

MARS

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Extraterrestrial Volcanic Belts (?)

By

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In the mid-90's I had a regular page for my essay in the monthly *Tenmon-Guide* ("A Guide to Astronomy", the Japanese counterpart to *Sky & Telescope*). The page was entitled "泰平天文趣味人氣質" (*taihei-tenmon-shumijin-katagui*, or "That's The Way The Light-Hearted Astronomers Like It"), and my stance on the page was "to write what I myself want to read which no one or very few have written." A couple of my essays were related to Mars in some sense. I first planned to make a close translation of one of them for CMO/ISMO¹, and tried to get permission of the publisher, the copyright holder. However, they seemed to show disapproval; so, I decided to wholly rewrite the piece along the same lines for you while preserving the mood of former days. I hope you enjoy it.

*In the Distance**Far away lies a Moon**Over the Sea**A haiku by Kusatao NAKAMURA**(translation by this author)*

Just looking up to the Moon high in the sky gets my blood stirring...would it be an exaggeration to say that we have, since ancient times, been influenced on a genetic level by the Moon? That reminds me, many scientists have suggested that the Moon had been indispensable for the development and evolution of life on the Earth.

A lunarscape through a well-adjusted good telescope on a rare night with excellent seeing and transparency is beyond description! Unlike the terrestrial landscapes, no veil of haze exists over a lunar view at all, thus even halftone areas stand out in extremely sharp contrast. A Moon in its phase 5 to 6 days in the western sky on a beautiful clear evening would be an excellent starter for a telescopic sky-watching show for the people gathered at a star party. Grazing sunlight immediately after

sunrise at Mare Serenitatis shows up the famous "Serpentine Ridge" brilliantly on the terminator, looks just like a bright shining winding double helix or an untwisting heavy golden thread...a wow-inspiring spectacle without any explanation for the first timers at an eyepiece of a telescope.

Most space scientists and many amateur deep-sky watchers treat the Moon as a public nuisance. But I love to look at our big satellite through my telescopes as well as watching deep-sky wonders. To enjoy the Moon much more, you can try seeking, imagining or considering various things when you observe it. Here this month I'd like to show you an example of what I came up with to amuse myself in lunar observation.

Now cold and inactive, the lunar surface is wholly pockmarked with countless craters. Almost all of them have been proven to be of external origin, or created by the impacts of high-velocity heavenly bodies. ...Then, I who am a contrary guy and a rooter for the underdogs naturally raise a naïve

question ; “Where on the Moon are the ultra- minority volcanic craters!?”

The best person I knew to direct my question to was Dr. Motomaro SHIRAO, a volcanologist/planetary geologist of great renown, known also as “an iron master lunar photographer”...he is a real genius in his darkroom, nobody can emulate his miraculous manipulation of dodging works in printing lunar photos. A few years ago I asked him a question: “Which is the largest volcanic crater on the Moon discernable with our telescopes? And what are the characteristics of the craters of volcanic origin?”

He taught me a lot actually, but I’m going to quote here an explanation from his work “*Illustrated Photographic Guide to The Moon*”(coauthored with Shozo SATOH, Rippu Shobo Publishing Co., Ltd., 1987), page 61, as one of his answers :

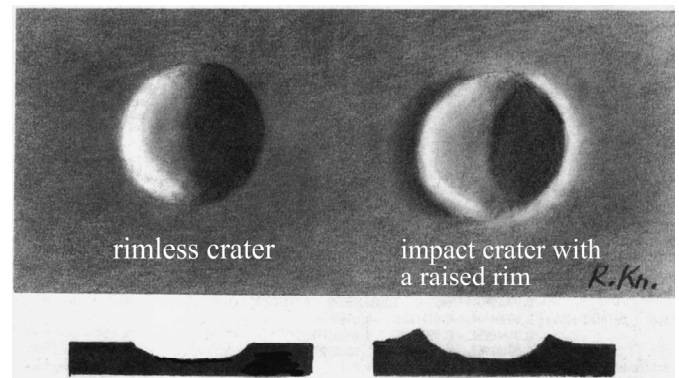
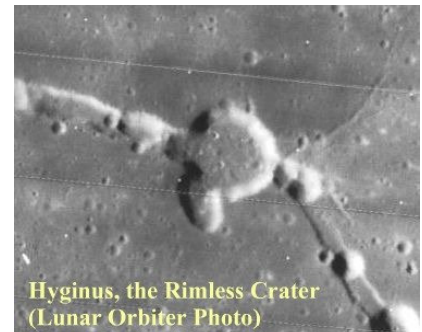
“...All impact craters, even highly degraded ones, have conspicuous raised rims. In contrast, it is thought that the absence of an elevated rim for a fresh crater can be an obvious characteristic of its volcanic background. There seem to be two different ways for the formation of the rimless craters by volcanic activity as follows :

- A) *Volcanic eruptions or underground magma moving away to somewhere creates an empty sub-surface chamber into which overlying crust collapses to form a circular geographic depression without a turned-up rim. A smaller one formed from that process is a so-called pit crater, and a larger one might be called a caldera².*
- B) *If a volcanic explosion is mild, falling ejecta pile up near the edge of the crater to form a raised rim. In another case, ejecta are thrown further by a violent explosion, leaving a crater with a less distinctive rim. In this case thin layers of ejected matter spread over a wide area around the crater....”*

Thus it seems highly probable that a fresh (less eroded) rimless crater has its origin in volcanism. And, as the largest and the most representative example of rimless crater, Dr. SHIRAO named

Hyginus in Sinus Medii.

