and impressed him. Barnard's work on Mars was far more significant than

Mellish's, and yet he, too, failed to publish; "for fear of ridicule," he said.

One last thing and I will have done. I will send you photos I took



showing the Yerkes refractor and dome pointed to the exact point in the sky where Mars was that morning Mellish observed it—the image was taken with the telescope pointed at where Mars would have been at sunrise on November 13, 1915. I took these images when I was at Yerkes in May 2005.

Best

○.....*Subject: Re: LtE for CMO#386*

Received: Mon 23 May 2011 01:34:13 JST

Dear Reiichi (if I may! And you can call me Bill).

Very pleased indeed to receive this from you, and I will ponder it carefully. It is an interesting topic no matter what one makes of the original observation (by Mellish).

Looking forward to meeting up eventually! Best,

○.....*Subject: Re: Erroneous Beish*

Received: Sun 29 May 2011 22:36:03 JST

Dear Masatsugu, If nothing else, this little essay has provoked a great deal of (mostly very well informed and polite) interest, and that is what I had hoped.

I don't think I will have a chance to work on Hearn for a little while -- I am busy as blazes at the present making revisions frantically to two book-length manuscripts, including one on eclipses and transits (with John Westfall), but I am also scheduled the second week of June to visit Flagstaff where I will give a talk for the Friends of the Lowell Observatory (at their annual meeting) in the Rotunda of the Admin building (built in 1916). I gave them several topics to consider--transits of Venus, the search for the trans-Neptunian planet in this year of the first Neptunian circuit of the Sun, and the flares on Mars. The latter was the hands-down favorite. So I will again recall the "one watcher alone with the dawn," the observations of Saheki (and our retracing of the Lowell pilgrimage to Noto), and the Martian flares of 2001.

I will look through the added essay in due course. Best,

○.....*Subject: Saheki material needed*

Received: Mon 30 May 2011 05:46:35 JST

Dear Masatsugu, As I mentioned, I am going to speak on the Mars flares at Lowell Observatory in

just two weeks from today, so I am wondering if you have any images of Saheki, his observing notebooks (especially the pages showing the flares) you could send either as jpeg attachments or, preferably, via Dropbox. In my talk, I will discuss the fascination with flare events on Mars—including the flashes seen near the South Polar Cap by Percival himself on June 7, 1894—then the Japanese observations and the Edom Prom predictions and results from 2001. I am also going to use the occasion to describe the visit we made in 2004 to Noto and other places important to Percival Lowell when he was in Japan.

Can you also, then, give me a more accurate map of the Lowell excursus than the one I (haplessly) threw together at the last minute for the *Sky & Telescope* article?

I greatly appreciate any help you can give, and will send you an outline of the talk and images if they would be of interest. Then when I am back here I can tackle Lafcadio Hearn in New Orleans.

Ever,

○.....*Subject: Re: Saheki material needed*

Received: Thu 02 June 2011 08:31:16 JST

Dear Masatsugu, Many thanks for these. They are just what is needed. They also bring back many memories -- perhaps one day we shall repeat that marvelous expedition to Noto and the Japanese Alps together. It is one of the highlights of my life -- what better guides than the very lively Masatsugu Minami and the ghost of Percival Lowell!

When I get back from Flagstaff, I shall write a brief piece for the CMO on these events. Meanwhile, I still hope to get you over here to visit Mars Hill, preferably when Mars shines. No Englishmen this time. Also, hopefully in the very near future I shall jot down some observations about Lafcadio Hearn's time in New Orleans. Ever,

○.....*Subject: Re: large map*

Received: Mon 06 June 2011 03:13:26 JST

Dear Masatsugu, Thanks for your help with this. I am working on the PowerPoint now. Best,

○.....*Subject: FW:*

Received: Tue 07 June 2011 00:06:15 JST

Dear Masatsugu, The Memorie of the Schiaparelli and his legacy has just been printed online. You should be able to download the PDF. You will find many interesting articles--I especially think you will find of interest the one by D. Lupishko, "*Global dust storms and highly polarizing clouds on Mars.*" Best,

Bill SHEEHAN (Willmar, MN, the USA)

-----Original Message-----

Sent: Monday, 06 June 2011 4:25 AM

Dear speakers, this is to inform you that the proceedings are now ready and are available on line on the "Memorie della SAI" at

<http://sait.oat.ts.astro.it/ToC.htm>

For the printed version we need to wait a few more months. Thank you all again for your contribution.

