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Romantic Duality of Nomenclature of SCHIAPARELLI vs the Monomaniac Naming by ANTONIADI

By

Masatsugu MINAMI

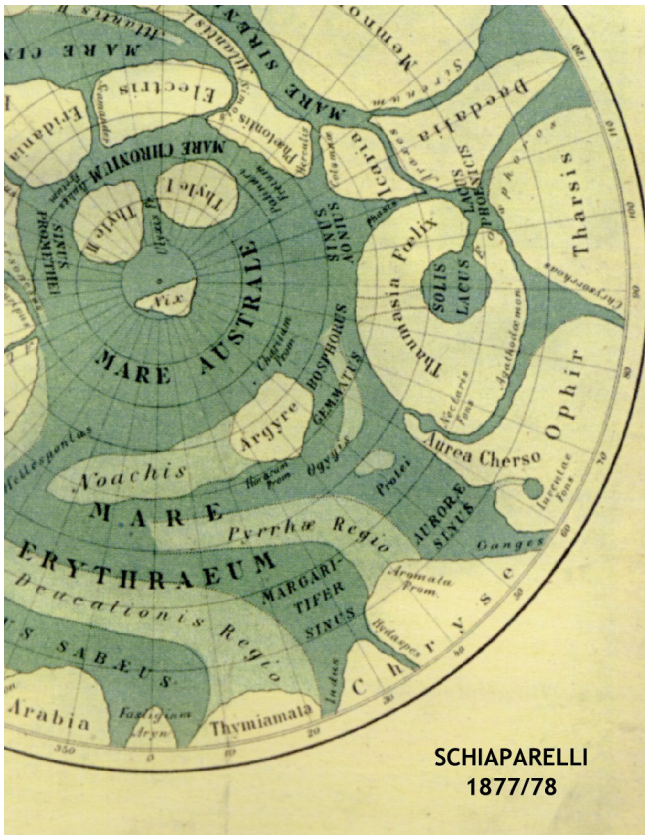
An originality of G V SCHIAPARELLI was not only to have changed the flat and dull names of the Mars observers to the nomenclature of the old Greek-Roman mythology or from that of the Bible, but to include some mysterious suggestions. We showed in a previous Japanese article that SCHIAPARELLI's naming has a duality; for example Solis Lacus implicitly suggests the existence of *Pontus Euxinus* (the Black Sea), and because of it, several flood legends are inlaid on the nomenclature of Mars (later in 1997 geologists William RYAN and Walter PITMAN from Columbia University published evidence that a massive flooding of Pontus Euxinus occurred about 5600 BC through the Bosphorus and maybe it was related with the story of Noah's Deluge). In marked contrast to the inspiration of SCHIAPARELLI, ANTONIADI's nomenclature looks quite dull, lacking the romanticism shown by SCHIAPARELLI though ANTONIADI added a lot of names on his map.

In the following, such parentheses (S:1877), (A:1909) and so on show that the names were given by (respectively) by SCHIAPARELLI in 1877, by ANTONIADI in 1909 and so on and these depend on the descriptions of Jürgen BLUNCK.

The following much depends upon a Japanese paper written by the present authour published in CMO #116 (25 April 1992 issue) at p1029.

I

The name of Solis Lacus (S:1877) is one of the exquisite names given by SCHIAPARELLI, and when it appears from the morning limb of the image, we are usually to get exited, especially when it is covered by a thin mist or a dust. (Nominative is Sol, and the genitive is Solis.) Before that we can observe an Aurora (Auroræ Sinus (S:1877)), and at the same time we see to the north the Moon (Lunæ Lacus (S:1879)). Here exactly gather the Sun-god Helios, Dawn-goddess Eos and Moon-goddess Selene from the Greek mythology. From Solis L there runs a canal called Eosphoros (S:1877) which implies the Sun is led by the light of a dawn star, that is Venus. Here the goddess-term Eos is used. Eos was called more ancient times to be Tito which implied the Sunny something, and it is said its masculine form is Tithonus. (Tithonius L comes from the genitive). Eos is called Tithonus' mother or lover. Tithonus was given immortality by Eos but it did not mean he could keep eternal youth forever and so he must have lived as an old man. However Phœnicis L, implying Phœnix, was named in 1877, and Tithonius L did not appear on the earlier maps of SCHIAPARELLI: It first appeared in the map made in 1880/1881. Therefore, in order, Phœnix is



the first and Tithonus the second. Phœnix must be a divine bird who wakes every 500 years at Egyptian Heliopolis and sends out the sunbeam from the fabulous golden and red feathers: Phœnicis L was named in 1877, and perhaps by this Tithonius L was put forward afterward after he found something around there. Among the sons between Tithonus and Eos there is Memnon, from this Memnonia (S: 1877) was named ("ia" is put like Italia or Arabia, as Gallia is made from Gallus or Galli).

At a further morning side, there is Icaria (S:1877) after Icarus, and Dædalia (S:1877) after Icarus's father Dædalus. There is also Phæthontis (S:1877) after Phæthon.

It is said Phæthon was a son of Helios, but also said it was an epithet of Helios, and so implies "the Shining". On a fine day he drove the sky using a chariot of the Sun, and incurred Zeus, and was made clashed into the river Eridanus. His sisters Heliades who yoked the horses to the chariot, mourned and their tears turned into amber: Eridania (S:1877) was put after the river Eridanus, and from the amber=Electrum, Electris (S:1877) was born. Thus there are a lot of names related with the Sun around here.

II

On the other hand the present writer (*Mn*) has a point of view that SCHIAPARELLI alternatively gave another network around them and regarded the dark area of the Solis Lacus as *Pontus*. This is suggested from his big nomenclature Thaumasia (S:1879): Pontus is an anthropomorphic of the important sea, and had his sons called Nereus, Thaumas, and so on. Thaumas was an old sea-god and called "wonder of the sea". Its name came from the Greek "Thaumatos" which implies the miracle or wonder. Iris is his daughter and a personification of the rainbow, and named Iridis (S:1979) or Iris (S:1881/1882) on the northern hemisphere region (to the north of Solis L).

The name Pontus itself was not used, but in some old maps of SCHIAPARELLI in 1977/1978, there is seen the name of Oceanus which is said going around the world, and there are a lot of Oceanides all over the surface. It can be said that the "water" is a key word on SCHIAPARELLI's world of Mars if it is not related with the water canals. It is needless to say the word Ocean is from Oceanus.