The 10km diameter crater Hyginus is located on a bend in the middle of the famous boomerang-shaped Rima Hyginus. Try this crater with your telescope under favorable lighting at a higher magnification when seeing allows. You’ll be sure to find this well-defined crater possesses no trace of a raised rim!...looks exactly like the flat surface of a cup of ice cream with a sharp, half-spherical cavity, scooped out of it (Fig. 1). You’ll probably feel its appearance to be quite unusual compared to those innumerable “usual” impact craters nearby with definitely elevated



rims. This impression is easy to recognize even with 10cm aperture class instruments (Fig. 2).

“Good!”...I thought, “besides Hyginus, there must be many other volcanic craters on the Moon waiting for my detection.” I then started searching for rimless craters at every occasion visually and photographically with my 35cm Schmidt-Cassegrain. I also checked many lunar photographs and images by other observers or by spacecrafts and lunar orbiting satellites which I was able to access.

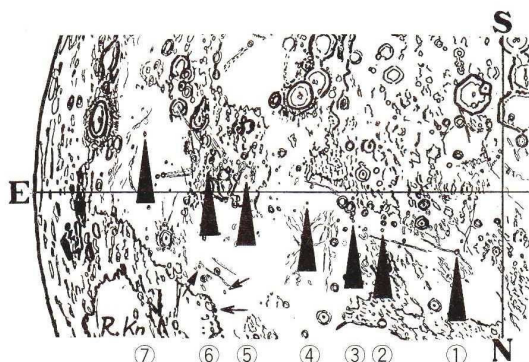
So far, in some five years, I could have collected over twenty craters I judged to be rimless. A few of the largest ones including Hyginus are around 10km in diameter, and then the number increases with decreasing size. For earth-based observers

however, a suspected rimless crater with 3km diameter (corresponds to 1.5 arcseconds across on the lunar disc) or smaller would have less chance of being confirmed as truly lacking raised rim or not; this is not chiefly because of telescopic optical limitation, but more often because of image degradation by seeing condition³.

When one of these rimless craters is located very close, say, within 1~2° in longitude to the terminator, it will show quite anomalous appearance. In the terminator zone, a rising (or setting) sun lights up the sunny-side external and internal slopes of the raised rim of a "usual" impact crater like a tiny shining gold ring, with a long dark conical rim shadow cast extending over the terminator. It bears a close resemblance to the entrance hole of an ant's nest on the ground with an elevated rim of piled up sand dug out by worker ants. On the contrary, a rimless crater under a very low sun in the vicinity of the terminator shows no sign of a sunlit raised rim, nor hint of a trailing rim shadow. It looks almost like a pitch-black, bottomless hall; a pitfall straight to Hell.

Shadow measurements and simple calculations suggest that the rim height with respect to the terrain outside of such a rimless crater never exceeds 1% of its diameter; this is very much contrasting to a fresh impact crater around 10km diameter, of which the rim height proportion with the same regard often goes beyond 5%.

Then, plotting these rimless craters on my lunar globe I noticed an astonishing fact!! As Figure 3 self-explains, from Hyginus in Sinus Medii, all the way to far eastern Ibn Battuta in Mare Fecunditatis,



A Possible Lunar Volcanic Zone? Seven Fresh Rimless(Volcanic?) Craters in a Line

seven distinct rimless craters beautifully queue up in a line (on a great circle). Over 1400km, or 46° arc on the great circle, it well rivals our terrestrial classical "The East Japan Volcanic Belt". ... "A lunar Volcanic Belt"!!!?

For anyone who wants to reexamine them, the list of these rimless craters is presented here⁴; with the crater's name, diameter, latitude, and longitude in order :

- (1) Hyginus 10km 7.8°N 6.3°E
- (2) Ariadæus B 9km 4.9°N 15.2°E
- (3) Ritter D 7km 3.7°N 18.7°E
- (4) Armstrong 5km 1.4°N 24.9°E
- (5) Censorinus H 10km 1.8°S 33.7°E
- (6) Lubbock P 7km 2.9°S 39.5°E
- (7) Ibn Battuta 10km 6.9°S 50.4°E

I know planetary geologists have concluded that, though volcanism had played a major role in the early history of the Moon, there had been no plate tectonic activity in the selenological past of our satellite. However, I feel it's interesting and also meaningful that the straight lining up of the rimless craters runs completely parallel to the long line of parallel linear graben systems from the eastern half of Rima Hyginus, through Rima Ariadæus, to Rimæ Hypatia.

Anyway, just watching heavenly objects, the Moon, planets, remote satellites, comets, stars and deep-skies...through telescopes have long been a great fun for astrofans. Today, however, you have far more opportunities of learning about the history and the structure of the universe. You may see a fantastic moonscape in your eyepiece, but you see much more with your mind if you contemplate the ancient hellfiring origin of the lunar formations.

Enjoy moonwatching sometimes in a different way.

.....

Above was a story of some fifteen years ago. Now looking back on the contents, I find them still interesting. Some others might too: I noticed on the Web that some recent lunar observers pay attention to the rimless craters (see below).

My calculations had shown statistically highly significant linearity of the rimless craters' distribution. But besides the fact it was an essay, I didn't mention the result in it because, to be honest, I wasn't sure whether the data sampling was random enough. Hitherto many investigators, including ALPO Lunar Section members, have revealed that the lunar domes, another type of volcanic formation, tend to show significantly characteristic distributions; they are often found distributed in a line, or in a cluster, or unevenly at the peripheral area in a mare. Rimless craters may show similar tendencies in distribution.

