ISSN 0917-7388

COMMUNICATIONS IN

CMO Since 1986

MARS

No.439

25 October 2015

OBSERVATIONS

No.65

Published by the International Society of the Mars Observers

Forthcoming 2016 Mars (#02)

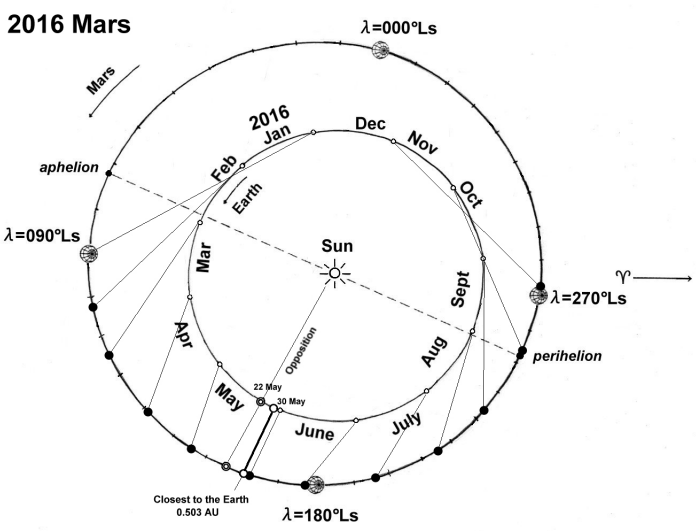
The Apparition of Mars in 2016. I

General Aspect

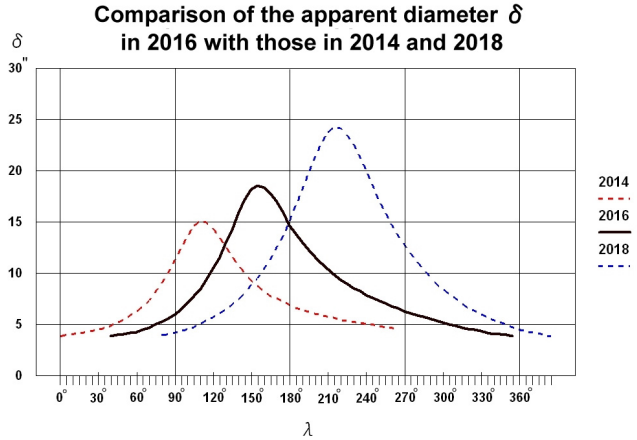
By

Masami MURAKAMI

THE planet Mars in the coming 2016 season will record the maximal angular diameter of δ=18.6″ on 30 May 2016. This is the large diameter which we could not experience for 11 years since the time of November 2005. The period when we can enjoy the large angular diameter of Mars which exceeds the maximal angular diameter δ=15.1″ in the preceding apparition in 2014 will be given about 80 days from the end of April 2016 to the beginning of June 2016.



In November 2015, the angular diameter δ becomes larger than 4″, and the elongation from the Sun increases, and shines in the morning sky together with Venus and Jupiter in the Virgo constellation: The assembly of three planets will continue until the end of November 2015, though the magnitude of Mars will be dull (just 1.5 magnitude star).



Here we shall overview further situation of Mars in 2016. Some principal data are as follows:

Western Quadrature occurs on 7 Feb at 12h GMT when δ=7.1", λ=106°Ls, ϕ=14°N, ι=37°

Stationary Phase occurs on 17 Apr at 02h, when δ=14.1", λ=139°Ls, ϕ=06°N, ι=25°

Opposition occurs on 22 May at 11h,

when δ=18.4", λ=157°Ls, ϕ=10°N, ι=01°

Closest approach* visits on 30 May at 22h, when δ=18.6", λ=161°Ls, ϕ=12°N, ι=07°
*(0.503 AU)

Second Stationary occurs on 30 June at 08h, when δ=16.4", λ=178°Ls, ϕ=15°N, ι=30°

Eastern Quadrature occurs on 13 September at 20h, when δ=9.7", λ=222°Ls, ϕ=03°N, ι=46°,

where δ denotes the angular diameter, λ the Martian season (Areocentric longitude of the Sun=Ls), φ the tilt (latitude of the central meridian) and ι is the phase angle.