The present writer considers that Solis L is a doubled name of Pontus inside SCHIAPARELLI, and further that it must be "*Pontus Euxinus*" (the Black Sea). In fact, Phasis (S:1877) is a famous Colchian river which flows into Pontus Euxinus, and so are Araxes (S:1877) and Bathys (S:1890). After SCHIAPARELLI, Percival LOWELL put forward Graucus (L:1896/97) in Turkey which is also related with the Black Sea. Phasis is not heterogeneous: he is a god and a son of Oceanus and Tethys (not Tethis) who otherwise also bore a lot of Oceanides (said of three thousands).

Pontus Euxinus was a coined word by the old Greek navigators because its colour was quite different from their world of the Aegean and the Mediterranean Sea.

Nectar is also the red wine of the gods from seashore of Oceanus, and Ambrosia is the food of the gods; for example when Helios rested at night near

the pond of Oceanus his horses ate (in Ovidius when Helios visited the room of his lover) and thus related with Oceanus. Agathodæmon is Agothos Deos or Good God in favour of whom "the Greeks drank a cup of unmixed of wine at the end of every repast." On SCHIAPARELLI's maps Agathodæmon looks different one by one, and disagrees from the present Coprates.

It is interesting to note a rise of discussion that recently (in 1997) Pontus Euxinus must have possibly been the origin of the massive Noah flood or not: See for example the following Site:
http://www.answersingenesis.org/docs/4168.asp

Problem here is not any research after the fact (it is apparent the Bible's world is more or less far from the real world), but we can just imagine that any legend must have borne if such a disaster really occurred in a remote past. Apparently the deluge was poured through the strait called Bosphoros, and SCHIAPARELLI put the name of Bosphorus Gemmatus in 1977/78 Map near Solis L. Bosphorus may usually imply just a strait but he added "Gemmantus" which is ironically related with something gemmed. To any navigator from the Black Sea via the Bosphorus Strait the Mediterranean Sea appeared to be different and bright. Conversely speaking the Black sea was not blue to the navigator who came up from the Mediterranean Sea. If we assume the big Flood came down from Pontus Euxinus via the Bosphorus Strait to Noachis (S:1877), the fact that there are several stories of deluges around here well goes down with us. Ogygis Regio (S:1879) is related with the story of Ogygus who was once the ruler of Thebes, and then a flood of the Copais lake is said occurred. Proteus (→Protei (S:1877)) was an old wise man who also rose up from a flood and slept at the side of a big rock: He is related with Poseidon. Yaonis Regio (S:1879) is after the Chinese Emperor Yao who is known together with Yu the Great as the rulers who were exceptionally good in flood controls. Hellespontus (S:1877) is the one which divides the Aegean Sea and the Black Sea. Helle was the goddess of Hellespont Sea. The nomenclature of Copais Lucus was given by LOWELL in 1896/97, but put in a remote place.

It is known that Deucalion and his wife Pyrrha have also a relation with a flood legend. Deucalionis R and Pyrrhæ R were both given in S:1877: This flood is said caused by Zeus in Hellas, but fortunately Deucalion and Pyrrhæ were saved, and finally their ship landed on Mt Parnassus.

Mare Erythræum (S:1877) was named after the Erythræan Sea which is the red sea shining in the morning Sun, but it include even the Indian Sea in addition to the Arabian Sea. This corresponds to Solis L on the eastern side.

And thus two images of the dark area called the Solis L cross in SCHIAPARELLI's naming.

III

As every one knows, in the case of ANTONIADI the nomenclature is multifold, but how about its contents? Some monomaniac naming makes us bored. First several names star constellations appear, and there are a lot which begin with C.

Canis Fons (A:1929) is after the great dog (CMa). Near it Sirii Fons (A:1929) after the wolf (Lup). Capri Cornu (A:1926) is literally Capricornus (Cap). Centauri L (A:1929) is needless to say (Cen). Ceti L (A:1909) is after the whale (Cet). Columbæ F (A:1926) is after the pigeon or dove (Col). Coronæ F (A:1929) is needless to say (CrB). Corvi L (A:1909) is after the crow or raven (Crv). Coracis Portus (A:1926) is after the migratory bird (Corax). Crateris D (A:1929) is after the cup (Crater?)(Crt). Crucis F is after the constellation Crux. Chironis Fretum is from Centaurs. Canopi Fons (A:1929) was named after Canopus. Otherwise, Arietis Pro is after Aries (Ari). Arcti F is after UMa and UMi (Arctus appears in Apollodorus). Argus D is after Argo Navis. Delphini Portus is after Del. Doradus D is after Doradus. Felis Prom is from the Cat (Jérôme Lalande's). Lupi F is after Lupus. Lyræ F is after Lyra. Piscis D is from PsA. Sextantis D is literally. Tauri F is also the same. Otherwise Octantis ← Oc-

tant, Aquarii ←Aquaris and so on. It is tedious to further make details. If there are some who knows the positions on the Map of these Fons, Portus, Depressio, Prom etc, they must be similarly monomaniacs. One of exceptional cases is Pavonis L (A:1909) which was named after the constellation Pavo (Pav). This is in response to Phœnicis L and still alive [in LOWELL's map it was Latina Silva (a forest to the south of Alps, where in 216BC Celts defeated Romans). Arsia Silva (L:1894) is still alive. Since Ascræus Lacus (S:1888) was given by SCHIAPARELLI, it was ANTONIADI who employed three ideas of three persons.]

Monotonous diversity of colour or light was also the characteristics of ANTONIADI's naming which we feel dull despite of its colourful brightness: Claritas, Candor, Lux, Lucis Portus (Lux is nominative and Lucis is genitive), Nox, Noctis L, Fulgoris D (ANTONIADI read in Greek: In Latin Fulgur is nominative, and Fulguris is genitive). It is not easy to separate Xanthe (A:1909) from Chryse (S:1877). This is also said about Candor (A:1909) which is also difficult to separate from Ophir. Ophir was the one used by S in 1877, and the place famous by the Gold, and nowadays we use as the names Sophir or Sofia. Chryse (S:1977) must have been from Chrysus (gold). Chrysokeras (golden horn) was named by A in 1909.

If some sarcasm is allowed, we should say, since there is Idæus F (S:1890), he should have employed *Deimas F* instead of Achillis F (A:1903) at the opposite side of Nilokeras: In fact Chryse who married Dardanus had two boys called Idæus and Deimas. It should be said it was mindless to employ Achillis Fons simply imitating Achillis Pons (S:1881/82). Idæus and Deimas were separated by a flood. Dardanus (S:1881/82) is near Idæus F.

IV

The name Oceanus Fluvius (S:1877) or Oceanus (S:1879/80) disappeared because the area gradually turned out to be very complex. So it may be a good achievement of ANTONIADI who restored the name Mare Oceanidum (A:1929): Oceanidum came from the genitive of Oceanides who are the children of Oceanus.