Nowadays most planetary geologists believe that the Earth is the only planetary body exhibiting plate tectonics presently as well as in the geologic past. In this sense, we should probably say that we have no chance of finding volcanic belts on the Moon. Recently, however, selenologists have suggested that the lunar straight rills had been formed by the sub-surface dike intrusion. Thus it might not be any wonder at all that a long line of rimless craters was found along the long linear graben systems of dike origin.

Now looking at the attractive polar-capped red planet, some fifteen clear-at-a-glance volcanoes are known to exist there. Some of the Martian volcanoes are unbelievably gigantic. "The Tharsian Giants"...some of the solar system's largest volcanoes are located on the Tharsis Bulge, including awe-inspiring Olympus Mons rising 26km and stretching over 550km. To the east of Olympus Mons are lying so-called Tharsis Montes; from south to north, Arsia Mons, Pavonis Mons and Ascraeus Mons. At the northern edge of the Tharsis region sited a unique volcanic feature Alba Mons, which is not so high, but the largest on Mars in terms of areal extent.

As mentioned above, most planetary scientists think that mobile tectonic plates have been lacking in Mars as well as in the Moon. So that, they believe, extra-huge Tharsis Shield Volcanoes are the results of innumerable highly fluid basaltic lava flows that poured from volcanic vents remaining

fixed over stationary hotspots over enormously long periods of time. Alba Mons' thinner lava flows over greater area than other Tharsian Volcanoes might suggest extremely fluid lava erupting over long periods of time. While the Moon, its small size resulted in the loss of internal heat at a much faster rate; made it unable to keep providing energy to form larger volcanic features like ones seen on Mars or on the Earth.

From the bottom of the turbulent terrestrial atmosphere these extra-massive Tharsis Volcanoes are often visually recognizable and readily imageable even with our telescopes. Tharsis Montes and Olympus Mons have shown variable appearances. Their bare summit surfaces were sometimes captured as reddish-dark spots when the Martian sky was transparent and cloudless. In certain Martian seasons their summits were poking out from the sea of morning mist to show them as remarkable shadowy spots against the bluish-white background. In other occasions, cotton wool like afternoon orographic roll clouds covered the huge volcanoes, indicating their definite positions. And at some very oppositions, probably with special surface/atmospheric conditions, Tharsis Montes as well as Olympus Mons were shining bright throughout the daytime long; might have been opposition effects not purely by shadow hiding, but possibly caused also by retroreflection with coherent backscattering effect occurring from isolated crystals within rocks⁵. Montes Olympus, Ascraeus, Arsia and Pavonis are ranked as the top four in order in the list of mountains on Mars by height, followed by the fifth Elysium Mons...another huge shield volcano which have also shown prominent antisolar brightenings at certain oppositions simultaneously with Tharsis Volcanoes. Their extremely high elevations might have contributed to the selective sedimentation of finer airborne dust particles thrown up in recent storms to produce stronger coherent backscattering phenomena.

Reproduced here is one of fine pieces of CMO/ISMO colleagues' work showing various as-

pects of Tharsis Volcanoes: (Fig. 4).



Olympus Mons, unrivaled loner giant, is quite remarkable. However, "The Three Tharsian Taco Bells"(I once heard somebody called them so!) deserve everyone's attention for their arrangement in a beautiful diagonal straight line. This belt of Tharsis Montes is just on the Martian equator. It is as impressive as "Orion's Belt" near the geocentric celestial equator. Most astrofans know that the tight linear grouping of the second magnitude stars of Orion's Belt is an illusion; in fact, each of the three stars has different distance and luminosity, they just happened to lie in proximity along our line of sight in the sky.

But how about Tharsis Montes? Unlike our Moon which is plate-tectonically hopeless, some planetary geologists' groups have recently suggested the temporary and transient plate tectonics activities in the very early history of Martian geologic evolution, with subduction zones in the immediate vicinity of Tharsis region. They thought the lining up of the three Tharsis Montes together with some smaller volcanoes to the north, as a possible volcanic belt, the result of plate motion. Olympus Mons and Alba

Mons, on the other hand, are thought to be much younger, and had no relation to the plate activity on their starts of formation.

We need hundreds of times magnifications with our telescopes to discern the small rimless craters on the Moon. Whereas Mars, even at its closest approach, is some 140 times as distant from the Earth as our satellite, with about 1/75 apparent diameter; thus it looks through our telescopes even with very high powers, only as large/small as the Moon seen with operaglasses. Even so, we might be able to say we are possibly witnessing the Martian volcanic belt with our instruments.

...It's really COOL, isn't it !?

(Notes)

1. My essays based on this idea originally appeared in *Tenmon-Guide* (Seibundo Shinkosha Publishing Co.,Ltd), 1995 Nov. and Dec. issues, entitled as "A Lunar Volcanic Zone (?) -I" and "A Lunar Volcanic Zone (?) -II" respectively (in Japanese).
2. In his latest excellent work "Geographical Features, Watching Guide of THE MOON" (Seibundo Shinkosha, 2009), page 108, Dr. Motomaro SHIRAO commented as "Hyginus deserves to be called *an admirable caldera*."
3. Today, high-tech digital imagers/processors can examine by far smaller seemingly rimless craters. However, they should be careful with excessive processing which may produce a pseudo-rim around a rimless crater.
4. Nowadays you can check up them all on their images over the Web ; for instance, access below:
<http://the-moon.wikispaces.com/Introduction>
5. Dr. Masatsugu MINAMI suggested feldspar as a possible cause of antisolar brightening of Olympus Mons in CMO 09/10 Mars Note (6) «Why Was Olympus Mons Rather Silent in the 2010 Opposition?». Read :

<http://homepage3.nifty.com/~cmomn4/CMO378.pdf>

CMO 09/10 Mars Note (8)