A MANARA and G TRINCHIERI (Brera, Italia)

●..... *Commemorative Stamp of the Centenary of G V SCHIAPARELLI's Death*

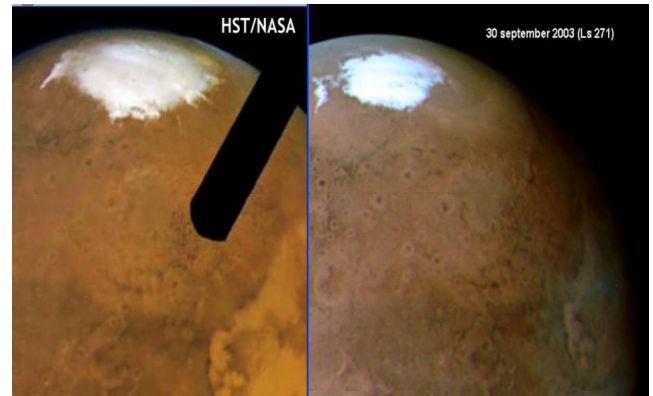


Courtesy of **Gianni QUARRA-SACCO** (Roma, Italia)

●.....*Subject: Still have a hope of seeing Martian craters*
Received: Mon 23 May 2011 00:06:39 JST

Dear Dr. Minami, Mr. Flanagan, Monsieur Pellier, This morning I received a very stimulating email from Christophe. His cool discussions are most objective and logical, hard to refute, so that I think I have to raise a white flag as to my detection of shadowed relief image of Argyre basin system on Bill Flanagan's image on 16 Oct 2005; I should say I must have sighted a pseudo-relief image made up of extremely confusing mimetic albedo features. This doesn't mean, however, that I gave up the possibility of EARTH-based visual sighting (or "seeing" according to Christophe) of the craters on Mars. I agree with Christophe that we can say we saw a Martian crater if we could detect the change on a

given crater, from at the local noon when no shadow's cast to terminator, as it's getting more and more shadowed (preferably during the same day).



Attached here are side by side two HST images. The right side is one attached in Christophe's email taken on 30 Sept 2003, and the left side is a famous one taken on 24 Aug 2003, just a few days before the planet's historic closest approach. Comparing them, I feel I can notice some changes. Charitum Montes along the southern border of Argyre Planitia seem to start casting shadows. Crater Galle's western wall looks finely shadowed, so does the neighboring inner slope of the eastern wall of Argyre Planitia. I guess Christophe will not consent because the two images were taken over one month apart, and the shadowless high-sun albedo appearance can't be the same; actually, on the 24 Aug image the inner slope of the Argyre's southern wall looks brighter than that of northern wall, probably because of the opposition effect. However, the comparison made me feel we can "see" a definite shadowed relief image of Argyre with completely different from the meridian shadowless appearance when the Planitia located closer to the terminator. I'd like to ask somebody (Christophe is undoubtedly one of the best persons) to find us such HST images with which we can discuss the ground-based visibility of Martian craters again. Best Wishes,

○.....*Subject: An artifact on the morning terminator?*
Received: Sat 04 June 2011 00:11:27 JST

Dear Dr. Minami, when I was sweeping the terminator areas on the HST images on the Web, I noticed a peculiar luminous projection over the dark side just off the morning terminator around Phoe-



nicus Lacus on 17 May 1997 HST image ($\omega=45^\circ\text{W}$). What on Mars was that!? Was it an artifact? Or was it related to some solar activity? Best Wishes,
Reiichi KONNAI
 (Fukushima, Japan)