Likewise, SCHIAPARELLI just chose Thaumas among the sons of Pontus, but ANTONIADI newly chose Nereus, the elder brother of Thaumas, and employed the nomenclature Nereidum Fr near Pontus. This also came from a total of 50 children Nereides of Nereus. Nereus as an old sea man who spoke truth cannot be separated from Thaumas who was a "wonder"ful old man. ANTONIADI used Nerei D (A:1929) but it looks located too far (note however that J BLUNCK seems to be not exact in writing Nereus is a son of Oceanus. p128), though ANTONIADI put it near M Amphitrites (A:1929). Amphitrite was a wife of Poseidon, the goddess of the sea and so a kind of female Poseidon. She is said one of Nereides or Oceanis. But it is difficult to understand why it encircles Hellas similar to M Hadriacum.

(**Note**) In the above, we mentioned featuring Solis Lacus, but the nomenclature of SCHIAPARELLI is diversified, so that we may pick out other nets which govern the SCHIAPARELLI world. Starting from Libya and crossing Syrtis Mj, we may write down something until Æria and Arabia. We may also interestingly tell about the area of Alcyonius Sinus and Utopia in SCHIAPARELLI's maps.

CMO 09/10 Mars Note (13)

How to Observe Every 40 Minutes

Examples from 23 and 24 February 2010

The method of the interval of every 40 minute observation of Mars which we frequently repeated to insist is however still not well understood and sometimes misunderstood. As soon as one returns home, he opens the dome and begins to observe every 40 minutes. Is that all right? An important thing here depends on the observation time of the preceding day.

If he observes every 40 minutes, any observation

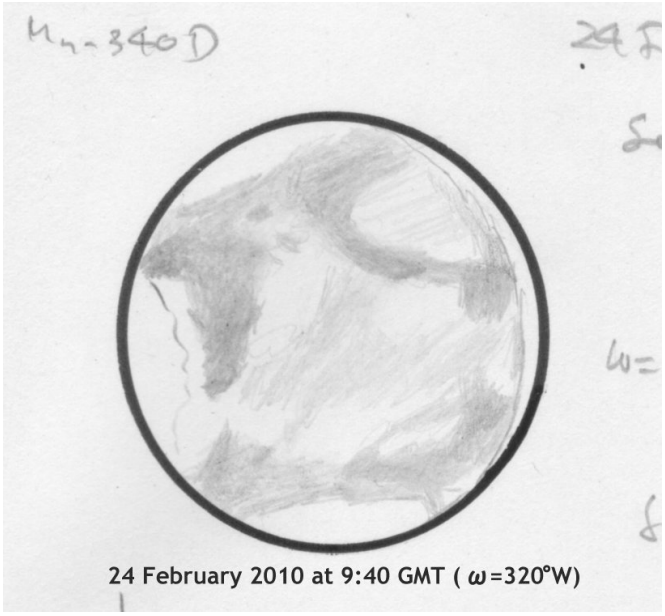
must be compared exactly with some observation of the preceding day. Of course since the difference of the rotation periods of Mars and the Earth is not exactly 40 minutes and especially the apparent differences a bit more slip out after the perihelion, it is therefore more difficult in adjusting the observation times in the visual observations than the case of the ccd observations. In the latter case, one can adjust by a few minutes, but in the visual observations, the time 15:32 GMT is nonsense because it must be said it is not different from 15:30 GMT (it is supposed in any visual observation, the observation time should not continue more than 20 minutes, but cannot be finished within 10 minutes). Because of the delicate difference of every day, the difference of a few or 5 minutes readily occurs. Of course we need to obtain as possible as we can the same longitudes of central meridians (LCM), but the difference of a few minutes is annoying to the visual observers. In this case, even then, one had better adhere to the 40 minutes, and discard the little difference of the LCM. In our case, we change 10 minutes if the differences of LCM is much augmented or decreased.

Here we don't repeat the importance of the 40 minutes observations (though we know there may be a lot of people who admit the importance of the continual observations, but who consider that it is enough to observe every one hour or one hour and a half). However the essential thing is the comparison of the observations with the preceding or following days and sometimes it needs to make the averages. There are things which should be averaged, but sometimes are not. If we encounter the occurrence of the dust clouds they should not be averaged, but as another example when we pick out the case of the recession of the polar caps they should be considered sometimes on an average.

In the following, we shall show as an example the case of the observations of (the sizes of) the north polar cap (npc) on 23 February 2010 and on 24 February 2010. The season was λ=056°Ls, and it was an important time from the view-point of the Baum plateau. This was also treated in Note (9) of CMO #381.

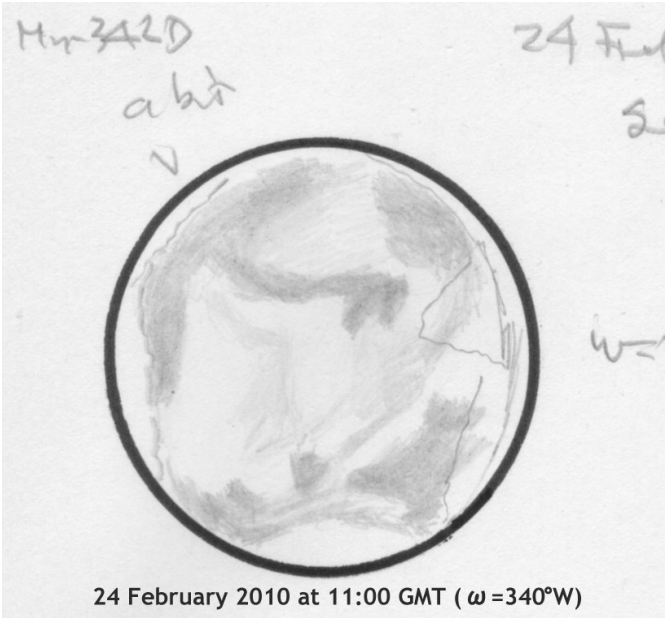
The observation times of the present writer (*Mn*) on 23 February were as follows: We began at 09:00 GMT (ω=319°W) (we exactly employ a 20 minute observation and so started at 08:50 GMT and ended at 09:10 GMT: Every time 20 minute observation), and then at 09:40 GMT (ω=329°W), at 10:20 GMT (ω=339°W), at 11:00 GMT (ω=348°W), at 11:40 GMT (ω=358°W), at 12:20 GMT (ω=008°W), at 13:00 GMT (ω=018°W), at 13:40 GMT (ω=027°W), at 14:20 GMT (ω=037°W), at 15:00 GMT (ω=047°W), at 15:40 GMT (ω=057°W), at 16:20 GMT (ω=066°W), at 17:00 GMT (ω=076°W), at 17:40 GMT (ω=086°W), and ended at 18:20 GMT (ω=096°W). (Thus we observed 15 times every 40 minutes). During the times, Syrtis Mj and S Sabaeus passed the surface, and S Meridiani concealed at the rear side, and Solis L appeared. At the northern district M Acidarium moved from the right to left. The seeing on the day was rather poor, and at 12:20 GMT the temperature inside the dome recorded 9°C.