AT the beginning of 2016, Mars is still located inside the Virgo constellation, and it rises in the east after midnight. On 1 January (when δ=5.6", λ=089°Ls, ϕ=20°N), the Martian season is just before the northern summer solstice (λ=090°Ls), and the tilt is quite upward so that it may be possible to catch the residual north polar cap. As February comes in, the planet will proceed into the Libra constellation. The western quadrature occurs on 7 February as described in the above. The planet will reach the Meridian at dawn. The apparent diameter δ will reach 8.1″ on 22 February which is large enough for Mars to be visually observable. In fact the data on 22 February reads (λ=112°Ls, ϕ=11°N). Note here that Hellas will show whitish bright aspect (already brilliant around from λ=090°Ls) (See a Figure at page Ser2-1022 in Reference [1]). At the beginning of April, the planet is located near the common boundaries of the Scorpion and Ophiuchus constellations, becomes stationary on 17 April and then will begin to retrograde towards the celestial west. On 1 May (when λ=146°Ls, ϕ=7°N), the apparent diameter records δ=16.1", and rises after 21 hours Local Time, and will reach the Meridian after the midnight. The planet will be at opposition on 22 May (when δ=18.4", λ=157°Ls, ϕ=10°N): It should be noted that at this point the apparent declination already is low and records 21°39′S. This declination is unfavourable from the point of view of the observers on the terrestrial Northern Hemisphere, while from the opposite Hemisphere (the South Africa, Australia and the South America) the declination will be very welcomed. The planet will make a closest approach to the Earth on 30 May (to 0.503AU, with δ=18.6", λ=161°Ls, ϕ=12°N). In June the planet still continues to retrograde into the Libra constellation, and on 30 June it becomes stationary again. Then it makes a prograde motion towards the Scorpion constellation. On 1 July the data will read: (δ=16.3", λ=178°Ls, ϕ=15°N). And around on 4 July, the Martian season will attain the southern spring equinox (λ=180°Ls). In Japan, at the end of July, Mars will be situated near the Meridian at the sunset time, and will set away around at midnight.

IT will be notable that the locus of the planet Mars will trace an *S*-shaped orbit on the celestial sphere from March to August: That is, during the period the celestial longitude of the planet does not change so much. On the other hand the apparent declination will be deepened. At the beginning of August the apparent diameter will become one size smaller and the data reads on 1 August such that (δ=13.0", λ=196°Ls, ϕ=13°N). The planet *Ares* approaches Antares on 24 August at 4h GMT and will pass through the north side of *Antares*, separated by 1.8°. On 25 August at 18h GMT, Mars will pass through 4°S of the planet Saturn. In September, Mars will go to the southern part of the Ophiuchus constellation, and around on 24 September (δ=9.1", λ=229°Ls, ϕ=0.1°N) the apparent declination will reach the bottom (if seen from the Northern Hemisphere) and reads 25°54.5′S (which is quite near the apparent declination when the planet Mars will be at opposition next in 2018).

The planet will then enter the Sagittarius constellation, and the apparent diameter goes down to 8″ on 19 October such that (δ=8.0", λ=244°Ls, ϕ=8°S). At the beginning of November the planet proceeds to the Capricorn constellation, and in mid-December to the Aquarius constellation, and thus the planet Mars will be receding from us. The southern summer solstice (λ=270°Ls) will be attained on 28

November. At the end of the year 2016, the data reads on 31 December such that (δ=5.7", λ=291°Ls, ϕ=25°S).

IN this 2016 apparition, the period from the northern summer solstice (λ=090°Ls, around 3 January) until the northern winter solstice (λ=270°Ls, 28 November) is favourable to the observations, and if we restrict ourselves to the period of the preferable larger angular diameter, the period around from λ=140°Ls (19 April; δ=14.3") until the northern autumnal equinox (λ=180°Ls, 4 July; δ=16.0") may be chosen.

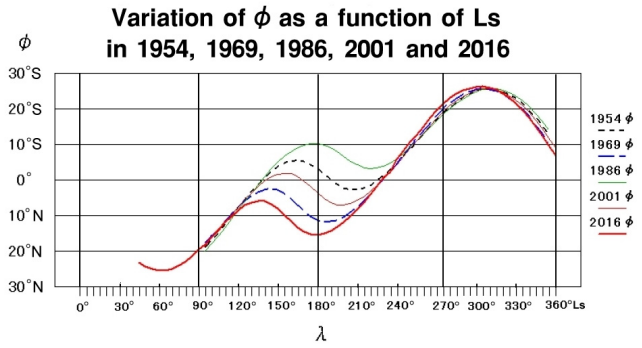
Slightly differently, we may pick out the observable periods as follows:

About 8 months from 22 Feb (when δ=8.1", λ=112°Ls, ϕ=11°N) to 19 Oct (when δ=8.0", λ=244°Ls, ϕ=8°S), or

About two and a half months from 23 Apr (when δ=15.1", λ=142°Ls, ϕ=6°N) to 13 July (when δ=15.0", λ=185°Ls, ϕ=15°N).