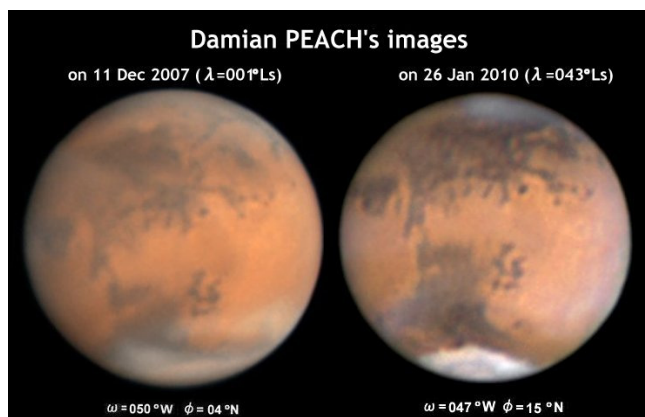
*Intensities of Some Markings
in 2009/2010 Different from 2007/2008*

0° Introduction: Mars in 2007 looked as if dust-devastating ever since the occurrence of the dust storm around Eos in 22 June 2007 and it made a resonance at Noachis on 26 June. The storm was not as great as in 2001, whereas some markings appeared fainter: However in 2008/2009 some of them returned normal. Here we shall pick out a few examples.

1° Area around Margaritifer S: It may not look so peculiar for the ccd imagers, but for the visual clinical observers it was felt that the area around Margaritifer S was quite faint after the event while in contrast the area around M Erythræum looked quite dark. Auroræ S was also dark as usual but the faintness of the preceding Margaritifer S was so evident extraordinarily. Refer for example to the images by Roland CHAVEZ (*RCv*) on 12 Dec 2007 ($\lambda=001^\circ\text{Ls}$) at $\omega=030^\circ\text{W}$, $\phi=04^\circ\text{N}$:

<http://www.hida.kyoto-u.ac.jp/~cmo/cmoms/2007/071212/RCv12Dec07.jpg>

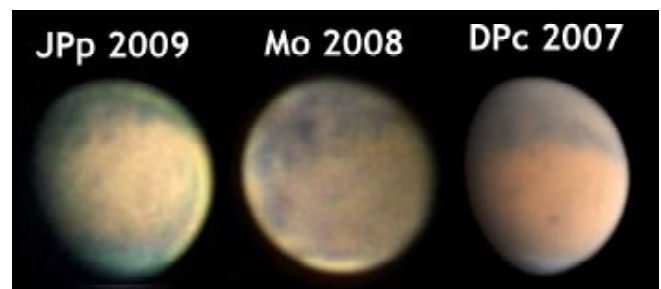
We here put side by side Damian PEACH (*DPc*)'s



images on 11 Dec 2007 and on 26 Jan 2010 where we chose similar ω angles though ϕ s are different, in order to see how the structure and the density are different. The faintness in 2007 is apparent compared with the case in 2010. On the contrary the density and others of M Erythræum are by no means inferior in 2007. So we may conclude that the faintness or devastation of Margaritifer S was

due to a fallout of dust, and not atmospherically changed though still the atmospheric dust existed. The fact that there are differences in intensity in Nilokeras and Juventæ Fons might have been caused by the atmospheric dust differences (that is; still dusty in 2007).

2° Area around Dædalia: Compared with the case in 2007, the area of Dædalia is difficult to see because of the tilt in 2009/2010, so that it is not easy to compare. However since we have an appropriate image of Jean-Jacques POUPEAU (*JPp*) on 3 Oct 2009 ($\lambda=348^\circ\text{Ls}$, $\iota=40^\circ$) at $\omega=112^\circ\text{W}$, $\phi=12^\circ\text{N}$, named



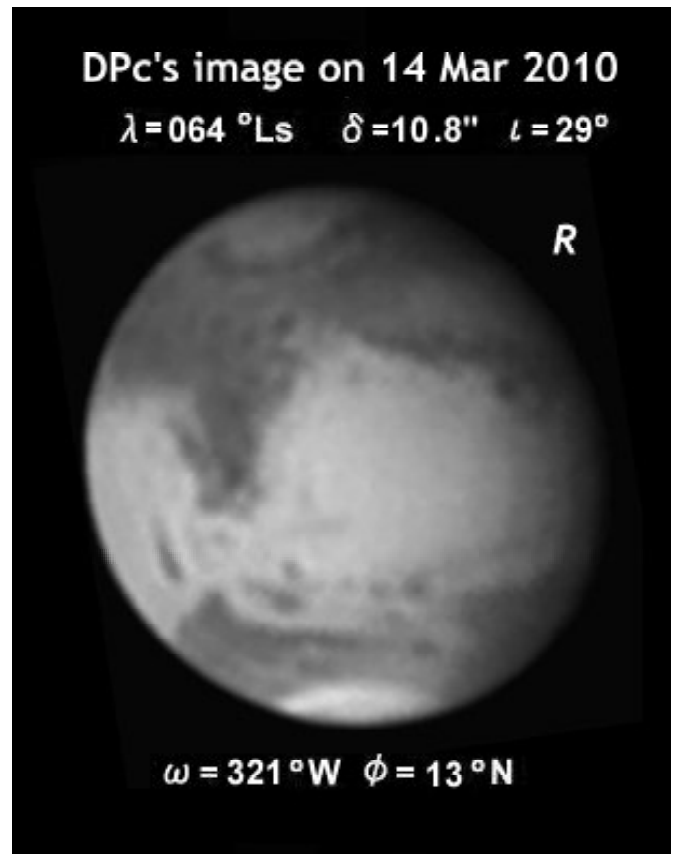
here *JPp*-2009 which can be compared with the image by *DPc* (here *DPc*_2007) on 18 Sept 2007 ($\lambda=316^\circ\text{Ls}$, $\iota=44^\circ$) at $\omega=110^\circ\text{W}$, $\phi=01^\circ\text{N}$, and so it does not seem to exist a drastic change between the two. We put in the middle an image of MORITA (*Mo*) named *Mo*_2008 made on 27 Jan 2008 ($\lambda=024^\circ\text{Ls}$, $\iota=25^\circ$) at $\omega=109^\circ\text{W}$, $\phi=03^\circ\text{S}$: It was made after *DPc*'s and the phase angle is smaller, but we inserted it because the position of Solis L is more apparent. Dædalia is also evident.