On the following 24 February we started at 08:20 GMT (ω=301°W) (sunset at 08:37 GMT, 19°C inside the dome): 08:20 GMT (ω=310°W) was chosen because we had to observe at 09:00 GMT as on the preceding day, and so the observations continued as follows: (thirdly) at 9:40 GMT (ω=320°W), next at



24 February 2010 at 9:40 GMT (ω=320°W)

10:20 GMT (ω=330°W), at 11:00 GMT (ω=340°W), at

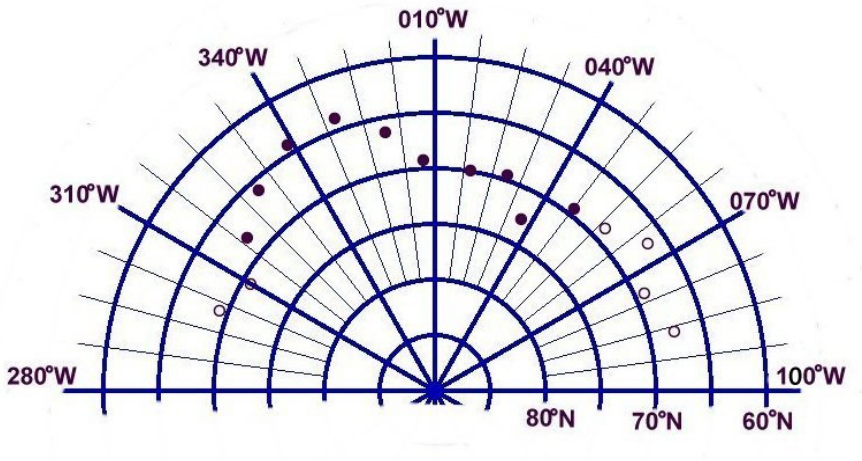


11:40 GMT (ω=349°W), at 12:20 GMT (ω=359°W), at 13:00 GMT (ω=009°W), at 13:40 GMT (ω=019°W), at 14:20 GMT (ω=028°W), at 15:00 GMT (ω=038°W), and finally at 15:40 GMT (ω=048°W). Here the seeing was broken and so we closed observation. On this day, the Mist along the Equatorial Belt (MEB) was more strongly evident than the day before from around ω=009°W to the final.

Note that the first two observations on 24 February brought about new surfaces. That is, even if the time is at the same 09:00 GMT as before, the surface differs by 10 degrees. So it becomes possible to compare the drawing on 23 February at 09:00 GMT (ω=319°W) with the third drawing on 24 February at 09:40 GMT (ω=320°W). Unfortunately the degree differs by one, but we don't mind (see below). Also the surface at the last parts on the preceding day cannot be observed on the following day: It was because the seeing went down earlier on the second day and hence 4 drawings lacked. Eventually the surfaces which could be compared on 23 February with those on 24 February were just ten in number.

As to the problem just occurred as abovementioned that the rotation is not exactly 40 minutes, we shall say as follows: In fact on 23 February, LCM was ω=339°W at 10:20 GMT, while on the following day it was ω=340°W at 11:00 GMT (that is 40 minutes later). This inconvenience is easily remedied in the case of the ccd imaging, but it's annoying in the case of visual observations, and several days after the difference will be much augmented. So we sometimes change the observation time by advancing or slowing down the time by ten minutes (we don't employ 5 minutes difference because it will augment the complications).

So in the polar diagramme we must employ ω=339.5°W on the average, but it is a mere for the sake of convenience. As another example we also made a diagramme by taking an average of the boundaries of the snow lines (for ten comparable observations)



to cancel out the difference of the seeing problem and so on. The last observation on 23 February was omitted because of the very poor seeing. Just we should say a flutter of the spots on the graph in Note (9) of #381 is given rise to the unevenness of the perimeter of the npc as well as of the ill mappings.

Here the results are not so important; even though the perimeter has been proven to be not smoothly roundish. What we should like to stress however is the importance of the observations of every 40 minute intervals. We further stress that the small differences from the 40 minute separation can easily be remedied in the case of the ccd observations.

In the shown diagramme every dot was obtained from the depth of the cap at the CM (as is the case in Note (9) in #381). The symbol ○ denotes the sin-

gle observations and ● for the average values of both days. The npc, as above mentioned, is not roundish even at λ=056°Ls, and the depth is quite different to the north of M Acidalium. This difference does not appear in the graph in Note (9) of #381 no more than as the flutter of the spots.

(Masatsugu MINAMI *(Mn)*)

Letters to the Editor

●・・・・・***Subject: Re:***
Received: Sun 24 Apr 2011 00:00:56 JST

Dear Richard, I sent that article, written years ago, to Masatsugu so he could provide the valuable analysis he did. Beish is an idiot and that is all that one can possibly say, and I long since ceased to be bothered by foaming from his mouth.

Affectionately,

□・・・・・***At 1:27 PM, "Richard Baum" wrote:***

Dear Bill, I see Beish has rather savagely attacked your CMO article about Mellish. Your *bête noir* I suspect! Affectionately

Richard BAUM (Chester, The UK)

○・・・・・***Subject: Lafcadio Hearn***
Received: Sun 24 Apr 2011 00:25:22 JST

Dear Masatsugu, I just returned from New Orleans, and discovered a great deal about the ten years that Lafcadio Hearn spent in the city before he headed off to Japan. I hope to write something up about him for a future CMO.

○・・・・・***Subject: FW: J.D.Beish et al***
Received: Sun 24 Apr 2011 06:40:14 JST

Dear Masatsugu, I wrote that essay several years ago, and had forgotten about it; but when you were wanting material for the CMO, I sent it, not because I believed that Mellish saw craters in the strict sense; but he did see something, and I hoped that perhaps you or some other reader could offer some explanation for just what it might have been. Mellish told a story; Tom Cave, at any rate, believed in it. One can simply dismiss his story out of hand, or test it against the real world of Mars observations and see if it is consistent with what we now know (this, by the way, is what we mean by "scientific method"). Where the story is not consistent (and this is the crucial point, which separates the scientific method from other story-telling), the narrative needs revision, and that is what we who bother with history must undertake.