NOW we proceed to state some objects which should be intensively observed.

1) Observations of the South Circumpolar Region: The south polar cap (spc) seems to attain its largest size around at λ=090°Ls (Ref. [1]), but it has been difficult to catch the identification of its true appearance from the polar hood. Especially in 2016, it may be a bit more difficult to catch how the spc emerges because of the tilt ϕ. Even later at λ=150°Ls (on 9 May 2016; δ=16"), though the boundary of the spc shrinks down around to 45°S, the tilt ϕ will be down toward 8°N. That implies the south pole is away from the eye-field. The following graph shows how the tilt variates as a function of Ls in several apparitions that are similar to the 2016 apparition (when δ is larger than 4" in 1954, 1969, 1986, 2001 and 2016). In cases the opposition occurs earlier than λ=180°Ls, the tilt is usually declined to the north and therefore it may be rather difficult to catch any aspects around the south circumpolar region. In particular, at around λ=180°Ls the tilts prove quite scattered asunder. The graph shows that, compared with the tendency in 2016, the case in 1986 looks much better. Even then, according to M. MINAMI who observed in 1986 at Taipei, it was at λ=151°Ls that he barely managed to suspect first the presence of the spc (when δ=9.8" and ϕ=5.4°S, that is the south pole is inside the eye-field). Even then we must watch the south polar canopy in the season in any condition, and after the southern spring equinox (λ=180°Ls), the season of the southern dust disturbances tends to visit (in fact the global dust storm in 2001 started at λ=183°Ls). So we should be on alert concerning possible local dusts on the southern hemisphere.



As stated by M. MINAMI in an article in CMO #437 (Ref. [2]), in those years differences of the opposition days and the seasons are given as follows:

1954 (24 June: λ=187°Ls)
1969 (31 May: λ=165°Ls)
1986 (10 July: λ=202°Ls)
2001 (13 June: λ=177°Ls)
2016 (22 May: λ=157°Ls)

The 2016 apparition is said to be more similar to the one in 1937 when Mars was at opposition on 19 May 1937 at the season λ=153°Ls. (2016 - 1937=79!)

2) Southern Dust Disturbances: We would like to note here that after λ=180°Ls, there is a possibility that the so-called great dust disturbance may emerge without choosing the time from near the southern equatorial zone (Φ=30°S~00°S). If any of them occurs, we should chase it every 40 minutes. The preceding data suggests that such milestones as λ=183°Ls, 205°Ls, 224°Ls, 250°Ls, 260°Ls, 270°Ls,

300°Ls and so on are cautioned.

3) The North Polar Cap and Its Environments: The shrinkage of the north polar cap is an object to be observed continuously. It may be not easy to detects some dusts at the area of the north polar cap when the apparent diameter is tiny, but the residual north polar cap and such detachments as Olympia will be checked after λ=100°Ls (at the end of January). In that case the dusts at the environments of the north polar cap should also be checked. The activity of some low pressure spiral clouds which will occur at the morning side of M Acidalium and Utopia should be watched around the period from λ=120°Ls (δ=9.3″) to 145°Ls (δ=16.0″). See Ref. [3].

4) The Orographic Clouds: The seasonal clouds associated with Olympus Mons, Tharsis trio Montes, Alba Patera as well as Elysium Mons will begin their activities from the northern spring equinox (λ=000°Ls), greeting the peak around at λ=100°Ls and then the activities will be gradually weakened until around at λ=200°Ls. Christophe PELLIER's articles in Ref. [4] concerning the activities in northern late-spring are all excellent to be referred.

This time it will be a favourite period to watch the area before opposition (λ=157°Ls) until λ=200°Ls and so on near the evening terminator. It will be especially nicer to watch the orographic phenomena of Pavonis Mons and Arsia Mons in the 2016 apparition. Arsia Mons is located on the southern hemisphere and hence its activity remains and behaves differently even after λ=200°Ls, and Pavonis Mons cloud also shows a second peak around at λ=200°Ls (8 August, δ=12.3″). Alba Patera also differently behaves: It shows two peaks around at λ=060°Ls ~λ=070°Ls and at λ=140°Ls.

If a global dust disturbance happens to occur after λ=180°Ls, the dust cloud will destroy this kind seasonal water-vapour habituation as in 2001. If the surface happens to be covered by a prevailed dust, the summits of Montes may be visible as dark spots poked out from the dust veil (as in 2001).

