

MARS

No. 379

25 December 2010

No.05

Published by the International Society of the Mars Observers

Personal Reminiscences of Some Great Mars Observers. I

By

William SHEEHAN

In July and August 1992, I participated in meetings at Toulouse University (founded 1229!) to promote professional and amateur collaborations in astronomy. Stephen James O'Meara, then an editor at *Sky & Telescope* and someone with whom I had corresponded for several years but never met, was the other American participant. Our French host was Patrick Martinez, a well-known amateur astronomer in Toulouse, who had recently published the two-volume *Astronomie le Guide de l'Observateur* (later translated into English by Storm Dunlop) and was then working on *Le Guide Pratique de l'Astronomie CCD*.

Many of the talks were on CCD, which then seemed very new and very strange—especially as described in French (Europe had not yet embraced, as it has since, the use of English as the official language of scientific meetings). It had been only a few years earlier, at the Grand Opposition of Mars of 1988, that a stunning CCD image of the Syrtis Major re-

gion of Mars from Pic du Midi Observatory had graced the cover of *Sky & Telescope* - an image showing the surface markings in Antoniadesque detail and demonstrating that in one fell swoop Earth-based planetary astronomy had changed forever. The human eye's long superiority over the camera had, with shocking suddenness, come to an end.

Patrick Martinez was an amiable host, and led us first on a tour of the old Toulouse Observatory. Located in the Parc de l'Observatoire, a roughly triangular expanse of greenery situated between rue Observatoire, rue Camille Flammarion, and rue Kepler, it associated with such great astronomers as celestial mechanic Félix Tisserand (whose assistant, Henri Perrotin, later directed the Nice Observatory where he achieve laurels in the study of Mars) and Benjamin Baillaud, the mastermind behind the observatory at Pic du Midi, who had a small telescope set up there as early as 1909. We strolled among domes

housing imposing instruments: the meridian circle, the 13-inch refractor built by the Henry brothers for the Carte du Ciel project, and a large Cassegrain reflector on a German equatorial. From the observatory we followed the rue de l'Obélisque toward an obelisk inscribed

Aux Braves Morts Pour la Patrie.

It marked the spot where the Battle of Toulouse was fought on April 10, 1814. Troops loyal to Napoleon fought a futile battle, not knowing that Napoleon had already resigned his throne. (My mind, running along well-travelled tracks, recalled that Napoleon, on March 30, had learned, while staying a chateau in Juvisy-sur-Orge, of the capitulation of Paris, which led to his abdication. That chateau would later become famous to Mars observers as the home and observatory of Camille Flammarion!)

On rue de l'Obélisque we hoped to meet the famed planetary astronomer Henri Camichel. At 84 he was alert and spry, with sharp eyes, a dashing mane of white hair, and a chevron moustache of the French lieutenant type. The house--of that warm rosy brick which makes Toulouse the "Ville Rose"--was contiguous with a high wall. But the *Grand Homme* was expecting us, and on opening the gate led us through the off-putting walled exterior into a private world. The noise and fumes of the street were abandoned. It was as if we had dreamed ourselves to another planet; we found ourselves relaxing in an idyllic garden replete with citrus trees suspiring in the gentle Mediterranean breeze. Strolling down a gentle slope we settled around a small table and sat, the four of us - Camichel, Martinez,

O'Meara, and myself - chatting in English and French. (Camichel spoke only French, O'Meara and I only English, so Martinez was interpreter and linguistic sage.) Unobtrusively Madame Camichel ministered to us through the long summer afternoon and evening with offerings of a sublime *vin-de-pays*.

Camichel spoke with animation about his experiences at Pic du Midi, which he first visited in 1936 (how these old astronomers love to talk, I thought; they're well aware that as science sweeps so rapidly forward, their work is in danger of being completely forgotten). He remembers that at one time it was felt that Pic du Midi might not be suitable for astronomy because of the cold but that some (Lyot) were visionary and went ahead anyway. Originally hired to take meteorological observations, his most important work was in proving that it was possible to do astronomy even in the winter, and he took photographs of all the planets except Pluto.