I am eager to hear what others may think of Mellish's observations, which have entered the rich lore of the Planet.

Hoping to get to Lafcadio Hearn -- much of what he learned in New Orleans would influence his approach to Japan; unfortunately, the rate-limiting step is the bursitis I've developed in my shoulder, which requires me to do no more work at the keyboard than necessary. Best,

○・・・・・***Subject: Beish***
Received: Mon 25 Apr 2011 00:09:32 JST

Dear Richard, Masatsugu, and Richard, ・・・・・・・I daresay I knew Tom Cave as well as the next one, and Cave told me he met Antoniadi during the Liberation of Paris -- it was only after I myself pointed out that Antoniadi had already died that he realized he had been mistaken; probably he met Baldet. It was an honest mistake (Baldet did not speak English, nor Cave French). He also wrote to me extensively about his meetings with and discussions with Mellish including his observation of craters --Tom claimed to have seen the drawings in question, and reconstructed the one showing the craters from memory for me -- and the CM did agree with what would have been visible that morning when Mellish claimed to have had his wonderful view of Mars. Of course neither Tom nor anyone else in modern times believes Mellish had actually seen "craters with water in them," though once that was widely believed to have been the nature of the oases (which Schiaparelli had called "lakes," and W. H. Pickering referred to as "lakes" in his telegrams from Arequipa in 1892; it was his brother who queried him closely, "How do you know they were lakes?")

Mellish's description of Barnard's drawings -- which were long believed to be lost but which I first recovered and discussed -- also was accurate. Mellish was honest and I fail to understand what the correspondent's point is in his (as usual) intemperate comments. Apparently the correspondent believes that Mellish was a liar and impostor, but if so, why does he not say so? Or just what is this correspondent's point?

The whole history of planetary astronomy--and any other field of science or human endeavor -- is a mixture of insights and confusions. Unless one is satisfied to simply look through the eyepiece of the retrospecto-scope and pass judgment on our predecessors -- or mock them for their deficiencies -- one understands this, and I would only say to the correspondent -- with Alexander Pope --

"We think our fathers fools, so wise we grow;
Our wiser sons may someday think us so."

Mellish's observation, like many another in the rich history of Martian studies, is of interest to those who wish to understand the process by which we came to our current understanding of the planet.

I don't intend to respond further to the correspondent's views, which are well known. Why doesn't he contribute something--on a different topic--that will raise the standards of CMO/ISMO to the heights of intellect that he suggests it has need of achieving, and show by example what would be a better use of space than his fulminations? We all await with bated breath. Best,

○・・・・・***Subject: Re: Beish***
Received: Mon 25 Apr 2011 06:06:06 JST

Dear Masatsugu,・・・・I appreciated Murakami's comments, and hope to meet Kon-naï someday. Best,

○・・・・・***Subject: Re: small craters***
Received: Tue 26 Apr 2011 06:43:50 JST

Dear Masatsugu, et al., Since, obviously, there is no longer any question of Mellish's integrity, we can move beyond the question--Did Mellish actually make out the craters of Mars?--to ask, instead, what he might have seen, under the circumstances that obtained in November 1915 that made him think he saw craters, and also the question of just which craters can be made out by present day observers--as is being done now by Bill and Kon-naï. (It was also a subject near and dear to the late Chick Capen's heart.)

As for those who believe such investigations to be a waste of time and a demonstration of poor intellect, I think they would be well advised to not waste their time or intellects on such vanities. Instead they would be better informed by reading Norman F. Dixon's classic study of the authorian personality that we see so vividly demonstrate in some correspondent's messages: "On the Psychology of Military Incompetence." Best,

○・・・・・***Subject: Re: Beish one last time***
Received: Thu 28 Apr 2011 21:42:38 JST

Dear Masatsugu, I am glad to defer to your thoughts -- which are close to my own. Mellish saw something -- now that we can image the planet under similar conditions, we can test -- *à la* Karl Popper -- what he might have seen (and cannot have seen). Perhaps he saw something at that season. But it is not pseudoscience like Beish's rants against climate change.

I would prefer if you and Konnaï were to take the lead in this but you can use the e-mails I sent discretely.

There are a few individuals like Beish -- and the one we both had to put up with at Mt. Hamilton in 2005 -- who really are spoilers, and they cannot be allowed to bully or make life miserable for serious Mars students. Best,

Bill SHEEHAN (Willmar, MN, The USA)

●・・・・・***Subject: Re: Greg Mort on Earth Day***
Received: Tue 26 Apr 2011 01:47:23 JST

Hi Masatsugu, Thanks for sending. My best wishes for your country's quick recovery form the catastrophe. I hope you are well!

Ethan ALLEN (Sebastopol, CA, The USA)

●・・・・・***Subject: Volcano Shadows***
Received: Thu 05 May 2011 10:02:23 JST

Dear Dr. Minami, I read with interest your Note

(11) in CMO #383. I made a visual observation and sketch on 4 September 2005 employing a 20cm SCT in which I saw a dark smudge on the terminator which I thought could be the shadow of Olympus Mons. At the time of my observation, the diameter of Mars was 14.5" and the phase angle was 41.4 degrees. My observation appears to be within the parameters that you describe in your note. I submitted my sketch to CMO on 4 September 2005 so it should be in your archives if you wish to look at it.

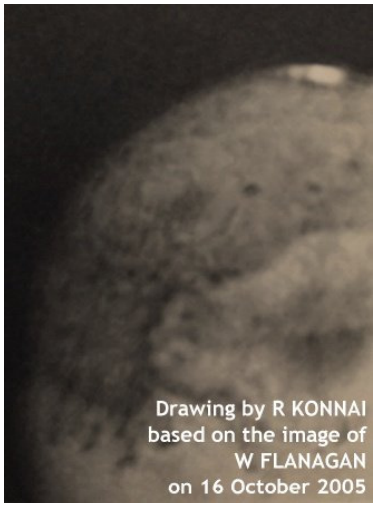
Like all others around the world, I was dismayed to hear about the recent earthquake and events in Japan. I am sure you know the high level of concern that everyone feels for the people of Japan.

Best wishes,

Michael ROSOLINA (Friars Hill, WV, The US)
(***Note***) Michael is all right. Sorry we missed it. (*Mn*)

●・・・・・***Subject:*** *Earth-based detection of the craters of Mars*
Received: Thu 05 May 2011 15:02:26 JST

Dear all areoholics on this blue planet, Sheehan's excellent essay in CMO/ISMO #383 stimulated my imagination; I thought 'twas possible that some exquisite CMO imagers had already succeeded in recording the craters of Mars as shadowed relief images on the terminators of the planet.