5) Disappearance of the Equatorial Mist Band: This mist band will cease its activity when the northern summer solstice is arrived (λ=090°Ls). Then the dark summit spots poked out from the lower morning mist will cease to be caught. It will be a last chance in this apparition to watch the disappearance of the mist band by early January.

6) Hellas: Nowadays it is regarded that Hellas, when it is whitish brilliant, is an asymmetrical part of the south polar cap (see Ref. [1]). The peak of the brilliant Hellas will visit around at λ=070°Ls (18 November 2015, ϕ=25°N). Unfortunately because of the tilt, it will be inconvenient to watch Hellas especially its southern part, but it must be checked until λ=150°Ls (around on 10 May) how the ice layer gradually melts away to recover the ground surface of the Hellas basin. After λ=230°Ls the tilt will well face to the south, and the south pole area can be seen, while the apparent diameter went down below 10″.

7) Local Dusts around at Xanthe and Lunæ L: It is cautioned that the area of Xanthe to Lunæ Lacus should be watched with care at the period λ=200°Ls (8 August)～230°Ls (23 September). Especially a darkening of the area and some bright dusts are expected (see Ref. [5]).

8) Projections from the Terminator: Such a dim-light protrusion as observed in 2003 and 2012 might be more easily detected this apparition since the apparent diameter remains larger and longer. After opposition, when Eridania on the southern hemisphere is near the morning terminator, one should be careful by watching the terminator line. It was suggested that the phenomenon was related with the Solar activity (see Ref [6]): If so, we should regard it to occur in low probability mode this opportunity since the Solar activity at present is in a decrement phase.

9) Possible Glint Phenomena at Edom Promontrium: In June 2001 it was detected in the US that the Edom Promontorium area flashed as was predicted by Tom DOBBINS and Bill SHEEHAN. This was expected to occur when the lat-

itude of the sub-Earth point D_E and the latitude of the sub-Solar point D_S are matched. In 2016, we have two cases:

	D_E	D_S
20 May	10.09°N	10.38°N
21 May	10.29°N	10.17°N

when δ=18.3". Or

24 Dec	24.30°S	24.40°S
25 Dec	24.44°S	24.32°S

when δ=5.9".

In Japan, the former case looks quite preferable, though not yet very certain. It is good that it is around the day when the planet is at opposition, and it will shine near at the Meridian at 15h GMT. Furthermore, the LCM proves as follows:

11hGMT ω=356°W,
15hGMT ω=055°W,
17hGMT ω=084°W,

where the LCM at 17h GMT suggests the case if the glint occurs near at Solis Lacus. However it will not be certain until we can verify how the matching time or the real glint time is well included in the Japanese night observable period. We will examine this problem in details and will inform more about it later. As to the case in 2001, refer to Ref. [7].

FINALLY we shall show several References related, to be found only in the CMO/ISMO. Especially for the apparition in 2001 we wrote several "Forthcoming" articles, but because of the happening of the global dust event, some became useless in 2001. We so here list up some of them in Refs. [8], [9] and [10] to invite the readers to check them for the use in 2016. In particular, in Ref. [8] the authors gave an interesting discussion about the delicate differences of D_E in 1954, 1969, 1986, 2001 at around λ=180°Ls, and gave further implication of the differences concerning the observation of the south-polar region.

References in CMO/ISMO

[1] ASADA, T. & M. MINAMI; *The SPC in Fall and Summer*, at page **Ser2-1022**, in CMO #353 (25 Dec 2008)
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn0/CMO353.pdf

[2] MINAMI, M.; *Personal Reminiscences of the Mars Apparitions in 1954, 1969, 1986 and 2001 I*, in CMO #437
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn4/CMO437.pdf

[3] MINAMI, M.; *Early-Morning White Patch Witnessed near at Baltia in Late-April 1999*, CMO#227 (25 Jan 2000)
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmo/note/9903/03.html
MINAMI, M.; *A Morning Mist at the Northern M Acidalium Observed in Late-May 1999* in CMO #234
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn0/99Note13/index.htm
MINAMI, M.; *Morning Cloud at Utopia Evident in Early May 1999* in CMO #229 (25 Mar 2000)
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmo/note/9905/05.html

[4] PELLIER, Ch., *Bright Morning Radiation Fog inside Tharsis* at page Ser3-0410 in CMO #405 (25 Dec 2012)
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn4/CMO405.pdf
PELLIER, Ch., *Trend of the Tharsis Orographics at Late Northern Spring*, at p. Ser3-0425 in CMO #406
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn4/CMO406.pdf

[5] MINAMI, M.; *Disturbances at Xanthe and around Lunæ Lacus after* ..... p. **Ser3-0982** in CMO #438
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn4/CMO438.pdf

[6] PELLIER, Ch: *Martian Terminator Projections Observed by the HST* in CMO #400 (25 July 2012)
MINAMI, M. & M MURAKAMI: *The Dawn Protrusions Observed in 2012 Compared with Those in 2003*, ditto
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn4/CMO400.pdf ⌊ i.e CMO #400 at **page Ser3-0359**.

