

MARS SECTION

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SECTION REPORT: MARS IN 1969

The apparition of 1969 was the first of the new series of perihelic apparitions of the planet, but its low southern declination made observation very difficult for our members in northern latitudes in spite of its diameter of $19''.5$ at the time of opposition. However, our members in more southern latitudes, notably Botham in Johannesburg, Dragesco in Cameroun and Mitchell in Georgia, U.S.A., contributed some very useful observations.

The names of members who contributed observations with particulars of their location and telescopes used are as follows:

<i>Observer</i>	<i>Location</i>	<i>Instruments</i>
D. Allen	Cambridge	30 cm O.G.
A. Appleyard	Sheffield	19 cm Spec.
J. H. Botham	Johannesburg	20 cm Spec.
B. Burrell	Doncaster	25 cm Spec.
W. B. Caunter	Billingshurst	15 cm O.G.
K. E. Chilton	Hamilton, Ontario	25 cm Spec.
E. H. Collinson	Ipswich	25 cm Spec.
K. J. Delano	New Bedford, U.S.A.	31 cm Cass.
J. Dragesco	Yaoundi, Cameroun	26 cm Spec.
E. L. Ellis	St. Albans	9 cm O.G.
W. E. Fox	Newark	25 cm Spec.
M. J. Gainsford	Nuneaton	21 cm Spec.
M. V. Gavin	Worcester Park, Surrey	20 cm Spec.
W. A. Granger	Peterborough	15 cm O.G.
A. W. Heath	Long Eaton	30 cm Spec.
M. V. Jones	Maryborough, Queensland	20 cm Spec.
W. J. Leatherbarrow	Exeter	21 cm Spec.
R. J. Livesey	Glasgow	15 cm Spec.
J. L. Mitchell	Cairo, Georgia, U.S.A.	31 and 15 cm Specs.
L. Minford	Crumlin, N. Ireland	—
P. A. Moore	Selsey	21 and 31 cm Specs.
J. B. Murray	Mill Hill	45 cm O.G.
R. Paterson	Oxford	31 cm Spec.
J. H. Robinson	Teignmouth	26 cm Spec.
K. Simmons	Jacksonville, U.S.A.	25 cm Spec.
H. R. Soper	Onchan, Isle of Man	30 cm Cass.
K. M. Sturdy	Helmsley	15 cm Spec.
R. de Terwangne	Antwerp	20 cm Cass.
G. Thompson	Brisbane	10 cm Spec.
R. L. Waterfield	Woolston	15 cm O.G.
S. C. Wincott	Southampton	15 cm Spec.

Observations were directed to (a) noting any changes in the shape and intensity of the dark areas of the planet and (b) recording the position and appearance of cloud haze and other atmospheric phenomena, the results being summarized in Table I. Full use of filters was made by Delano, Mitchell,

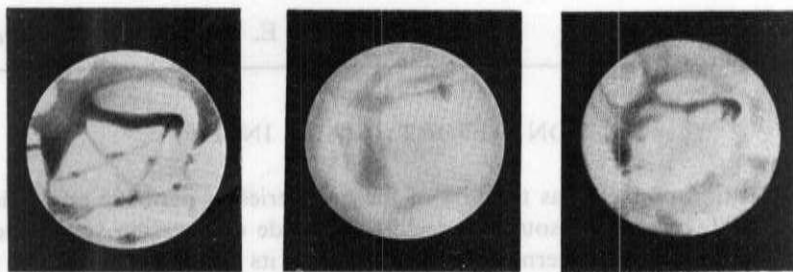


FIGURE 1 (*left*), 1969 May 18d. 0h. 20m. $\omega = 334^\circ$. 20 cm Spec. J. Dragesco. FIGURE 2 (*centre*), 1969 May 17d. 23h. 50m. $\omega = 319^\circ$. 31 cm Spec. R. Paterson. FIGURE 3 (*right*), 1969 June 20d. 20h. 30m. $\omega = 327^\circ$. 45 cm O.G. J. Murray.