Mostly we talked about Mars. He met Antoniadi at Meudon when he was young, and provided a few anecdotes about the legendary observer. When Antoniadi was still living in Constantinople (now Istanbul) with his father, the Sultan died, and Antoniadi said he was glad. His father said, "Don't be glad, the son will be even worse." Camichel described Antoniadi as polite but distant. He had independent means, and died suddenly during World War II.

He never believed in the channels or "canals," and saw the surface features break into the fine stippled pattern recorded by the best

observers under ideal conditions (he especially mentioned the fine renderings by Focas). He expressed scepticism about the ability of Earth-based observers to see Martian craters; to the extent there was a basis for what they saw, it was in taking ordinary markings, like the oases, for "craters."

Meudon is, in his opinion, a poor location for an observatory, because of its low elevation. At Pic du Midi, on the other hand, one would get two or three nights of exceptional seeing a month. He used 700x on Mars. He does not believe that the conditions at Pic du Midi allow even the full resolution of the 1-meter Cassegrain to be realized, and that the limit is probably more like 50 centimeters.

We discussed his relationship with Charles Boyer, who was responsible for the discovery of the four-day rotation of the upper atmosphere of Venus. Boyer was Magistrate at St. Gaudens after the war. Both Camichel and Boyer were avid ham radio operators, and Camichel introduced him to astronomy. Boyer eventually wrote to Camichel asking him for suggestions of observing projects he might do. At that moment, Camichel was working on the UV photography of Venus at Pic du Midi, and suggested that Boyer take it up. By then Boyer was Magistrate at Brazzaville, in The Congo. Boyer's image scale was very small; he saw features on his images every fourth day or so, and nothing on those in between, and this led him to conclude for the four-day rotation period. Lack of resolution in this case helped; the picture was actually confused by the plethora of details in Camichel's high-resolution images. Camichel

and Boyer published in obscure journals, and were disbelieved.

He closed our interview by giving me sage good advice. "Young man, what I learned was that you can spend more time fighting stupid people than doing scientific research. It's difficult to avoid fighting them, because they're so numerous. The best advice I can give you, life is too short to spend it fighting idiots."

The following morning we left Toulouse by bus for Pic du Midi, in the Pyrenees, and rode through the verdant French countryside, enjoying breathtaking visions of small towns-old and quaint, situated on hills, each dominated by the steeple of a church. (There were road signs to Taube and also to Lourdes; the latter was the site of the famous 19th Roman Catholic shrine on the spot where the illiterate and asthmatic adolescent girl Bernadette Soubirous reported visions of, and conversations with, the Blessed Virgin Mary, a site which became the focal point of the Church's attempt to convince the populace-at a time when science was holding the citizenry in awe with its miracles-of the viability of religion. My father had come to Lourdes with a few army buddies during the War; my goal was a different kind of vision than Bernadette's hallucinations, and a shrine to science rather religion.)

Pic du Midi itself was steeper and more isolated than I'd expected - an eerie above the clouds (we hoped!).

My companion on the bus was Steve O'Meara (who mentioned he was related distantly to the Irish doctor Barry O'Meara who had attended Napoleon on Sainte-Hélène). He grew up in Cambridge, Massachusetts, almost in the shadow of the Harvard College Observatory, and when he was in his early teens he was taken to an open house there with hopes of getting a look through the historic 15-inch Merz refractor. He had already acquired a considerable interest and knowledge of astronomy. After he saw the 15-inch, he got in a long line to have a look through the observatory's smaller instrument, a 9-inch Clark refractor. The person supervising the event was a Harvard graduate student whose bent was evidently more theoretical than practical, and who was having a hard time operating the telescope. The enthusiasm of the crowd began to wane, with the result that before long O'Meara found himself at the head of the line. There he was told by the well-intentioned but bumbling operator, "What I'm looking for is very far away, two million light years away," as an excuse for his inability to locate the object he was seeking. The upshot was that the unlikely teenager found the object, which was of course

the Andromeda Nebula, without difficulty, and through the encouragement of the graduate student was invited back to help with similar events and eventually was allowed to make his own observations.