[7] MINAMI, M; *FORTHCOMING 2001 MARS (10), Sun Glint Phenomena*, in CMO #242 (25 April 2001)
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn0/cmo242/index.htm

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

PARKER, Don and T. DOBBINS; *Edom Brightening;* Emails to M.M. on 7 June etc 2001, CMO #245, p3016
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmo/letter/dpk/dpk_alert.html
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmo/letter/tdb/tdb_edom2.html

MINAMI, M; *2001 Mars Observation Reports -- #10--* in CMO #246 (25 June 2001)
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn0/01Repo10/index.htm

[8] MINAMI, M. & A. NISHITA; *2001 Mars vs 1954, 1969, 1986 Mars* in CMO #237 (25 Nov 2000)
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmo/coming2001/0103/03.html

[9] MINAMI, M.; *The SPC and the Northern Summer,* in CMO #239 (25 Jan 2001)
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmo/coming2001/0106/06.html

[10] MINAMI, M.; *Deviation of the SPC from the Pole,* in CMO #240 (25 Feb 2001)
http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn0/01Coming07.htm

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

By

Masatsugu MINAMI

WE have hitherto written Part I, Part II and Part III, which were published in:

Part III: CMO n°436 (25 July 2015)

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn4/CMO436.pdf

Part II: CMO n°434 (25 May 2015)

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn4/CMO434.pdf

Part I: CMO n°431 (25 February 2015)

http://www.kwasan.kyoto-u.ac.jp/~cmo/cmomn4/CMO431.pdf

Prolegomena concerning the observers and instruments et al were described in Part I.

THE present part deals with Section IV of E.-M ANTONIADI's Report of the Mars Section of the British Astronomical Association (BAA), 1913-1914. The title is "Mare Sirenum" and treated here is the BAA observations of the region of (Ω=120°W~180°W, Φ=60°S~60°N). The first marking reviewed is

ICARIA, which is located between Phaethontis and the preceding area of Mare Sirenum. It is reported that because of the tilt (the tilt ϕ on the opposition day in 1914 was 6°N), the markings at the southern higher latitudes were "observed under unfavourable conditions and its shading was invisible save on 22 Jan 1914 to Thomson. It rose 'very white' to McEwen on 7 Oct 1913".

PHAETHONTIS "also rose 'very white' to McEwen on 7 Oct."

The main comment concerning M Sirenum is written as follows:

MARE SIRENUM "presented its normal shape to McEwen, Phillips, Thomson and the Director (ANTONIADI) and usually dark. The drawings of

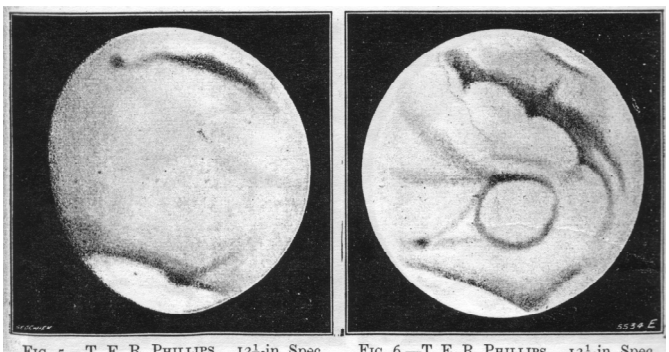


FIG. 5.—T. E. R. PHILLIPS. 12½-in. Spec. 1913, November 9. $\omega = 125°, \phi = +9°.9$.