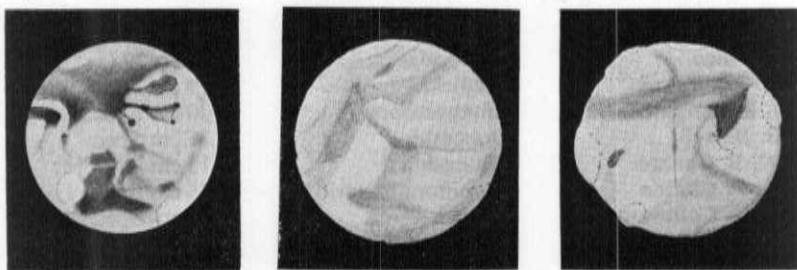


FIGURE 4 (*left*), 1969 June 13d. 22h. 34m. $\omega = 60^\circ$. 26 cm Spec. J. Dragesco. FIGURE 5 (*centre*), 1969 June 22d. 3h. 30m. $\omega = 61^\circ$. 15 cm Spec. J. L. Mitchell. FIGURE 6 (*right*), 1969 June 2d. 4h. 15m. $\omega = 249^\circ$. 15 cm Spec. J. L. Mitchell.

Heath and Terwangne especially in the observations of clouds in which Mitchell was particularly successful. Photographs were obtained by Dall, Murray, Mitchell and Soper, the latter contributing some in colour of very good quality. Several members contributed intensity observations, their results being given in Table II.

PRINCIPAL FEATURES

The principal features of the planet as observed during this apparition are described below under the three regions as in previous reports. Apart from the reappearance of the Aethiopsis shading only changes of a minor nature were observed.

REGION I: $\omega 250^\circ-10^\circ$

The features of this region appeared very similar to those as delineated on the I.A.U. Map.

Syrtris Major and Sinus Sabaeus were very dark as was Sinus Meridiani. Nepenthes-Thoth was narrow and inconspicuous. The 'canals' Protonilus and Deuteronilus were faint and narrow. Ismenius Lacus was inconspicuous to

Dragesco and Murray. Hellas was generally described as bright but it was not so conspicuous as during the 1967 apparition. For the general appearance of this region see figures 1, 2 and 3.

REGION II: ω 10°–130°

The principal feature of this region is Mare Acidalium, its complex nature being well seen by Dragesco who had the great advantage of a low latitude observatory. (See figure 4.)

Nilokeras was very broad. Lunae Lacus was fairly conspicuous and radiating from it were two 'canals', one running across Tractus Albus to Ceranius and the other, more prominent, across Xanthe to Aurorae Sinus. They are not shown on the I.A.U. Map but are shown on Antoniadi's map of 1930 and named Nilus and Ister respectively. These features have no doubt darkened since previous apparitions. (See figures 4 and 5.)

Solis Lacus and Tithonius Lacus were not well placed for observation but were well seen by Dragesco. (See figure 4.)



FIGURE 7 (left). 1969 June 29d. 22h. 30m. $\omega = 272^\circ$. 21 cm Spec. W. J. Leatherbarrow. FIGURE 8 (centre). 1969 June 30d. 21h. 20m. $\omega = 250^\circ$. 30 cm O.G. D. Allen. FIGURE 9 (right). 1969 April 30d. 9h. 30m. $\omega = 260^\circ$. 31 cm Spec. J. L. Mitchell.

REGION III: ω 130°–250°

In June, G. de Vaucouleurs reported (I.A.U. Circular 2153) the appearance of 'a new large dark area' in the Aethiopsis-Amenthes region extending over 30° in latitude from Tritonis Sinus to a point about 13°E of Nodus Alcyonius. This feature was observed as a narrow canal like marking by Botham on May 14 and 17, by Gainsford on May 27, by Mitchell on June 2 and later by Leatherbarrow and other observers. (See figures 6, 7 and 8.)

It is also recorded on the Mariner 6 photographs, frame 56. It appears to be a revival of the dark marking in the Aethiopsis region which was so conspicuous between 1958 and 1963 and is therefore of particular interest.

No other features of interest were observed in this region.