He was in the prime of life for keen eyesight then, and got to know Harvard astronomer Fred Franklin, who suggested to him the project of estimating the brightness of Saturn's A Ring, for comparison with photometric measures, in hopes of confirming its suspected variability. As he did so, O'Meara began to notice the radial dusky bands on Ring B which he called "spikes." When he informed Franklin, he was disbelieved (just as Boyer had been disbelieved when he announced his four-day rotation of the upper atmosphere of Venus). Franklin explained that such radial features were impossible since they would be disrupted and unable to hold themselves together owing to the differential rotation periods of particles moving in Keplerian orbits). Needless to say, O'Meara's observation was eventually confirmed; his "spikes"-now known as "spokes"- were verified in the Voyager spacecraft images.

(To be continued.... Next: At Pic du Midi, and a Visit from Dollfus.)

CMO 09/10 Mars Note (7)

***How Was Utopia Cleared
in the Northern Spring?***

The area of Utopia is an appropriate place to check the activity of the north polar hood and/or dust, next to another important area of M Acidalium. Here we shall see how the area of Utopia has become cleared up in 2009/2010 as the

spring season advanced. The season we treat here ranges from $\lambda=001^\circ\text{Ls}$ to $\lambda=067^\circ\text{Ls}$, that is, just after the spring equinox to the season when the north polar cap was about to thaw rapidly. The first image we employ is the one made by GARBETT (PGb) on 29 October 2009 ($\lambda=001^\circ\text{Ls}$) at $\omega=258^\circ\text{W}$ when $\delta=7.8''$: This image is quite interesting since the season is quite near the spring equinox and the area of Utopia is almost covered by a thin cloud showing only the southern tip of Utopia. So we

choose the coming several images whose longitudes fall in the range $\omega=253^{\circ}\text{W}\sim 258^{\circ}\text{W}$: See the set of images below in which we employed observer's simplified name codes which imply as follows:

PGb: Peter GARBETT

WFI: William FLANAGAN

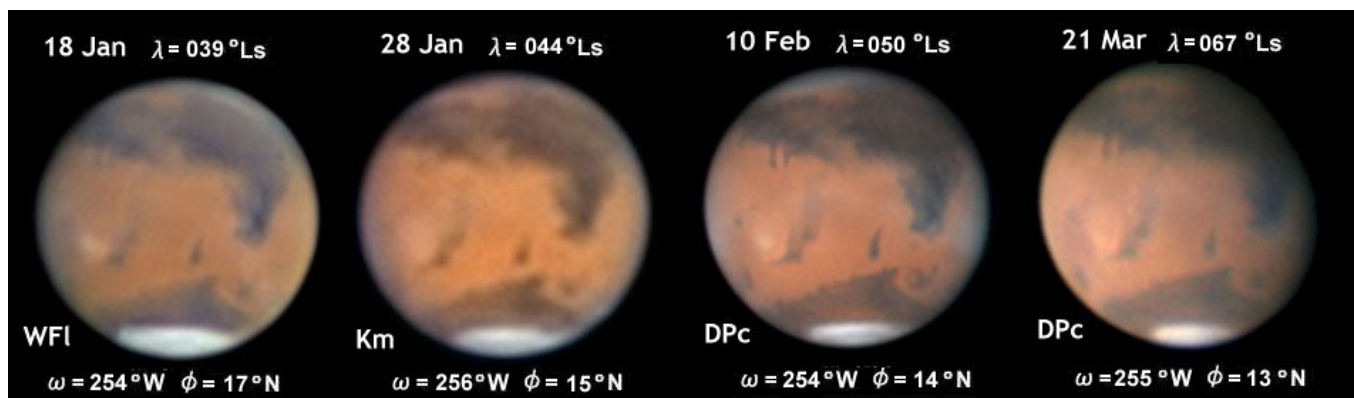
AWs: Anthony WESLEY

Ak: Tomio AKUTSU

NFt: Nicolás FONTANILLAS LOPEZ

Km: Teruaki KUMAMORI

DPc: Damian PEACH



We should say in the thin cloud matter on the image of *PGb* we may see some dusty ingredients. The observation of *WFI* is from the ones treated in Note (1) in CMO #373 p.Ser2-1377: He covered this region successively on 3, 4 and 5 November 2009 and showed that on 3 November a white cloud is thickly laid to the north of Boreosyrtris, and on 4 November he described a peculiar and conspicuous dust which had a triangular shape at Utopia. The image here we employ is the one made on 5 November ($\lambda=005^{\circ}\text{Ls}$) and apparently the strong activity is settled down but still a vast spread of dust is visible to the south of Utopia and also some remnant is seen inside Utopia. The image by *AWs* on 17 November ($\lambda=011^{\circ}\text{Ls}$) looks to show a normal Utopia and the NP matter, but image is slightly poor because it was shot from Australia. The image of *Ak* on 24 December 2009 ($\lambda=028^{\circ}\text{Ls}$) shows Utopia and the npc especially very whitish at the morning side

while it looks that a faint dust spreads from the preceding part of npc to Utopia: The dust however is quite weaker than the one *Ak* later detected on 31 January 2010 ($\lambda=045^{\circ}\text{Ls}$) [treated also in Note (1) in CMO#373: see f)]; this shows that the area still remained active until more later. On *NFt*'s image made on 9 January ($\lambda=035^{\circ}\text{Ls}$) Utopia looks weaker, but the peripheral description of the npc is also weak except for the centre. The morning Hellas is whitish in *Ak*'s image but not on *NFt*'s. Hellas is also weak on *WFI*'s second image on 18 January 2010 ($\lambda=039^{\circ}\text{Ls}$). The area of Utopia looks normal as well as the area of npc. The image of *Km* on 28 January ($\lambda=044^{\circ}\text{Ls}$) is taken near opposition: Hellas is barely seen. The area of Utopia looks normal whereas the eastern part is weaker. It should however be noted here that we cannot say the area is atmospherically completely settled at this time since we know that, as above mentioned, the dust activity

was observed (by *Ak*) on 31 January ($\lambda=045^\circ\text{Ls}$) inside Utopia. The season of *DPc*'s image on 10 February is already at $\lambda=050^\circ\text{Ls}$: After opposition Hellas is invisible. The eastern part of Utopia is brownish thinner. Finally *DPc*'s second image on 21 March ($\lambda=067^\circ\text{Ls}$) does not show Hellas since the phase angle ι proceeded to 31° : Utopia looks normal and shows some details inside though already $\delta=10.1''$: Now the time of Baum plateau passed, and the ηpc is quite shrunk.

We have thus depicted a series of images following the first *PGB*'s image at $\omega=255^\circ\text{W}$, while if we widen the range from $\omega=260^\circ\text{W}$ to 275°W , we have further images which show the further aspect of Utopia. For example, the dust detection by *WFl* on 4 November ($\lambda=004^\circ\text{Ls}$) was made at $\omega=265^\circ\text{W}$, and

Pete GORCZYNSKI (*PGc*)'s image on 7 December ($\lambda=020^\circ\text{Ls}$) was produced at $\omega=274^\circ\text{W}$. *Km* also made a relevant image on 22 December ($\lambda=027^\circ\text{Ls}$) at $\omega=254^\circ\text{W}$, though we omitted it because it doubles with already cited *Ak*'s image. Martin LEWIS (*MLw*) also shot on 3 January ($\lambda=033^\circ\text{Ls}$) at $\omega=265^\circ\text{W}$, and Stefan BUDA on 27 January ($\lambda=044^\circ\text{Ls}$) at $\omega=261^\circ\text{W}$. On 28 January ($\lambda=044^\circ\text{Ls}$) *Ak* made an image at $\omega=262^\circ\text{W}$. Ian SHARP (*ISp*) took the image on 9 February ($\lambda=050^\circ\text{Ls}$) at $\omega=266^\circ\text{W}$. On 17 February ($\lambda=053^\circ\text{Ls}$) Efrain MORALES (*EMr*) produced an image at $\omega=269^\circ\text{W}$, and on 19 February ($\lambda=054^\circ\text{Ls}$) *PGc* at $\omega=266^\circ\text{W}$. See also *AWs*' on 3 March ($\lambda=059^\circ\text{Ls}$) at $\omega=272^\circ\text{W}$. These images are all excellent and show more or less the details around the area of Utopia and the NP region. (*Mn*)

Letters to the Editor

●..... **Subject:** *Re: For the next issue*
Received: *Mon 06 Dec 2010 07:42:51 JST*