FIG. 6.—T. E. R. PHILLIPS. 12½-in. Spec. 1914, January 17. $\omega = 196°, \phi = +2°.6$.

these Members show that the 'Sea' was apparently very faint on 7 October; dark on 4 November; dark-

ish on 6 November; very dark on 9 November; unnoticed on 10 and 11 November; very dark on 10 December; dark to W on 11 December; dark on 12 December; normal on 16|17 December; darkish to W on 11 January; dark on 15 January; very dark on 17 January; darkish on 22 & 24 January; dark to E on 26 January; darkish on 27 January; very dark on 24 February; dark on 28 February and 1 March; very faint on 3|4 April; unnoticed on 7 April; exceedingly faint on 9 April; and indiscernible on 11 April." Here ANTONIADI divides the intensities of M Sirenum into *seven* ranks: unnoticed, indiscernible, exceedingly faint, very faint, darkish, dark, very dark, (however missing 'faint'). The observation that M Sirenum was "unnoticed" on 10 November must have been made by McEwen at ω=122°W. Phillips' nice drawing on 9 November 1913 at ω=125°W is also found in Plate I (and cited above). Drawings were made a few times every month only in England and France, and hence there can be no statistical approach or notice to the possible phenomenological discussions at M Sirenum. Why unnoticed? Is it because of an obscuration? There were known at that time a few groups of Mars observers were organised in the world and W. H. PICKERING began to publish "*Report on Mars*" from 1914 in the *Popular Astronomy* magazine. However E.-M. ANTONIADI (or the BAA) was not so diligent in exchanging information with the other world. Was it because of an atmosphere of WWI?

ATLANTIS, "shown by McEwen, is also indicated by Phillips on 17 December 1913, as a long, narrow, dusky streak."

MEMNONIA "presented a white spot to Phillips, E of *Titan*, on 9 November. It rose bright, with South *Amazonis*, to McEwen on 10|11 November, to Thomson on 20 December, and to Phillips on 21 December; it set whitish to McEwen on 3|4 April; and rose brightish to him on 11 April."

NODUS GORDII "was received as a very faint undecipherable smudge by ANTONIADI on 28 February and appeared dimly defined to Phillips on 21 December." The smudge on ANTONIADI's drawing is apparent (and so we here cite the Figure for comparison), but its position looks like to belong to the area of *Arsia Mons*. The season was at around λ=045°Ls on 28 February (which we learned from Akinori NISHITA), and hence the orographic activity is not so strong at that time. In the next report of the 1915|1916 apparition, ANTONIADI wrote no more than that "*Nodus Gorgii* comes out as a faint smudge on McEwen' drawings on 2 November 1915 and 11 February 1916." The nomenclature *Nodus Gorgii* was given by SCHIAPARELLI in 1881|1882.

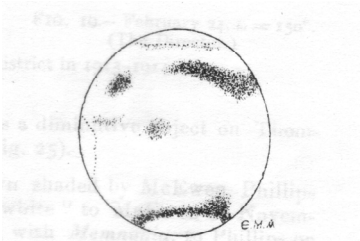


FIG. 17.—February 28, ω = 141°. (The Director.)

ANMONIUM "is recognisable as a diminutive object on Thomson's drawing of 24 February" at ω=217°W.

AMAZONIS "is sometimes drawn shaded by McEwen, Phillips and Thomson. It rose 'bright white' to McEwen on 10 November; was bright risen, to S., with *Memnonia*, to Phillips on 21 December; set whitish to McEwen on 3 April; rose whitish to him, in its N. part, on 9 April; showed two white spots, risen, to him on 11 April of which the S. one only was there on 13 April, the N. one having drifted to E. apparently, as far as *Ceraunius*."

ARCADIA "had a whitish spot next to *Ceraunius* to McEwen on 13~15 April, and it set brightish to Phillips on 17 to 24 January, and to Thomson on 27 January; to McEwen it rose whitish on 6 March at ω=087°W, and set whitish on 3 April."

TITANIA, "or the shading detected by the Section 1900|1901, was re-observed in 1913|1914 by McEwen on 16 December at ω=139°W, Phillips on 9 November at ω=125°W (see the drawing denoted Fig. 5 above). Thomson on 6 November at ω=153°W and on 22 January at ω=136°W, and the Director (ANTONIADI) on 28 February. McEwen saw it whitish risen on 11 April." *Titania* was the name employed by ANTONIADI in 1901 on a shading at

(Ω=155°W, Φ=48°N), while it did not appear in his famous book *La Planète MARS* published in 1930. In 1915|1916, its nomenclature was still used as "*a dusky triangle stretching S.*" The name *Titania* must have been popular as denoting Uranus's largest moon (Uranus III), named after the queen of the fairies in "*A Midsummer Night's Dream*" of William SHAKESPEARE.