It should otherwise be remarked that on *DPc*'s image Olympus Mons is apparent as a shadowy spot: The fact implies that the atmosphere is covered by the floating dust still; this fact being more vividly observed in 2001. *DPc*'s later images on 4 Dec 2007 ($\lambda=357^\circ\text{Ls}$) at $\omega=113^\circ\text{W}$, $\phi=05^\circ\text{N}$ do not however show any longer: That is, the atmospheric dust disappeared by the day. This *DPc* image on 4 Dec 2007, on the other hand, more describes further details of Dædalia, but unfortunately there is no other picture in 2009/2010 which is comparable with this (except for *DPc*'s): If we pick out another image, if anything, *DPc*'s image on 16 Dec 2009

($\lambda=024^\circ\text{Ls}$) at $\omega=113^\circ\text{W}$, $\phi=19^\circ\text{N}$ might be more appropriate in comparison, but then all the comparison would be made by *DPc*'s images only. As is shown in this case, all observers have to consider it necessary to store up several images for other use as *DPc* does: In any chance it will be recommended to take successively pictures every 5°W to 10°W (every 20 minutes to 40 minutes).

3° M Serpentis: The area of M Serpentis has been darkened since around July 2003 when the planet made an exceptional approach, and its wide and darkened aspect has continued as is seen in the F of <http://www.hida.kyoto-u.ac.jp/~cmo/cmohk/news/2003News.html> and even in the disturbance of 2007 it was not much affected.

In early 2009, *Mo*'s images on 31 Aug 2009 ($\lambda=331^\circ\text{Ls}$) at $\omega=312^\circ\text{W}$ show the aspect, and *JPp*'s ones on 19 Oct 2009 ($\lambda=356^\circ\text{Ls}$) at $\omega=322^\circ\text{W}$ gave a detailed structure. GORCZYNSKI (*PGc*)'s images show it quite dark on 9 Jan 2010 ($\lambda=035^\circ\text{Ls}$) at $\omega=321^\circ\text{W}$ and on 10 Jan 2010 ($\lambda=036^\circ\text{Ls}$) at $\omega=312^\circ\text{W}$. The part on *DPc*'s images on 14 Mar 2010 ($\lambda=064^\circ\text{Ls}$) at $\omega=321^\circ\text{W}$, somewhat near southerly, is not faint as shown here.



On the other hand we can pick out as an example in 2008 *DPc*'s images on 16 Jan 2008 ($\lambda=019^\circ\text{Ls}$) at $\omega=322^\circ\text{W}$, 337°W : They show quite a details faintly but no drastic changes around there: *DPc*'s images here still show a faint atmospheric dust over there. □

Letters to the Editor

●.....**Subject:** RE: Re: reminiscences
Received: Wed 15 Dec 2010 23:38:34 JST

Dear Masatsugu, I only wish I'd been able to spend more time with it.

I have slightly tweaked one line of Camichel's for stronger emphasis in the attached version of the text. Since it was translation from French that I recalled, it is permissible!

Best wishes for Christmas and the New Year,

○.....**Subject:** Re: Reminiscences II
Received: Wed 12 Jan 2011 22:20:41 JST

Dear Masatsugu, I shall be able to do that; best wishes for the New Year also, and we too are suffering from a severe winter.

I just got back from Seattle, where I chaired a session on the discovery of Neptune for the American Astronomical Society's HAD session.

Best,

Bill SHEEHAN (MN, USA)

●.....**Subject:** Re: Your Address
Received: Thu 16 Dec 2010 12:32:52 JST

Dear Masatsugu, Thanks very much for the kind offer, I'm happy to include you on my Mars mailing list. My postal address is

Thanks again, Kind regards, Bird

Anthony WESLEY(Bird) (Campbell, Australia)

●.....**Subject:** My paper
Received: Thu 16 Dec 2010 23:30:12 JST

Dear Dr. Minami, That's all right, understood your latest editorial circumstances. To be honest, I

feel somewhat relieved because December is the busiest month for our dental clinic almost like a combat hospital; many emergency patients rush, so do a lot of aged people who want to welcome the New Year with their new dentures. Plus, I have to take care of postgraduates in some dental colleges,

checking and advising on their papers.

Anyway my paper for ISMO is completing, I think I can submit it to you in early January.

Attached is a picture taken when I visited Tomio AKUTSU's home in the neighboring prefecture, within one hour drive, when he made a temporary

TEN YEARS AGO (185)

---CMO #239 (25 January 2001) pp2883~2906---

<http://www.hida.kyoto-u.ac.jp/~cmo/cmomn0/cmo239/index.htm>

Another century came in, and the CMO entered a new cycle since 15 years passed since the first publication. The snow fell deep in the northern districts as was in the first year 1986.