POLAR REGIONS

The polar caps when seen were very small and often enveloped in mist.

TABLE I
OBSERVATIONS OF CLOUDS

<i>Date and time</i>	<i>Position and description</i>
1969	
<i>J. H. Botham</i>	
May 4d. 20h. 30m.	White cloud over M. Acidalium. ω 20°–40°, lat. +50°.
24d. 20h. 15m.	Bright white area on limb. ω 110°–120°, lat. +30° to +40°.
June 13d. 17h. 15m.	Bright area north of M. Acidalium extending across Ortygia to Cetropia. ω 320° to 0° and 0° to 20°, lat. +60°.
<i>K. J. Delano</i>	
Mar. 28d. 9h. 20m.	Limb cloud over Syrtis Major. Cloud over Aetheria.
Apr. 9d. 8h. 0m.	Blue clearing over entire southern hemisphere.
June 1d. 3h. 0m.	Limb cloud over Syrtis Major and Aeria, bright in yellow filter but not in blue filter—a dust storm.
10d. 3h. 30m.	Cloud over Tithonius L. and Tharsis, bright in blue filter.
<i>M. J. Gainsford</i>	
Apr. 4d.	Bright area over Thymiamata.
13d.	Ditto.
June 9d.	Bright area on preceding limb.
20d.	Bright area over Isidis Regio and Neith Regio on preceding limb.
25d.	Large bright area over Isidis Regio and Neith Regio.
<i>J. C. Mitchell</i>	
Apr. 25d. 9h. 40m.	Very bright limb cloud over Isidis Regio shown on photograph with blue filter also seen on April 27.
30d. 9h. 30m.	Cloud on north and south sides of but not covering Trivium Charontis. (See figure 9.)
May 4d. 9h. 10m.	Cloud over Amazonis and Zephyria.
10h. 5m.	Cloud over Isidis Regio.
7d. 9h. 25m.	Extensive cloud over Amazonis.
June 2d. 4h. 15m.	Clouds over Ausonia, Amazonis, Isidis Regio and Aeria. (See figure 6.)
12d. 3h. 10m.	Bright cloud over Tempe.
July 24d. 2h. 50m.	Cloud over Xanthe.
25d. 3h. 15m.	Cloud over Xanthe very bright in Wratten 47B. filter.
30d. 2h. 30m.	Clouds over Chryse and Candor-Tharsis region.
July 1d. 2h. 15m.	Limb cloud over Isidis and Neith Regio.

TABLE II

INTENSITY ESTIMATES

Scale: 0 = Polar Cap, 10 = Background of night sky

	<i>Appleyard</i>	<i>Botham</i>	<i>Gainsford</i>	<i>Heath</i>	<i>Simmons</i>	<i>Terwangne</i>
Acidalium M. ..	3.5	5.5	4.0	5.3		4.8
Aeolis ..	..	..	..	..	..	2.4
Aeria ..	1.5	2.0	..	..	..	2.4
Aetheria ..	..	..	..	..	..	3.5
Aethiopsis ..	1.0	2.0	..	..	..	2.6
Amazonis ..	2.0	2.0	..	2.0	..	2.8
Amenthes ..	..	..	..	..	..	3.0
Arabia ..	2.2	2.0	..	..	..	2.1