EUXINUS LACUS located at (Ω=157°W, Φ=43°N), named by ANTONIADI in 1901, implying "black lake." The report describes that *Euxinus Lacus* "was clearly seen by Phillips and Thomson. On 17 January, Phillips drew 'two very lakes near the N. snows, of which the *f.*, or *Propontis,* was in Ω=183°W, Φ=44°N. The *p.* one was faint in Ω=157°W, Φ=41°N, thus corresponding to our *Euxinus Lacus* of 1900|1901 and 1903. On 22 January 1914 Thomson drew this object as a dark band in Ω=153°W, Φ=45°N; and on 24 January Phillips located it in Ω=153°W, Φ=41°N (Fig. 23). A faint small companion 'lake', near our *Ascania Palus* of 1903, is shown on both dates by Phillips S. of *Euxinus Lacus*."

Ascania Palus is the one named by ANTONIADI in 1903, located at Ω=160°W, Φ=37°N. In ANTONIADI's book, it is stated that T. E. R. PHILLIPS (1868~1942) (who was sent here a tribute as *un des très bons observateurs de notre époque*) observed *Ascania Palus* in 1903, 1905, 1913, and 1916. It seems that originally CERULLI observed it in 1898|1899 and also LOWELL from 1900 to 1905.

CASTRIUS LACUS, "drawn by McEwen on 17 December as notching the N. snows in Ω=151°W, Φ=52°N, was also caught by Phillips on 4 and 9 November in mean Ω=152°W, Φ=50°N, and by Thomson on 22 January, in Ω=151°W, Φ=55°N. SCHIAPARELLI's position of Castrius Lacus in 1888 is Ω=157°W, Φ=52°N." The name of *Castrius Lacus* was given by SCHIAPARELLI in 1888 after Castor (the brother of Pollux).

PROPONTIS, "an oval, dusky spot, according to the drawings of McEwen, Phillips, and the Director (ANTONIADI), was seemingly invisible on 4 November; darkish on 6 November (Thomson at ω=153°W); invisible on 9 November; confused on 6 and 10 December; very dark on 11 December 8 (Phillips at ω=204°W); confused on 12 December; darkish on 11 January; faintish on 14 and 15 January; 'very dark' on 17 January (Phillips at ω=173°W, see Fig. 21 here); certainly invisible. Veiled by yellow cloud on 22 January (by Thomson at ω=136°W, λ=028°Ls) and on 24 January (Phillips at ω=165°W,

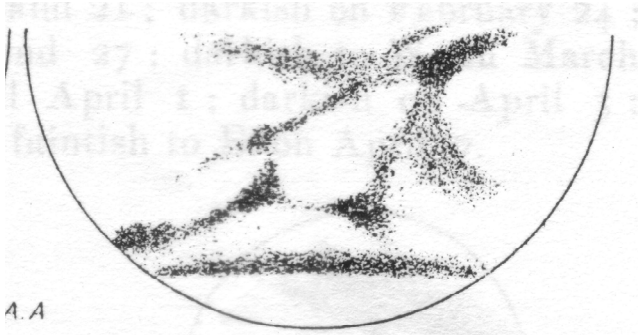
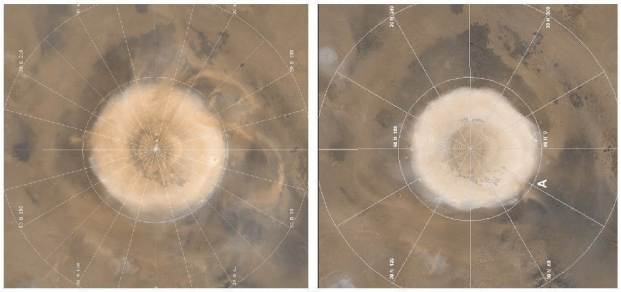


FIG. 21.—January 17, ω = 174°. (Phillips.)

FIG. 23.—January 24, ω = 165°. (Phillips.)

λ=029°Ls; see Fig. 23 here); blackish risen on 26 January; invisible on 27 January; diffused on 24 February and on 31 March; and darkish on 1, 3, 4 and 7 April."

It is pleasant for us to encounter the first description of the *yellow cloud* in this Report. It is well-known nowadays that several swirls of dust occur around the north polar cap (npc) even from some time before the vernal equinox λ=000°Ls. Here is shown (at the next page) an example to show the aspect of the swirls at the north polar region found from the MSSS MGS/NASA image archives. The rhs image was taken around at λ=027°Ls which still shows dust disturbances. Hence it will be natural



26 May 2002
018-019°Ls

11 - 17 June 2002
15 June: 027°Ls

to consider that the yellow cloud veiling observed by Thomson and Phillips on 22~24 January (λ= 028°Ls~029°Ls) was given rise to by the dust disturbance at the peripheral region of the npc in early spring. Rev. T. E. R. Phillips' observation on 24 January, Saturday, at ω=165°W must have been made around at 00:00GMT±2m (according to A. NISHITA), so that we may suppose he was safely able to preach a sermon at the Church worship in the next morning on Sunday. That is, if we put it the other way, we suppose he must have been forced to miss the veil-chasing on Mars on 25 January due to his sacred duty.