Dear Masatsugu, I have been pretty busy--in fact, I just got back an hour or so from Yerkes, where I was testing the prototype of a new medical device--and have a few other things lined up. But I will try to write something for you as soon as I can. Hope you are well. Best wishes,

○..... **Subject:** *FW: ESA: Wind & Water Have Shaped Schiaparelli on Mars*
Received: *Fri 10 Dec 2010 23:46:59 JST*

----- Forwarded Message

From: "AAS Press Officer Dr. Rick Fienberg"

Date: Fri, 10 Dec 2010 09:39:15 -0500

Subject: ESA: Wind & Water Have Shaped Schiaparelli on Mars

THE FOLLOWING RELEASE WAS RECEIVED FROM THE EUROPEAN SPACE AGENCY'S SPACE SCIENCE PORTAL IN NOORDWIJK, THE NETHERLANDS, AND IS FORWARDED FOR YOUR INFORMATION. (FORWARDING DOES NOT IMPLY ENDORSEMENT BY THE AMERICAN ASTRONOMICAL SOCIETY). Rick Fienberg, AAS Press Officer:

rick.fienberg@eesa.org, +1 202-328-2010 x116.

10 December 2010

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http://www.esa.int/esaSC/SEMEEYOR9HG_index_0.html

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○..... **Subject:** *Reminiscences of great Mars observers*
Received: *Mon 13 Dec 2010 09:18:04 JST*

Dear Masatsugu, Over this weekend I dug out some of the notes I kept when I was at Toulouse in 1992, and met Camichel at his home on the rue l'Obélisque and Dollfus at Pic du Midi (we observed together with the 1-meter Cass.). The notes were pretty amusing and I'm going to take some extracts and write them up for you—I think the first installment will have to do with Camichel and his reminiscences of people he knew such as Antoniadi, Lyot, Focas, and Boyer; while the next installment will include my conversations with Dollfus.

When I met Dollfus, I was surprised to find out that he had already read--reviewed (in *L'Astronomie*)--and admired my first published book "*Planets & Perception*." Since he had been a legendary figure whose name I had known since childhood, his disclosure was particularly gratifying to me (as you can well imagine!). It pulled me out of the doldrums as I was still smarting from a churlish and mean-spirited review by a professional academic and astronomical historian manque named John Lankford who was then riding on a high high horse (in his imagination) and enjoying bludgeoning foot soldiers in the cause of science such as myself. (I

won't recall the Polonius like strictures he scored me with.) I needn't dwell on it, but it pleased me considerably when his own magnum opus, Ameri-

can Astronomy, the effort of ten years, was panned by the reviewers. I especially remember Hubble biographer Gale Christianson's review: "More soci-

TEN YEARS AGO (184)

---CMO #238 (25 December 2000) pp2859~2882---

<http://www.hida.kyoto-u.ac.jp/~cmo/cmo/238/cmo238.html>

This issue conveys the second report of the 2001 apparition, and Y HIGA (*Hg*) and H ISHADOH (*Id*) newly joined so that we had 5 domestic observers. Don PARKER (*Dpk*) also sent us his second report (3 sets of images). The observations dealt with the season from 16 Nov 2000 ($\lambda=077^\circ\text{Ls}$) to 15 Dec 2000 ($\lambda=090^\circ\text{Ls}$). The planet declination was lower but came near the meridian when the Sun rises. The apparent diameter δ was small, but main markings were caught, and Hellas, evening Elysium and the npc were checked. *Dpk*'s images were already good and its RGB composites were beautiful though still $\delta=4.8''$. See

<http://www.hida.kyoto-u.ac.jp/~cmo/cmo/sec01/02/f0102.html>

Next article is 1988/99 Mars CMO Note (16) which is entitled "Mist along the Equatorial Band in 1999". The melting of the npc brings the water vapour to southwards especially strongly after $\lambda=090^\circ\text{Ls}$ and near the equatorial band it stands still because the Coriolis effect ceases and gives rise to a Mist Zone along the equatorial band. It will disappear at the autumnal equinox $\lambda=180^\circ\text{Ls}$, but it is well observable at the season $\lambda=070^\circ\text{Ls}\sim 140^\circ\text{Ls}$. The mist observations in 1999 were already pointed out in CMO #214 at $\lambda=100^\circ\text{Ls}\sim 110^\circ\text{Ls}$ and in CMO #216 near at $\lambda=120^\circ\text{Ls}$, and in this issue the aspect after $\lambda=125^\circ\text{Ls}$ is mentioned, and especially the image of Maurizio Di SCIULLO (*MSc*) at $\lambda=145^\circ\text{Ls}$ was picked out:

<http://www.hida.kyoto-u.ac.jp/~cmo/cmomn0/99Note16/index.htm>

Thirdly "Forthcoming 2001 Mars" (#4) treated "Disk with grids. I" until 1 June 2001:

<http://www.hida.kyoto-u.ac.jp/~cmo/cmo/coming2001/0104/04.html>

Fourthly (#5) treated "Ephemeris for the 2001 Mars. II" (January/March 2001) both by A NISHITA (*Ns*):

<http://www.hida.kyoto-u.ac.jp/~cmo/cmo/coming2001/0105/05.html>

The LtE corner shows the emails domestically from TSUNEMACHI (*Ts*), *Hg*, NUMAZAWA, T IWASAKI, S KIMURA, *Id*, AKUTSU and MORITA. *Ts* reported us of the X flares from AR#9236 which frequently happened from the end of November. *Hg* informed their preparations about the summer meeting at Naha. From the overseas we received emails from Sam WHITBY (VA), Frank J MELILLO (*FMI*, NY), Richard W SCHMUDE (GA), David GRAY (UK), Elisabeth SIEGEL (Denmark), W Y LAI (Taiwan), *Dpk* (FL), David R KLASSEN (NJ), Damian PEACH (*DPc*, UK), *MSc* (FL). *DPc* forwarded an email from Carolyn PORCO (Cassini Imaging Team Leader), and a close-up image of Jupiter was cited.

TYA (64) treated CMO #098 (10 Dec 1990) and CMO #099 (25 Dec 1990), both of which dealt with the observations just after the opposition in 1990. The planet of 20 years ago was at Psc, and at the end of 1990, data were $\delta=13.9''$, $\lambda=358^\circ\text{Ls}$, $\varphi=13^\circ\text{S}$. In #098, observation of the latter half of November, and 11 domestic members reported a total of 261 observations. Also we received a lot of observations from abroad, among them *FMI* reported his photos of the dust which was seen from the US and Europe at the beginning of November. In #098 and #099 two essays of *Mn* appeared. In #099, "COMING 1990/1991 MARS (9) (#3)" appeared (by *Ns*).

(*Mk* & *Mn*)

ISSN 0917-7388
COMMUNICATIONS IN 東京天文学会「火星通信」since 1986

MARS
No. 238
25 December 2000

OBSERVATIONS Published by the OAA Mars Section

CMO 2001 Mars Report # 02 OAA Mars Section

が……火星は急速に南へ降りているが、近に南の出昇には南中近く相当高い。十二月中旬、火星はヌビカの少し北を通って行った(11Decの1hに4°北、22Nov(08°Ls)には暹羅の伊舎堂(49)氏が観測を開始した。9Dec(08°Ls)には比嘉保福(Hg)氏がNikonのデジタルカメラで試射を試みた。12Dec(08°Ls)には那部・新元(09)氏が極めて直前のCCD撮像を得た。森田行雄(Mo)氏は九日撮像を試みている(その中から一断報告)。中島孝(05)氏は未だ「曇り雨」を免れない上に、風邪を召されたが、再び観測態勢に入っている。幸願樹お互い風邪には気を付けよう。

MARS is rapidly going down to the south, while its position is rather high up now near the meridian when the sun rises. The planet passed just to 4° north of Spica on 11 December at 1h GMT. On 22 November (08°Ls) ISHADOH (*Id*) at Okinawa started his routine observation of Mars. On 9 Dec (08°Ls) HIGA (*Hg*) at Okinawa first tried to shoot Mars by a Nikon digital camera. On 12 Dec (08°Ls) Don PARKER (*Dpk*) produced series of excellent CCD images while the apparent diameter was 4.8 arcsecs. MORITA (*Mo*) pointed his telescope to the planet nine mornings (Lst), but among them he just picked out one image taken on 22 Nov (08°Ls) to send to us.