(Note) This reminds us of ANTONIADI's drawing in Planche X in his book, which R McKIM interpreted as a dust cloud in his *Memoir* (\rightarrow): This may be so a type. However, as Reiichi KONNAI pointed out, a lot of similar several dawn white clouds can be found from the HST images of other types:



The image on 30 Mar 1997 here (\leftarrow) shows a multiple layer of high clouds. Because they can especially be seen in B in 1999 images, they are considered as white dawn clouds. The similar mount-like clouds at the evening limb are being also checked by R KONNAI. (Mn)

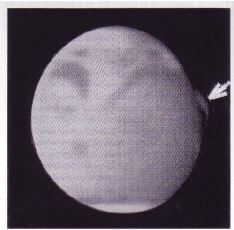


Figure 2.14c: HST. Great terminator projection over Zephyria, 1920 March 16, C&G, $\omega=120^\circ$, drawn by E. M. Antoniadi, 15 Jan 03, Museum Observatoire (from La Planche Mars, esp. vol. 1).

●.....Subject: RE: Still have a hope of seeing Martian craters
 Received: Tue 24 May 2011 23:58:38 JST

Dear Christophe, Reiichi, all; This is a very interesting discussion about detecting the relief of craters on Mars. It does seem like the best time to "see" the changing relief shadows is away from opposition when the viewing geometry allows us to observe the shadows better. But of course as Christophe points out, this is also when the apparent size of Mars is smaller and the imaging resolution is poorer making it difficult to observe the shadows in detail. However, the high resolution images from Hubble certainly have lots of features in them that certainly could be interpreted as craters even without observing changing relief shadows. In the 30 September 2003 Hubble image, the area north of Argyre appears to show lots of crater looking relief features. I could see how visual observers like Mellish and Barnard could have interpreted these features as craters on nights of exceptional seeing without actually observing shadow changes.

But to image the changing relief shadow of a Martian crater appears to be a real challenge, even for the Hubble. This is something for us to keep in

mind during future apparitions. Perhaps we will have an exceptional night away from opposition and can attempt to observe or image shadows as they move into or away from the terminator. Nothing like a good challenging project to push our observing skills! Thanks to all for the enlightening discussion. Best Regards,

Bill FLANAGAN (Houston, TX, the USA)

●.....Subject: Launch of Transit of Venus Project Website
 Received: Mon 06 June 2011 05:24:46 JST

Dear colleagues, Many of you have seen and responded last March to the appeal of Bill Sheehan for your involvement in the *Transit of Venus Project*. You are well aware of the unparalleled opportunities offered by the 2012 transit of Venus to promote astronomy education and public outreach.

Up to the day, the next transit of Venus is still only one year away. We seized this moment to officially launch the Transit of Venus Project's website today at

<http://www.transitofvenus.nl>

Run under the aegis of Astronomers Without Borders, the project is made up of different activities engaging the public in this rare celestial event.

Activities will include the measuring of the solar system by timing the transit from widespread locations with a phone app, an archaeological experiment in which historic Venus transit observations are emulated using antique instruments, classroom activities for different levels of education and the marking of significant sites of past transit expeditions. Your participation and support is highly appreciated.

The home page will be a dynamic page, featuring blog posts from various authors, informing the public on the transit from different angles and disciplines. If you would like to make a contribution to this platform, please contact us and you'll be added as an author.

Other pages will feature lists of important historic sites, a calculator to compute the local circumstances of the transit, an observer's guide, and much more.

If you are interested in becoming involved "whether as a planner and coordinator or as a participant or both" please let know your level of interest and the status of your personal preparations and plans to observe the transit. We would also ask you to suggest the names of others who may be interested in participating. Sincerely,

Steven VAN ROODE (the Netherlands)

☆☆☆

TEN YEARS AGO (191)

----CMO #245 (10 June 2001) pp3007~3022----

<http://www.hida.kyoto-u.ac.jp/~cmo/cmomn0/Cmo245/index.htm>

This issue first announced that the 9th Meeting of the CMO Mars Observers was planned to hold at Naha, Okinawa on 20~22 July 2001.