Though it may seem delicate, I think I could have found a few candidates. Attached here is my "Impression Drawing" of W Flanagan's excellent C-14 R image on 16 Oct 2005 06:52GMT(ω=086°W, λ=307°Ls, ϕ=12°S, ι=20°, δ=19.5"). "Impression" means that I exaggerated what I wanted to emphasize what I saw on the image. I felt I could have discerned Argyre near the eastern terminator as a huge multi-ring structure with shadowed relief appearance. There may be a vague possible intermediate ring. Outer of the multi-walled impact basin, I also noticed that the large curve of darker albedo markings—from Mare Erythraeum through Feris Prom and Delfini Portus to Coracis Portus—to be highly concentric with the Argyre basin system; if this dark curve is to be considered as the outermost influence of the ancient gigantic impact, the whole structure forms a huge multi-ring impact basin system stretching over 2600km!

Also identifiable nearby on the Flanagan's image as dark spots or albedo contours are many smaller craters. Among them, Lowell and Douglass are easy, but Galle the "Smiley Face Crater" on the east rim of Argyre's inner ring is barely visible.

I didn't intend to directly relate Mellish's possible visual sighting of the craters on the eastern terminator at Yerkes to Flanagan's possible detection of Martian craters on his image by a 35cm instrument in 2005 (tilts are quite different). Instead, I just thought if I had no chance of finding craters showing 3-D appearances except in 2005 when the imagers could have taken images with fairly large phase angle conditions while the planet was keeping as favorable apparent diameter as around 20".

In the bargain, our powerful imager's big guns are 30~40cm aperture telescopes; thus the ratios of Martian apparent diameter to resolving power are happened to be similar for 7.7" with 102cm and 20" with 30~40cm. In other words, Mellish in 1915 and Flanagan in 2005, with their instruments' effective highest magnifications, both should have sighted Martian images of similar sharpness under perfect seeing conditions (I believe the instruments they used are diffraction limited). It seems worthwhile for Flanagan and other high-resolution Mars imagers to try reprocessing their images in 2003 and 2005 or in any other apparitions with particular attention to the terminator zone where details are prone to be faded out. If their results show distinct enough relief crater images that require no explication like my impression drawing, they can serve as a noteworthy indirect verification of Sheehan's proposition. Images from different sets of raw images by more than one imager would be preferable

for better reproducibility for scientific discussion.

Sheehan's proposition based on Mellish's assertion is optically rather quantitatively testable; I'll discuss it soon later in my separate LtE. Taking other factors as the tilt of the planet then and the meteorology around the terminator area into account, the proposition can be the subject of refutation. Thus Sheehan's discussion as well as his awareness of the issues are absolutely scientific also *à la* Karl Popper. No one can, I believe firmly, insult him as pseudoscientific with unspeakably, unbearably abusive language. Best Wishes,

○・・・・・***Subject : Craters on Pluto CAN BE!***
Received: Sun 08 May 2011 22:33:53 JST

Dear all the Martians on Earth, I always enjoy reading Bill Sheehan's articles. I have a file of the printouts of his essays and LtEs which has been one of my favorite bedtime readings in these nights having trouble sleeping with ceaseless aftershocks; his writings' special tune always calms me down so I can sleep well.

When I read the part in Sheehan's essay in CMO/ISMO #383 that said John Mellish had detected Martian craters on the eastern terminator of the planet's 7.7″ apparent diameter disk with Yerkes' 102cm refractor, simple calculations in my head instantly told me that it had been optically quite possible.

Resolving power of a telescope is popularly given by the famous empirical formula by "eagle-eyed" William R. Dawes as:

$$R_d=11.6''/D \quad \text{.....(Dawes' limit)}$$

where D is the aperture of the telescope in cm.

As the result of my lunar observations, I believe the minimum diameter of the crater on the Moon discernable as a shadowed relief image nearly corresponds to Dawes' limit. For better certainty in detecting craters on remoter planetary bodies, let us employ here the *doubled* Dawes' empirical constant; so that the resolving power to discern the smallest crater on a planetary image would be: $R_c=23.2''/D$. The apparent diameter of a crater on a planetary image is given by $\delta K/P$ where δ is the apparent diameter of the planet in arcsecs, K the actual diameter of the crater in km, and P the actual diameter of the planet in km respectively. If we take this equal for R_c, we obtain $\delta K/P=23.2''/D$.

Then we can convert it into the actual diameter of the smallest detectable crater: $K_{mn}=23.2P/\delta D$ (km). Otherwise it implies a minimum aperture $D_{mn}=23.2P/\delta K$ (cm). Then for the Mellish case, $P=6780$km, $\delta=7.7''$, and $D=102$cm. Then above equation gives $K_{mn}\fallingdotseq 200$km; thus Argyre Planitia, an over 600km wide super-crater might had been easy as a shadowed relief image near the terminator, and over 200km class craters as Lowell, Douglass and Galle were possible as well.

On 16 Oct 2005 when Bill Flanagan had taken the excellent image of which I made an impression drawing, δ was 19.5″. With the 230km diameter of the crater Galle, we have $D_{mn}\fallingdotseq 35$cm; so the smiley face crater can be recorded as a relief with his C-14; Flanagan's results in 2005 were superb, but the formula says he can get still better images.

As for the extremely remote planetary body in our Solar System, let us assume the actual diameter of Pluto to be 2390km, and its apparent size to be 0.08″. Let us also suppose a crater of 800km across is on the terminator of the once-planet object, as the upper limit of the size of an impact crater is considered to be about one-third of the main body's diameter. In this case our formula gives $D_{mn}\fallingdotseq 866$cm $\fallingdotseq 8.7$m; thus it wouldn't be absurd at all to say "*Craters on Pluto CAN BE!*" detectable visually or by digital imaging with the present-day largest telescopes on our planet with the aid of wavefront adaptive optics.