が……今回は16 Nov 2000 (07°Ls)から15 Dec (09°Ls)迄の期間を見る。前週と同じく毎晩、西田昭雄(Ns)氏作成の現況観測位置に観測時刻を表示したものを掲載する。視直径はこの期4.3秒角から4.5秒まで振った。傾きは中央傾度のほぼ半分半程にあり、今回は25°Nから21°Nまで降りた(降り続けて、来年四月上旬に赤道まで降りる)。位相角は26°から30°へと開きが狭くなっている(三月上旬まで続く)。現在、観測は早朝四時半頃から可能であるが、夜明け前後がチャンスである。

T HIS time we treat the one-month period from 16 November 2000 (07°Ls) to 15 December 2000 (09°Ls).

We hereafter depict every time the period concerned on a graph showing the variation of the angular diameter in 2001 (made by NISHITA (*Ns*)). The apparent angular diameter δ went up from 4.3" to 4.8" during the present period. The central latitude ϕ was from 25°N to 21°N (will on the northern hemisphere for the present up until the beginning of April 2001). The phase angle ϵ was up from 25° to 30° (will attain its maximum at the beginning of March 2001). The planet is now observable from around 4:30 local time.

が……今回の報告者、報告数次第は次のようであった。

The following list summarises the work made during the present period:
HIGA, Yasunobu 比嘉 保福 (*Hg*) 那部 新元, Okinawa, Japan

ological than historical, Lankford's monograph is eerily reminiscent of the early days of cliometrics, when those entranced by the new computer technology tallied numbers with a passion put to use in their search for the scholarly equivalent of the philosopher's stone... Few will have the perseverance to read this dense work from cover to cover."

Expect something from me by Dec. 18 or so. Best,

○.....*Subject: reminiscences*

Received: Wed 15 Dec 2010 06:43:11 JST

Dear Masatsugu, I have typed the first part of this article out. I intend to provide a continuation in future (when I have time to get on with it; as you guessed, I've been horrendously busy with professional duties, avocational pursuits, and family mat-

ters). The next part will concern my sketch of Dollfus. Best wishes for the season,

Bill SHEEHAN (Willmar, MN, USA)

●.....*Subject: (no subject)*

Received: Wed 08 Dec 2010 05:39:49 JST

Dear Observer: Please accept my best wishes for the festive season and for 2011. Yours

Richard McKIM (Peterborough, UK)

●.....*Subject: Holiday Wishes from Greg Mort & Family*

Received: Thu 09 Dec 2010 10:33:50 JST

Warmest Wishes for a Happy and Healthy Holiday Season <http://www.gregmorteditions.com>

Greg MORT and Family (MD, USA)

☆☆☆

★ *News:*

Recently a conspicuous white spot with a tail appeared on the northern hemisphere of *Saturn* (since

1990?). This photo is one of earliest images taken by Teruaki KUMAMORI (*Km*) on 9 December 2010.

★ *As to the Jovian Disturbance:* The SEB (South Equatorial Belt) Disturbance (SEB Revival) is well known to be the activity which occurs when the SEB is bright. In



usual, a very bright spot appears in the SEB, and after then dark column or dark spots appear near the first bright one. Through active stages, the SEB resumes becoming the normal dark belt, finally.

In historical records, this phenomenon was observed in 1919, 1928, 1942/43, 1949, 1952, 1955, 1958, 1962, 1964, 1971, 1975, and 1993.

This November, Chris GO, Cebu, the Philippines, detected a brighter spot in the bright SEB. After then, many observers including Don PARKER (*DPk*) and Tomio AKUTSU (*Ak*) chased the time variation (see the preceding CMO #378). The Methane band images by *DPk* and *Ak*, which seem to be first made in this wavelength in history, show that the spot was very brighter even in the Methane zone: This implied that the spot firstly occurred in a high altitude of the Jovian atmosphere.

Tadashi ASADA (As)

International Society of the Mars Observers (ISMO)

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CMO #379/ ISMO #05 (25 December 2010)

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