The issue reports the third observational one and reviewed the period from 16 Dec 2000 ($\lambda=090^\circ\text{Ls}$) to 15 Jan 2001 ($\lambda=103^\circ\text{Ls}$). Hellas and the npc were caught bright and the main dark markings were identified. The planet was still in the morning, and its angular diameter was just 5 arcsecs, while the ten reports came (five abroad, and five domestic). From abroad, Don PARKER (DPk), Carlos HERNANDEZ (CHr) and Mylon WASIUTA (MWs) from the US and from Europe Damian PEACH (DPc) and António CIDADÃO (ACd) sent to us. DPc was then a visual observer.

<http://www.hida.kyoto-u.ac.jp/~cmo/cmomn0/01Repo03/index.htm> (English)

1998/99 Mars CMO Note (17) entitled "White cloud on the evening Syrtis Mj" and treated the case of a greenish Syrtis Mj when it went out to the rear side in the northern spring and summer ($\lambda=108^\circ\text{Ls}\sim 147^\circ\text{Ls}$).

<http://www.hida.kyoto-u.ac.jp/~cmo/cmomn0/99Note17/index.htm> (English)

"Forthcoming 2001 Mars (6)": Mn wrote "The spc and the northern summer": The 2001 opposition time was near $\lambda=180^\circ\text{Ls}$, and so at the period $\lambda=090^\circ\text{Ls}\sim\lambda=180^\circ\text{Ls}$ the growth of the sph and spc must be observed as well as the thawing of the npc. As well the ebm and the sph were especially cautioned to the observers. The alternative polar cap theory was also criticised: The atmospheric pressure was influenced by the growth and thawing of CO₂, and hence it was stated the old H₂O alternative theory should be criticised.

<http://www.hida.kyoto-u.ac.jp/~cmo/cmo/coming2001/0106/06.html> (English)

LtE was a lot: we received from Richard McKIM (UK), Alan HEATH (UK), David GRAY (UK), Randy TATUM (VA, USA), Brian COLVILLE (Canada), Daniel M TROIANI (IL, USA), DPk (FL, USA), Frank J MELILLO (NY, USA), Audouin DOLLFUS (France), C H TSAI (Taiwan), André NIKOLAI (Germany), MWs (VA, USA), DPc (UK), ACd (Portugal), CHr (FL, USA) as well as domestically H TSUNEMACHI, Y MORITA, S NUMAZAWA, T KUMAMORI, S MURAYAMA, S YAMAMOTO, H ISHADOH, T IWASAKI, T HIKI, and Y HIGA.

TYA (65) dealt with two issues CMO #100 (10 Jan 1991) & CMO #099 (25 Jan 1991): 20 years ago already CMO #100 was published. At that time the planet was near Tau and shined high in the evening. At the beginning of Jan, the season was $\lambda=000^\circ\text{Ls}$: The δ was still just below 15 arcsecs.

In CMO #101 A NISHITA wrote "COMING 1990/1991 MARS (10)" as well as the expected grids from March to May:

(Mk & Mn)

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COMMUNICATIONS IN 東亞天文學會『火星通信』since 1986

MARS

No. 239
25 January 2001

OBSERVATIONS Published by the OAA Mars Section

all the best for the 2001 mars apparition
cmo editors: mmminami mmurakami tnakajima anishita

CMO 2001 Mars Report # 03 OAA Mars Section

As the 20th Century is over and the 15 Years of the CMO has become something of the past, we have thus entered a new cycle. We hope to be given support to as ever. Welcome are new participants. The 2001 Mars now comes to the meridian at dawn, but apparently its altitude is already lower; the apparent declinations was -14.5° on 15 January 2001, and it is uneasy to know that it will further go down by more than 10 degrees.

が……二十世紀が過ぎ去り、『火星通信』も十五年の周期を終えて、新しいサイクルに入った。今後も宜しく願います。ただ、今接近は『火星通信』初年度の1986年と同じく、火星の高度が低い。現在、火星は夜明けの薄明中に好機となり、観測していると既に南中を過ぎるが、これ以上高くはならない。これからますます低くなるかと思うと甚だ心許ない。15Janで視赤緯 -14.5° であるが、まだ1/2は下りる筈である。反射観での観測者は然程感じないかもしれないが、屈折では如實に分かる。気張り過ぎる。この夏には神農へ東遷修行に行きましよう。

His report treats the period from

16 December 2000 (090°Ls) to 15 January 2001 (103°Ls),

during which the apparent diameter δ went up from 4.8 arcsecs to 5.7 arcsecs, the central latitude of Mars ϕ gradually changed from 21°N down to 16°N , and the phase angle ι increased from 30° to 35° . We suffer from dismal weathers in winter especially in our snow country, but if the seeing is good, it is now possible to watch the planet from 4:30 local time.

が……今回は16 Dec 2000 (090°Ls)から15 Jan 2001 (103°Ls)迄の期間を観測をレビューする。視直径 δ は4.8秒から5.7秒に伸びた。遠くに見やすくなっている。中央緯度 ϕ も 21°N から 16°N に降りている。位相角 ι は 30° から 35° と強くなった。冬場は高気圧に恵まれることは少ないが、シーイングが好ければ観測は連続四時半から可能であった。

We received the observation reports from the following ten observers, while the angular diameter was still under 6 arcsecs.

が……今回受領の報告は次の通りである。十名の観測者が揃ったが、5秒台では珍しいことである。

2883

return in the last early November from Cebu, the Philippines just before the outbreak of Jovian SEB



disturbance (on the left side is Tomio, and a donkey wearing red shoes is me). I realized again that he is still energetic and a perfectionist in planetary imaging.