(*To be continued*)

Letters to the Editor

●·····***Subject: RE: CMO #438 uploaded***
Received: 26 September 2015 at 15:31 JST

Dear Masami and Masatsugu (and Reiichi!), I hope that you are all keeping well. Thank you for this latest edition of the CMO. It is a very interesting article by Bill Sheehan on the Pluto flyby. I would like to particularly thank Masatsugu for the article on the Xanthe dust storm. As you are aware I am a fairly new Mars imager, so to get experienced commentary on some of my observations is very welcome.

I am preparing myself for the new apparition with some excitement. Since the last Mars images in April, I have been spending time on Jupiter and Saturn images to try to improve my processing techniques. I also have purchased the Baader filters (I find the IR 685nm filter to be especially good) and also two new cameras that I will be testing. I hope that the quality of my images will be better than the last apparition!

Best regards,

○····***Subject: Mars 27 September 2015***
Received: 27 September 2015 at 15:24 JST

Hi, all, An early start this morning with my first capture of Mars for the new apparition. The planet, at 3.9", was lower than 19 deg in elevation and conditions were very poor. The avi's, quite frankly, were a "blobby" mess, with absolutely no detail being visible on the screen…… However, a few of the major features were detectable after processing. Best regards,

○····***Subject: Mars IR 18 October 2015***
Received: 18 October 2015 at 14:32 JST

Hi, All, An IR capture of Mars from this morning. I am busy testing the ASI224MC camera. Best regards,

Clyde FOSTER (Centurion, SOUTH AFRICA)

●·····***Subject: Reiko is gone***
Received: 9 October 2015 at 19:06 JST

Dear Christophe, Dear Bill,

My wife Reiko passed away calmly at 17h20m JST on 7 October with her hands held by our two daughters and me. It has been three years and more since she developed breast cancer.

Christophe, it is our most pleasant memory to spend with you afternoon several hours in Paris talking and visiting the Sorbonne Observatory.

Bill, she fought a good fight with the disease, was really looking forward to visiting Flagstaff in the coming year. I'll surely be back to Mars in a while, that was her wish too. With Many Thanks,

Reiichi KONNAÏ (Fukushima, JAPAN)

●·····***Subject: RE: Reiko is gone***
Received: 9 October 2015 at 21:58 JST

Dear Reiichi, I'm really sad to learn the passing away of Reiko. I was hoping that this would not arrive...

I will keep memory of her thanks to our Parisian encounter. All my best to you and your family !!

Christophe PELLIER (Nantes, FRANCE)

●·····***Subject: The First of the Last Three: Yesterday's Close Flyby of Enceladus***
Received: 16 October 2015 at 02:35 JST

Dear Friends and Colleagues, Yesterday, Cassini executed its 20th close flyby of the small icy moon, *Enceladus*, in what was the first of our last three visits to this fantastic world. The close approach altitude was 1,838 kilometers (1,142 miles) over the moon's high northern atitudes. Our cameras were active during most of this encounter, allowing the imaging team and other remote-sensing instrument teams to observe the Saturn-opposing side of Enceladus on the inbound leg of the encounter, and a narrow, sunlit crescent outbound.

Enceladus fascinates us because of a sub-surface, global ocean, lying a few 10's of miles beneath its surface, that is actively venting into space. And though this magnificent mission, that left Earth 18 years ago today, is not yet over, we are already looking forward to the time, hopefully not too far in the future, when we can travel back to Enceladus with the express purpose of answering the question that burns in all of us: Could there be life under its cracked and cratered surface?

For now, dwell on these fabulous images from yesterday's flyby of a moon clear across the solar system.

We have another flyby coming up on October 28, and then our last in late December. Enjoy!

http://www.ciclops.org/view_event/224/Enceladus-Rev-223-Raw-Preview

Carolyn PORCO (Boulder, CO, the US)

Cassini Imaging Team leader
Director, CICLOPS,
Space Science Institute, Boulder, CO
Visiting Scholar, UC Berkeley, CA
Fellow, California Academy of Sciences

☆ ☆ ☆

International Society of the Mars Observers (ISMO)

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

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

CMO #439/ ISMO #65 (25 October 2015)

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

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

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

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

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

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