The observation report in #245 was #09, and treated the period from 16 May 2001 ($\lambda=162^\circ\text{Ls}$) to 31 May 2001 ($\lambda=170^\circ\text{Ls}$): The apparent diameter δ went up from 16.8" to 19.1". The tilt ϕ was 1.4°S up to 0.5°N . Observers are domestically 10 and from abroad we received from 9, and observations amounted to a total of 227. In Okinawa it became a rainy season.

Attention was paid to the spc/sph part. From Japan it was observed on 25 May at around $\Omega=250^\circ\text{W}$ that a brighter part at $\omega=190^\circ\text{W}$ went to the evening side, and at around $\omega=260^\circ\text{W}$ the following duller part occupied. From around 17 May a brighter area blew down from the spc area to Hellas. It was suggested that this was because of a dust disturbance from the perimeter of the spc related with the dullness of the morning side. At Argyre the southern spc part was caught. Elysium was ground-lit, and at the evening side the orographic cloud was detected. From abroad, the observations by PARKER (DPK) and GRAFTON (EGf) were taken notice of: The evening clouds of Tharsis Montes and Olympus Mons were still strong, and the spr looked different in IR and B.

As a NEWSFLASH, the detection was reported of the Edom flares on 7 June and 8 June by the group of DPK and Tom DOBBINS (TDb) at the Florida Keys as was announced in the preceding CMO#242: See

<http://www.hida.kyoto-u.ac.jp/~cmo/cmomn0/01Repo09/index.htm>

<http://www.hida.kyoto-u.ac.jp/~cmo/cmo/coming2001/0110/10.html>

LtE was from M WASIUTA, A NIKOLAI, EGf, DPK, F MELILLO, N FALSARELLA, N BIVER, R FIENBERG (S&T), D GRAHAM, M Di SCIULLO, TDb, Tim PARKER (NASA), S WHITBY, D BATES, M GASKELL and domestically from Mo, KUMAMORI, AKUTSU, HIGA, and ISHADOH.

The following LtE from DPK is the one communicating the success of the detection of Edom flares:

http://www.hida.kyoto-u.ac.jp/~cmo/cmo/letter/dpk/dpk_alert.html

A column added is an omitted but interesting part of "The Martian-Flares Mystery" in S&T written by TDb: In the 19th Century, there was no observation of any flare from the dark markings which had once been considered to be the seas.

TSUNEMACHI's essay is concerned with the brain work where as the music is easily repeated from memory, the sense of sight (of Mars) must be accumulated by the repetition of observations.

(Mk & Mn)

TEN YEARS AGO (192)

----CMO #246 (25 June 2001) pp3023~3042----

<http://www.hida.kyoto-u.ac.jp/~cmo/cmo/246/cmo246.html>

The 10th report of the 2001 Mars dealt with the period from 1 June ($\lambda=171^\circ\text{Ls}$) to 15 June ($\lambda=179^\circ\text{Ls}$), and the season was just before the southern spring equinox. Angular diameter δ went up from 19.3" to 20.6". On 13 June ($\lambda=177^\circ\text{Ls}$, $\phi=3^\circ\text{N}$) the planet was at opposition. The tilt ϕ was from 0.7°N to 3.3°N . It had been predicted by DOBBINS (TDb) and SHEEHAN (WSh) that there was a possibility of the Edom flare because $\phi=D_E$ (Sub-Earth point) and D_s (Sub-Solar point) were equally near 2°N at the beginning of