We are planning to spend a one-week vacation in the coming New Year in New York; my wife Reiko is preparing a long list of art museums and galleries she wants to visit.

While, I'm looking forward to hanging around the combat zone of the nightless city after some thirty years! Best Wishes,

○.....*Subject: Wishes for a Happy New Year*
Received: Mon 27 Dec 2010 01:09:44 JST

Dear Dr. Minami, Thank you for your sending my e-mail address to Christophe PELLIER. I'll be happy to communicate with him directly.

I have already started preparing a summary of my paper in Japanese.

We didn't have much snow yet, but the temperature went down to four degrees below zero Celsius this morning, and the roads are very much slippery now.

Best wishes for a Happy, Healthy and Fruitful 2011!

○.....*Subject: New York*
Received: Tue 18 Jan 2011 11:58:24 JST

Dear Dr. Minami, My wife Reiko and I spent a week, including New Year's eve in Times Square, in New York. A new-model business-class seat of ANA's Narita to New York direct flight was very comfortable, but thirteen hours on a plane was long enough. Reiko always falls asleep automatically just after taking off, and fully enjoys all in-flight services when she's awake.

While, I saw four movies, "Robin Hood", "Troy", "Alice in Wonderland" and one I forgot the title while drinking up two bottles of Jack Daniel's; but our plane was still flying through stratosphere 35.000 feet above Chicago! When the plane went to the final approach to JFK International Airport, we noticed whole New York City area, except main roads and snow-cleared runways of the airports were completely covered with snow. We were lucky...heavy snow had forced JFK Airport to close for a couple of days, and it just reopened the day we arrived.

In the snow-covered beautiful Manhattan, it took three days to conquer art museums which Reiko thought as must go MoMA, Metropolitan, Guggenheim, Whitney, The Frick Collection, Neue Galerie and Cooper-Hewitt National Design. She gave a stream of "finally!"s and "at last!"s in front of masterpieces and took over a thousand shots.

Times Square New Year's Eve was beyond our expectations we really felt we were in a huge melting pot rather than a mixed salad!

I was a bit exhausted and kept asleep throughout the flight back to Japan. Best wishes for your health.

Reiichi KONNAI (Fukushima, Japan)

●.....*Subject: Festival Wishes at Xmas Time*
Received: 17 December 2010 JST

Many Thanks for Mars Bulletins.

Have a Wobderful Time this Christmas and Best Wishes for 2011 from

Alan HEATH (Long Eaton, Nott. England)



★Here is shown a tiny our planet Mars near the horizon after its occultation by a young Moon. This was taken by Doug ZUBENEL (1957-), Kansas, on 6 December 2010, near the mid-night GMT. Doug is a member of TWAN (the World at Night) which is a program to create and exhibit a collection of stunning photographs and so on. Many thanks for Doug's kind permission to use his nice photo here. A bit earlier image where Mars is nearer to the Moon is also found on his Site. (Ed)

●.....*Subject: Re: Season's Greetings*
Received: Fri 24 Dec 2010 21:33:29 JST

Dear Masatsugu, Please excuse me for this very long delay in answering. As you guessed, last week I've been completely occupied by my moving - that went fine - but over the last days, I was unable to join you because for some technical reasons, my internet is still not working at my new home. I'm now for christmas in family and I can write to you !

I have not been able to test my new observing site at Nantes, because the weather in northern France has been awkward since late november. We had a very early and strong winter phase with much snow and low temperatures. Although my new terrace is not finely orientated (north-west) it's very large (14m²) and I will be able to observe from south to north-west. There is however a chimney only 2 meters away, toward south, so it could go bad on cold nights !

Here is my new postal adress (please don't show in LtE)

I have read with much interest Konnai's reactions on my article, they were very stimulating. I had thought about answering to him also. Could you send me his e-mail so I can communicate directly with him also along with CMO ?

I have not found any further subjects for the ISMO so far, but I must search again. My primary intention was to write about the NPC apparition in 2007, but I went to re-read your articles, and those ones published by the ALPO, and all was already seriously written so I don't think I could bring any added value, except maybe for one or two details...

I will keep you informed.

Now I'm wishing you, and to all the CMO/ISMO team also, a happy Christmas !!

Christophe PELLIER (Nantes, France)

●.....*Subject: Holyday Greetings*
Received: Sat 25 Dec 2010 00:15:59 JST

We wish you all a Merry Christmas and a Happy New Year!

Giovanni A QUARRA SACCO (Roma, Italia)

●.....*Subject: Don Parker has sent you an ecard*
Received: Sun 02 Jan 2011 06:25:37 JST

Donald Parker has sent you an ecard:

Happy~ Birthday to a wondrful friend

To my dear friend, Masatsugu,
 Happy Birthday and have a wonderful New Year!
 Best,

Don PARKER (Miami, FL, USA)

☆☆☆

★ BOOK REVIEW:

Edward Sylvester MORSE from "THE GREAT WAVE"

Two years ago, the present writer (*Mn*) picked out three books in CMO #354 (25 Jan 2009) out of which he reviewed a Japanese book on languages and just mentioned the title of another book Christopher BENFEY's "*The Great Wave*" (Random House 2003). I read of course it in a Japanese translation (published in 2007) and so I cannot cite any original phrases, while I try here to write about some of it. The translation amounts to about 370 pages, and I cannot review thoroughly. So I just pick out an outstanding characteristic of this book. The *Great Wave* is named after a famous *Hanga* of Hokusai, and treats several Americans who visited Japan until around 1913. Percival LOWELL is a big member among them, but here I just choose a short Chapter of Edward Sylvester MORSE (1838~1925), because this person is dealt with as a specific man in this book, I believe. Truly other chapters consist of a couple of persons, like "Herman Melville vs John-Man Jiro", "Kakuzo OKAMURA and Isabella Stewart GARDNER", "Henry ADAMES and John La FARGE", "Percival LOWELL and Mabel Loomis TODD", "Lafcadio HEARN and Earnest FENOLLOSA", and "Theodore ROOSEVELT and William Sturgis BIGELOW". However one Chapter is exceptional: It is not so long but it just only treated "Edward Sylvester MORSE" (as the Second Chapter). The present writer (*Mn*) tries how and why he was dealt with lonely without comparison.