	<i>Appleyard</i>	<i>Botham</i>	<i>Gainsford</i>	<i>Heath</i>	<i>Simmons</i>	<i>Terwangne</i>
Araxes						2.8
Arcadia		2.0				3.0
Aurorae S.		5.4		6.0		4.1
Boreum M.	3.2	5.3				3.3
Boreosyrtis			2.0		5.5	3.7
Casius	3.5	3.3			5.0	4.2
Cecropia						3.0
Ceranius	2.5	3.3				2.8
Cerberus		4.0	4.0		5.5	3.7
Chalce		1.0				1.0
Chryse	2.0					2.7
Cimmerium M.	6.0	5.3				4.8
Coprates		3.4				3.3
Cyclopia		3.5				4.1
Cydonia	2.5					2.8
Deltoton S.		5.3	4.0			4.7
Deuteronilus		2.5				3.1
Diacria						3.2
Elysium	1.0	2.0				2.9
Erythraeum M.	4.0	4.9	3.0			4.1
Hadriacum M.	4.0	6.0				4.6
Hellas	0.0	1.0				1.1
Hesperia						4.2
Hyperboreus L.		6.0				
Iapigia	4.5	4.6			6.2	4.7
Isidis R.	2.0	2.5				2.5
Ismenius L.	3.0	3.0				3.6
Lemuria						
Libya	2.5	2.5				3.7
Lunae Palus	2.5	4.5		2.0		3.9
Margaritifer S.	6.0	5.0		5.6		3.8
Memnonia		2.0				2.4
Meroe		3.0				2.7
Meridianii S.	5.8	5.4		7.5	6.0	5.4
Moab		2.0				1.7
Moeris L.		4.0				3.8
Nepenthes		5.0				3.5
Niliacus L.	3.5	4.0				4.5
Nilokeras	3.0	4.5	2.0			4.0
Nilosyrtis	3.0	4.0				3.9
Nix Olympica		2.5				2.7
Ortigia						3.1
Oxia Palus		3.0				3.2
Panchaia	3.0	2.4				3.4
Pandorae F.	3.5	2.5				3.6
Phlegra	3.2	3.0				3.6
Propontis		2.8				3.4
Sabaeus S.	6.8	4.8	3.5		6.0	4.7
Serpentis M.	5.0	5.0			5.5	4.3
Sirenum M.	4.5	4.5		6.0		4.8
Sithonius L.	3.0	3.0			4.5	3.7
Solis L.	3.0	5.0				3.2
Syrtis Major	6.0	7.0	6.0	7.5	6.5	5.7
Tempe	2.5	2.0				3.3

	Appleyard	Botham	Gainsford	Heath	Simmons	Terwangne
Thaumasia ..	2.0	2.0				3.0
Thoth ..	4.0	4.5				4.1
Thyamiamata ..	2.5	2.5				2.8
Tithonius L. ..	2.8	4.2				3.0
Tractus Albus ..		2.0				2.8
Trivium Charontis	3.0	4.0	1.0			3.8
Tyrrhenum M. ..	4.0	4.9		6.0	5.0	4.8
Umbra ..						3.4
Utopia ..	3.0	2.7				3.6
Xanthe ..	1.5	2.5				3.0
Zephyria ..	1.0	2.0				2.3
North Polar Cap		1.0				0.5
Thymia ..						3.4
Thoth ..						3.2
Thyamiamata ..						2.8
Tithonius L. ..						4.7
Tractus Albus ..						3.1
Trivium Charontis						3.2
Tyrrhenum M. ..						2.9
Umbra ..						4.1
Utopia ..						4.6
Xanthe ..						1.1
Zephyria ..						4.2
North Polar Cap						4.7
Thymia ..						2.3
Thoth ..						3.6
Thyamiamata ..						3.7
Tithonius L. ..						3.9
Tractus Albus ..						3.8
Trivium Charontis						2.4
Tyrrhenum M. ..						2.7
Umbra ..						2.4
Utopia ..						1.7
Xanthe ..						3.8
Zephyria ..						3.2
North Polar Cap						4.2
Thymia ..						4.0
Thoth ..						4.0
Thyamiamata ..						4.0
Tithonius L. ..						4.0
Tractus Albus ..						4.0
Trivium Charontis						2.7
Tyrrhenum M. ..						2.1
Umbra ..						3.2
Utopia ..						3.2
Xanthe ..						3.4
Zephyria ..						3.6
North Polar Cap						2.4
Thymia ..						4.7
Thoth ..						4.3
Thyamiamata ..						4.8
Tithonius L. ..						3.7
Tractus Albus ..						3.2
Trivium Charontis						2.7
Tyrrhenum M. ..						2.7
Umbra ..						2.3
Utopia ..						2.3
Xanthe ..						2.3
Zephyria ..						2.3
North Polar Cap						2.3