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10 June 2001

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お知らせ・Announcement
今号の「第九回CMO火星観測者報告会」は沖縄・那覇の比嘉保徳(Shige) 伊集院(Shige)氏の幹事で、この七月20日~22日に那覇で「CMO第9回」を開催して行われます。夏期観測が本誌で、十度高い火星と沖繩の観測を期してあります。20日深夜は那覇市(Shige)氏の観測所で40cm反射鏡を用いて、21日深夜は伊集院氏で31cm反射鏡を用いて合同観測が行われます。会議は21日、石炭公園で行われます。観望、本土からShige, Mn, Ts, Ndの各氏とMnの参加が決まっています。参加人数には制限がありません。奮ってご参加下さい。問い合わせはShige, Nd氏、もしくはMnまでどうぞ。 南 政 次 (Mn): vzv03210@nifty.com
★The 9th Meeting of the CMO Observers will be held at Naha, Okinawa on 20, 21 and 22 July initiated by HIGA and ISHADOH. Naha is located at 26°20' north, to the south of Fukuoka by 10 degrees. (Mn)

CMO 2001 Mars Report # 09 OAA Mars Section
2001年五月後半(16 May~31 May)の火星面観測
CMO Mars Observations in the Second Half of May 2001
from 16 May 2001 (162° Ls) to 31 May 2001 (170° Ls)
南 政 次 Masatsugu MINAMI

ON 16 May (162° Ls), the angular diameter δ read 16.8 arcsec, but on 31 May (170° Ls) it increased to 19.1 arcsec. We enjoyed rather good weather at the mainland of Japan, while Okinawa has been in the height of the rainy season. The central latitude ϕ went down from 1.4°S to 0.0°S on 28 May (169° Ls), but went back to 0.5°S on 31 May. The ϕ will go up to 7.4°N in mid-July. The phase angle α went down from 22° to 12° .
g.....10May(162° Ls)には観測は16.8秒角だったが、月末31May(170° Ls)には19.1秒角になった。引き継ぎ好天が多く、成果が上がっている。中央緯度は1.4°Sからであったが、28May(169° Ls)には0.0°S迄降った。然し、月末には0.5°Sに戻った。七月中旬に7.4°Nまで昇る。位相角は22°から12°まで回復した。

WE acknowledge receipt of the observations as follows:
g.....今回、報告を頂戴した観測者と報告数は次の通りである。
AKUTSU, Tomio 阿久津 富夫 (Ak) 栃木・岡山 Karasuyama, Tochigi, Japan
4 Sets of CCD Images (29 May 2001) f/70 32cm spec equipped with a Telecir 2
BIVER, Nicolas ニコラ・ビヴェール (NBv) ヴェルサイユ Versailles, France
1 Colour Drawing (28 May 2001) 330, 510x26cm spectrum

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June. This was a recurrence of the phenomenon observed in Japan in the 1950's. As reported in the preceding issue the members succeeded in detecting a pulsation of the Edom flares on 7 June at 6:40GMT ($\omega=330^\circ\text{W}$) to 7:20GMT ($\omega=342^\circ\text{W}$). On 8 June also at 7:00GMT ($\omega=326^\circ\text{W}$) to 7:20GMT ($\omega=331^\circ\text{W}$) and at 7:53GMT ($\omega=340^\circ\text{W}$) to 8:24GMT ($\omega=347^\circ\text{W}$). It did not occur on 5 and 6 June and no more on 9 June. The News was brought to the CMO soon as cited in the preceding column and from CMO we readily informed the members according to the mailing list.

The main object in this issue was the clearing of the sph: $\lambda=176^\circ\text{Ls}$ corresponded to 10~11 June and HIGA (Hg) had an impression that the sph was cleared on 10 June, while MINAMI (Mn) saw a shadowy area at the southern limb on 11 June. On the day PARKER (DPk) observed a grey mist appeared in Hellas and also light and shadow inside the spc/sph. Otherwise GRAFTON (EGf) took a nice image on 11 June. MORITA (Mo) et al revealed Juventae Fons. Olympus Mons was inferior to the bright Tharsis Montes at the terminator. Reports amounted to 225 (domestically 13 members, abroad 12). ASADA (As) joined.