If we set out to state from the conclusion, MORSE was quite comprehensive in a good time of *Meiji* and free from any scandal (in contrast with Tenshin OKAKURA or with Mabel TODD). He was a type of the person who immersed himself, though it does not imply he was in solitude. He was absorbed in collecting shells and others (later earthenware) by his eagerness. Another reason is his passion which allured other Americans like BIGELOW and LOWELL.

In 1856, MORSE unearthed a tiny and rare snail, and because of that he was able to find favour with a big person Louis AGASSIZ (1807~1873). He thus found his way but unfortunately he became distrustful about AGASSIZ's stubbornness to dis-

prove the Darwinism.

On the other hand, some day a rumour reached his ears that a lot of brachiopods were living at the sea shores of Japan. Furthermore he was fortunate at the Centennial International Exhibition of 1876 to see David MURRAY (1830~1905) who was sent from the Ministry of Education in Japan, and who had been working in Japan since 1873 (by the way he was originally a professor of mathematics of the Rutgers University, and he had written about the Venus Transit in 1874 and really he saw the phenomenon in Japan. He returned to the US in 1878).

Thus MORSE landed at Yokohama on 18 June 1877 (on his birthday of 39 of age), and next day he went to Tokyo by a train to meet MURRAY. On the way MORSE found an old kitchen midden or a shell heap after the Oomori station, which is now famous as the Oomori Shell Midden. MORSE just intended to spend a summer in Japan, but he was asked by MURRAY to build a Marine Institute near E-no-Shima, and so MORSE came back again to Japan in April 1878. MORSE surpassed the usual men especially in usual observations, and he noticed already that the Japanese used the *sensu* (the Japanese hand-held fan or folding fan) in various ways. He was also sensible in sounds: It is said that he is the first foreigner who learned the NÔ play.

Returned MORSE found that the Japanese students understood easily the Darwinism perhaps because the usual Japanese are accustomed to the idea of the transmigration. MORSE on the other hand was very interested in the Japanese earthenware: he is also known as the first foreigner who enjoyed the Japanese Tea Ceremony. It may be interesting to know that Ernest FENOLLOSA however did not show any interest in the Tea Ceremony.

The lecture given by MORSE at the Lowell Institute at Boston in 1881 seemed to be very enchanting to which a lot of persons attended. Percival LOWELL, Isabella GARDNER, William BIGELOW, and Ernest FENOLLOSA are all included and all were persuaded to Japan by the Pied Piper of Hamelin.

It was the third time that in 1882 Morse visited Japan, and once with BIGELOW he went to the western districts: They dropped in Kyoto and fetch-

ed FENOLLOSA but around Hiroshima FENOLLOSA dropped out, because in addition to the fact that he has no interest in the Tea Ceremony, he was not able to eat the raw fresh sea foods (including what we call *Sashim*=slices of raw fish). However FENOLLOSA was buried (not in Salem, Mass) with BIGELOW who later converted to a Buddhist, both in a temple of Otsu, near Kyoto where the present writer (*Mn*) lived long previously.

The disappointment of MORSE at the third visit was that the old good Japan was being broken. He thought even the dwellings were changing. He so wrote "*Japanese Homes and Their Surroundings*" (published in 1885) with a lot of nice sketches of the old Japanese house tools and premises. This book later influenced much such an architect as Frank Lloyd WRIGHT.

After the third visit in 1883, he never tried to land at Yokohama, though he lived about 40 years afterwards. He sometimes went to Europe and for example visited Darwin's cottage, but he believed the old Japanese things did not exist any longer. His collections of old earthenware are preserved in the curious town of Salem and the Boston Museum.

The very concern of MORSE must have been the irregularity and strangeness which the Japanese liked, the rejections of the symmetry or the repeti-

tion in their lives, their love of a modest colour, discrimination of soft and hard materials and so on. But really we must have lost such delicate devices, ideas and custom.

We finally point out this Chapter does not say any scandal. In other Chapters, the author alludes to a suspicion that Shuzo KUKI must have been a child of OKAKURA Tenshin. And the author explicitly writes about the scandal of Mabel TODD. If any Japanese believes no more than in the beautiful compositions she wrote when Mabel visited Japan on the occasions of the Solar Eclipses, he had better read the Chapter on TODD. Perhaps the relation with Austin DICKINSON, the brother of Emily DICKINSON, is well known in the US, but it must be few Japanese who know the fact and just only they often praise that Mabel was the first US lady who climbed *Mt Fuji*. David TODD was also a strange person, and died in a mental hospital.

We have not made touch upon Percival LOWELL: BENFEY wrote concerning LOWELL and TODD twice as much as the Chapter on MORSE; and I know MORSE also wrote about a dubious Mars book inspired by the tremendous popularity of LOWELL. But I believe at least in this book the Chapter on MORSE is a salvation in a lot of interesting but suffocating stories of the book. (*Mn*)

C M O F u K u I

T NAKAJIMA (Nj)

★ We this time acknowledge another kind donation from Teruaki KUMAMORI (443) to CMO/ISMO.

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