Sheehan's interest in astronomy seems to be concentrated on the historical account of the changes of the recognition of Mars as a world. So that the Mellish story must be a very important scene in his historical view on the red planet. Mellish was probably a too early abortive flower tried to bloom in vain. Best Wishes

Rei-ichi KONNAÏ
(60km west of Fukushima Dai-ichi, Japan)

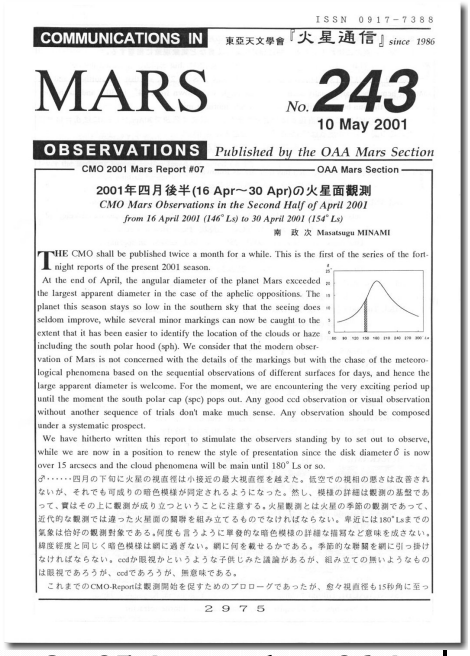
☆ ☆ ☆

TEN YEARS AGO (189)

-----CMO #243 (10 May 2001) pp2975~2990 -----

http://www.hida.kyoto-u.ac.jp/~cmo/cmomn0/CMO243/index.htm

2001 Report #07 treated a half month period from 16 Apr 2001 (λ=146°Ls) to 30 Apr 2001 (λ=154°Ls): From this issue the CMO began to be published semimonthly. At the end of April the apparent diameter became over δ=14.0" and so larger than the maximal diameter of the aphelic apparition though still the phase angle was ι=30°. The tilt was φ=1°S to 2°S and so the NH and SH were equally observed. The planet was near Sgr and so its altitude was low, and still observation was restricted in the morning. Report came about 150 per half a month: Ten contributed domestically and six from abroad. In Okinawa, the rainy season came on 6 May, 11 days earlier than usual.


ISSN 0917-7388
COMMUNICATIONS IN 東亞天文學會『火星通信』since 1986
MARS No. 243
10 May 2001
OBSERVATIONS Published by the OAA Mars Section
CMO 2001 Mars Report #07 — OAA Mars Section
2001年四月後半(16 Apr~30 Apr)の火星面観測
CMO Mars Observations in the Second Half of April 2001
from 16 April 2001 (146° Ls) to 30 April 2001 (154° Ls)
南 政次 Masatsugu MINAMI
THE CMO shall be published twice a month for a while. This is the first of the series of the fortnight reports of the present 2001 season.
At the end of April, the angular diameter of the planet Mars exceeded the largest apparent diameter in the case of the aphelic oppositions. The planet this season stays so low in the southern sky that the seeing does seldom improve, while several minor markings can now be caught to the extent that it has been easier to identify the location of the clouds or haze including the south polar hood (sph). We consider that the modern observation of Mars is not concerned with the details of the markings but with the chase of the meteorological phenomena based on the sequential observations of different surfaces for days, and hence the large apparent diameter is welcome. For the moment, we are encountering the very exciting period up until the moment the south polar cap (spc) pops out. Any good ccd observation or visual observation without another sequence of trials don't make much sense. Any observation should be composed under a systematic prospect.
We have hitherto written this report to stimulate the observers standing by to set out to observe, while we are now in a position to renew the style of presentation since the disk diameter δ is now over 15 arcsecs and the cloud phenomena will be main until 180° Ls or so.
δ……四月の下旬に火星の視直径はδ接近の最大視直径を越えた。低空での視相の悪さは改善されないが、それでも可成りの暗色模様が同定されるようになった。然し、模様の詳細は観測の基盤であって、實はその上に観測が成り立つということに注意する。火星観測とは火星の季節の観測であって、近代的な観測では違った火星面の關聯を組み立てるものでなければならない。単近には180°Lsまでの気象は恰好の観測對象である。何度も言うように華麗的な暗色模様の詳細な描寫など意味を成さない。緯度経度と同じく暗色模様は網に過ぎない。網に何を載せるかである。季節的な褶襞を網に引っ掛けなければならない。ccdが眼視かというような子供じみた議論があるが、組み立ての無いようなものは眼視であろうが、ccdであろうが、無意味である。
これまでのCMO-Reportは観測開始を促すためのプローグであったが、愈々視直径も15秒角に至っ
2975

The big problem around λ=150°Ls was to discriminate the spc from the sph: This was favourable to watch at the Hellas area and in fact it began from the Orient. At Okinawa the observation ceased after 22 April because of the rainy season, but on 17 Apr ISHADOH (*Id*) observed the southern part of Hellas was bright though the evening side was cloudy. On 25, 26, 27 Apr, MINAMI (*Mn*) observed every 40 minutes from ω=142°W to181°W and revealed the light and shade inside were variable every day. On 25 Apr, and on 26 Apr MORITA (*Mo*) and AKUTSU (*Ak*) shot several images respectively. In R, Hellas was bright and so thought to be frozen. In the US, PARKER (*DPk*) also shot the activity of the sph to the south of M Erythraeum. The precipitation of CO_2 must be observed until around λ=180°Ls. The orographic clouds were decreasing, even then HIGA (*Hg*) caught the Elysium cloud on 18,19 Apr. Olympus Mons was also caught but the cotton ball-like cloud was not chased. See more details the following site:

http://www.hida.kyoto-u.ac.jp/~cmo/cmomn0/01Repo07/index.htm

LtE was received from M E WASIUTA (VA, USA), C E HERNANDEZ (FL, USA), Don PARKER (FL, USA), F J MELILLO (NY, USA), T CAVE† (CA, USA), R SCHMUDE Jr (GA, USA), and D PEACH (UK) from abroad. Domestically *Id*, *Ak*, *Mo*, *Hg* and Hiki corresponded.

As another article NISHITA (*Ns*) wrote "Ephemeris for the 2001 Mars. IV" as FORTHCOMING 2001 MARS (11).

http://www.hida.kyoto-u.ac.jp/~cmo/cmo/coming2001/0111/11.html

In Japanese *Mn* wrote about the astrophysicist Humitaka SATO, and *Ts* about the big Sun spot activity in March, also referring to the data from SOHO. (*Mk & Mn*)

TEN YEARS AGO (190)