LtE was from N FALSARELLA, M GASKELL, TDb, EGf, D BATES, M Di SCIULLO, J BARNETT, M MATTEI, F MELILLO, G TEICHERT, W LAI, A NIKOLAI, DPk, T PARKER, A HEATH, TAN W.-L and domestically from KUMAMORI, AKUTSU, Hg, Mo, NARITA, ISHADOH, As, ISHIBASHI, HIKI.

TSUNEMACHI's 5th essay is on Robert HOOKE and his "MICROGRAPHIA". The conflict between HOOKE and NEWTON was also described, and because of NEWTON, a lot of portraits of HOOKE were destroyed.

TYA (70) treated CMO #106 (25 June 1991): The planet was away. In this issue Mn wrote about "1990-126=1864" as Sometimes-Something Old (2) which is useful even now. The apparition in 1864 was picked out as similar to the one in 1990. In 1864 W R DAWES observed and produced excellent drawings. (Mk & Mn)

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観測依頼・Announcement
○24June観測の概要についての観測結果は早めにお届け下さい。また、CMO-Webを毎日のようにご参照下さい。
★We would be thankful if we are informed of any observation on the dust cloud observed since 24 June 2001. The CMO Web-Site updates every day the information on the dust storm. (Mk & Mn)

CMO 2001 Mars Report # 10 OAA Mars Section
2001年六月前半(1 June~15 June)の火星面観測
CMO Mars Observations in the First Half of June 2001
from 1 June 2001 (177° Ls) to 15 June 2001 (179° Ls)
南 政 次 Masatsugu MINAMI

THE angular diameter increased from 19.3 arcsecs to 20.6 arcsecs during the period. The moment the planet could be closest to the Earth (on 21 June GMT) was only ahead. The central latitude ϕ retreated from 0.7°N to 3.3°N . During the present period, the planet ϕ was at opposition on 13 June at 177°Ls with $\phi=3^\circ\text{N}$. In 1986, the south polar cap (spc) showed a shadowy area inside indicating the spc had already begun thawing at 176°Ls , and hence the opposition time was critical this apparition concerning the behaviour of the spc. The Sun-glint phenomenon at Edom analysed by DOBBINS and SHEEHAN was supposed to occur at the beginning of June since De came up at 2°N when $\phi=\text{De}$ was around 2°N .
が……視直径はこの半月(1June~15June)で19.3秒角から20.6秒へ伸びた。最近(21JuneGMT)は目前であった。中央緯度は 0.7°N から 3.3°N と後退している。期間中13Juneに 177°Ls 、 $\phi=3^\circ\text{N}$ で衝を迎えている。1986年の経験では、 176°Ls で南極冠内の溶解が認められたら、衝が臨界となっており、面白い接近である。また、上旬、 $\phi=\text{De}$ が 2°N を指した頃、太陽が丁度我々の背に来るということがあり、DOBBINSとSHEEHANによって、エドムがピカれるであろうと予測があった。

WE acknowledge receipt of the observations this period as follows:
が……今回、報告を頂戴した観測者と報告数は次の通りである。
AKUTSU, Tomio 阿久津 富夫 (Ak) 栃木・岡山 Karasuyama, Toshiyuki, Japan
4 Sets of CCD Images (2, 4, 10 June 2001) / 70×32cm spec. equipped with a Teleris 2
ASADA, Tadashi 浅田 正 (As) 奈良・福岡 Mumakata, Fukuoka, Japan
4 Sets of CCD Images (8, 11 June 2001) 30cm spec. equipped with a Lynx PC
BARNETT, John H. ジョン・バーネット (Jb) 補吉尼亞 VA, USA

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C M O Fu Ku I

T NAKAJIMA (Nj)

★ We this time acknowledge a kind donation to CMO/ISMO from Hitomi TSUNEMACHI (449).

International Society of the Mars Observers (ISMO)

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

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CMO #386/ ISMO #12 (25 June 2011)

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