-----CMO #244 (25 May 2001) pp2991~3006 -----

http://www.hida.kyoto-u.ac.jp/~cmo/cmomn0/Cmo244/index.htm

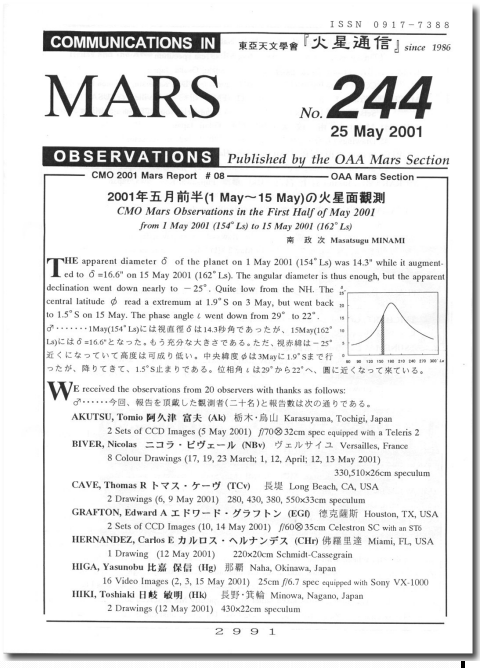
Next we summarise Report #08 in 2001 which dealt with the period from 1 May 2001 (λ=154°Ls) to 15 May 2001 (λ=162°Ls): The δ was rapidly augmented to 16.6" at the end of the session. The tilt was φ=1°S. The phase angle decreased from ι=29° to 22°. The planet was still in Srg and D=25°S so that the altitude was quite law from the NH. Reports reached about a total of 190 from domestically (11 observers) and abroad (9 observers): From the US, Ed GRAFTON (*EGf*) joined and emailed several times showing his method as follows:

http://www.hida.kyoto-u.ac.jp/~cmo/cmomn0/EGf244.htm

Domestically KUMAMORI (*Km*) joined. D PEACH (*DPc*) also contributed his drawings: eg see the following site:

http://www.hida.kyoto-u.ac.jp/~cmo/cmons/DPc22May01.htm

The first thing which was reported was the fact the evening Syrtis Mj was covered a gray Libya cloud perhaps because of the phase angle. Iapygia Viridis was rather faint and so Hellas looked came down, and in the evening the terminator from Hellas to Syrtis Mj looked monotonous. To the discrimination of the spc and sph, the images by PARKER (*DPk*) and *EGf* are effective: At Ausonia Auatralis the sph was still down to 50°S, and the spc was to 60°S. At the westward region the sph was not uniform in longitudes; Argyre looked bright. The morning white cloud was still active: Chryse and Tempe were bright near the morning limb and Xanthe was also bright in the evening. Otherwise from M Serpentis another dark band ran which was different from Pandrae Fr. M Serpentis and S Sabaeus look separated: The evening mist depended on the backward markings. Reports on the orographic clouds on the high mountains which were decreasing are none because the reports from Europe were few because the altitude of the planet was low there. Elysium Mons was however trapped in the US and looked brighter in R than in B: See the details in the following site :
http://www.hida.kyoto-u.ac.jp/~cmo/cmomn0/01Repo08/index.htm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2001年五月前半(1 May～15 May)の火星面観測
CMO Mars Observations in the First Half of May 2001
from 1 May 2001 (154° Ls) to 15 May 2001 (162° Ls)
南 政次 Masatsugu MINAMI
THE apparent diameter δ of the planet on 1 May 2001 (154° Ls) was 14.3" while it augmented to δ =16.6" on 15 May 2001 (162° Ls). The angular diameter is thus enough, but the apparent declination went down nearly to −25°. Quite low from the NH. The central latitude φ read a extremum at 1.9°S on 3 May, but went back to 1.5°S on 15 May. The phase angle ι went down from 29° to 22°.
♂……1May(154° Ls)には視直径δは14.3秒角であったが、15May(162° Ls)にはδ=16.6"となった。もう充分な大きさである。ただ、視赤緯は−25°近くになっていて高度は可成り低い。中央緯度φは3Mayに1.9°Sまで行ったが、降りてきて、1.5°S止まりである。位相角ιは29°から22°へ、圏に近くなって来ている。
WE received the observations from 20 observers with thanks as follows:
♂……今回、報告を頂戴した観測者(二十名)と報告数は次の通りである。
AKUTSU, Tomio 阿久津 富夫 (Ak) 栃木・鳥山 Karasuyama, Tochigi, Japan
2 Sets of CCD Images (5 May 2001) f/70※32cm spec equipped with a Teleris 2
BIVER, Nicolas ニコラ・ビヴェール (NBv) ヴェルサイユ Versailles, France
8 Colour Drawings (17, 19, 23 March; 1, 12, April; 12, 13 May 2001) 330,510×26cm speculum
CAVE, Thomas R トマス・ケーヴ (TCv) 長堤 Long Beach, CA, USA
2 Drawings (6, 9 May 2001) 280, 430, 380, 550×33cm speculum
GRAFTON, Edward A エドワード・グラフトン (EGf) 休克蘭斯 Houston, TX, USA
2 Sets of CCD Images (10, 14 May 2001) f/60※35cm Celestron SC with an ST6
HERNANDEZ, Carlos E カルロス・ヘルナンデス (CHr) 佛羅里達 Miami, FL, USA
1 Drawing (12 May 2001) 220×20cm Schmidt-Cassegrain
HIGA, Yasunobu 比嘉 保信 (Hg) 那覇 Naha, Okinawa, Japan
16 Video Images (2, 3, 15 May 2001) 25cm f/6.7 spec equipped with Sony VX-1000
HIKI, Toshiaki 日岐 敏明 (Hk) 長野・箕輪 Minowa, Nagano, Japan
2 Drawings (12 May 2001) 430×22cm speculum
2 9 9 1

LtE were from *EGf* (TX, USA), *DPc* (UK), M WASIUTA (VA, USA), C HERNANDEZ (FL, USA), F J MELILLO (NY, USA), T DOBBINS (OH, USA), D FISCHER (Germany), N BIVER (France), TAN Wei-Leong (Singapore), *DPk* (FL, USA), S WHITBY (VA, USA), and domestically from HIGA, HIKI, ISHADOH, MORITA, H HASEGAWA, *Km*, AKUTSU. TSUNEMACHI visited Fukui Observatory and wrote an essay.

TYA (69) picked out CMO #105 (25 May 1991): 20 years ago Mars was in the evening sky. The diameter was under δ=5", and the observation was ceasing. The season of the apparition was around λ=060°Ls. MINAMI (*Mn*) obtained a total of 888 drawings, NAKAJIMA (*Nj*) did 498 and T IWASAKI (*Iw*) 400.

Additional report of 70 B&W photos arrived (second times) from *DPk*, and out of which the November dust cloud was especially reviewed.

McKIM (*RMk*)'s Interum Report in *JBAA* 101 (1991) was also introduced in Japanese.

In this issue *Iw* of twenty years before was introduced in detail. An essay on Ikuo HIRAYAMA, a famous painter, was written by *Mn* in Japanese. ***(Mk & Mn)***

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CMO #385/ ISMO #11 (25 May 2011)

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