

REPORTS OF SECTIONS

THE APPARITION OF MARS, 1958-1959

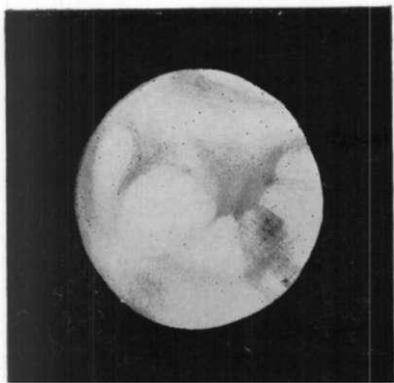
I. General

The apparition of 1958-1959 was a very favourable one for observers in the northern hemisphere. Opposition occurred on 1958 November 16 when Mars was on the borders of Aries and Taurus in declination $+19^\circ$. The apparent diameter at opposition was 19 seconds of arc.

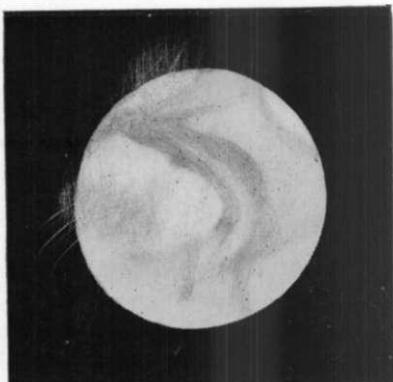
As in 1954 and 1956 the southern hemisphere of Mars was presented to the Earth. The summer solstice of the southern hemisphere occurred on August 16 and the autumnal equinox on 1959 January 22. We were thus able to observe the surface features during the late Martian summer and some interesting comparisons could therefore be made with the observations of 1956 when the season was late Spring and early Summer.

Drawings and notes were contributed by 46 members of the Section whose names, place of observation and instruments are given in the following table:

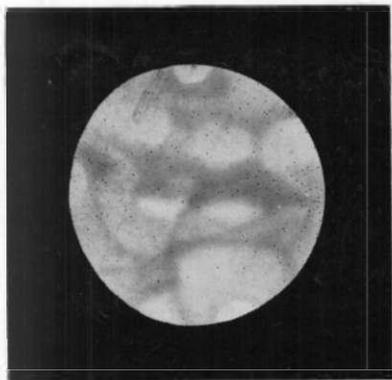
<i>Observer</i>	<i>Locality</i>	<i>Instruments</i>
M. Atchison	Hampstead	6-inch O.G.
K. Ball	Manchester	6-inch O.G.
J. D. Bestwick	Leek	12-inch Spec.
R. A. Blackett	Newcastle	5-inch O.G.
M. Blossfelds	Doncaster	8-inch Spec.
R. W. Boggis	Perth, W. Australia	12½-inch Spec.
J. H. Botham	Johannesburg	9-inch O.G.
I. R. H. Brickett	Johannesburg	9-inch O.G.
B. Burrell	Doncaster	10-inch Spec.
W. B. Caunter	Billinghurst	6-inch O.G.
E. H. Collinson	Ipswich	10-inch Spec.
E. H. Cooper	Teignmouth	6-inch Spec.
A. C. Curtis	Winchester	12-inch Spec.
C. F. Dale	Teignmouth	6-inch Spec.
H. E. Dall	Luton	15½-inch Spec.
A. R. Davey	Bucklebury, Berks.	8-inch Spec.
C. R. Edwards	Perth, W. Australia	10-inch O.G.
V. A. Firsoff	Glastonbury	6½-inch Spec.
K. J. Foord	Brighton	11-inch Spec.
A. M. Forte	Perth, W. Australia	6-inch Spec.
W. E. Fox	Newark	10-inch Spec.
W. A. Granger	Peterborough	6-inch O.G.
A. W. Heath	Nottingham	8-inch Spec.
A. K. Herring	Anaheim, California	12½-inch Spec.
H. C. Hunt	Aylesbury	12-inch Spec.
F. L. Jackson	Hendon	{ 11¾-inch Spec. 6-inch O.G.
H. Joy	Reading	10-inch Spec.
G. F. H. Lloyd	New Malden	10-inch Spec.
W. Maffett	London	10-inch Spec.
D. W. Miller	Crewkerne	5½-inch O.G.



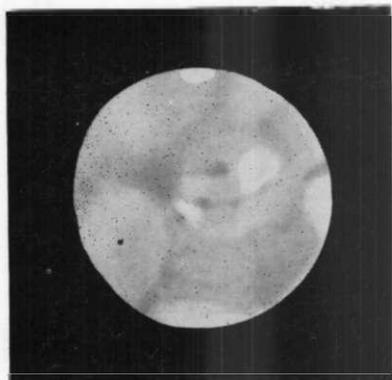
Sept. 14 $\omega = 33^{\circ}4$
W. E. Fox, 10-inch spec.



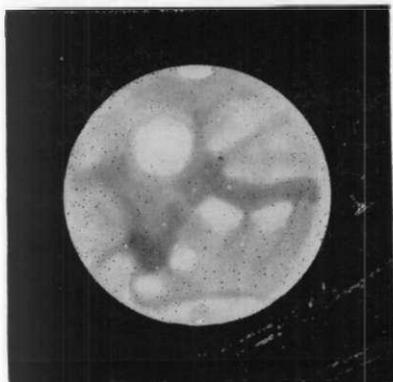
Sept. 27 $\omega = 327^{\circ}8$
W. E. Fox, 10-inch spec.



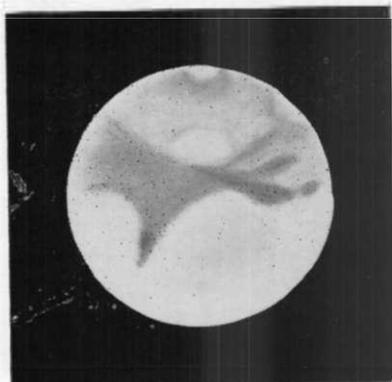
Oct. 5 $\omega = 194^{\circ}8$
M. Atchison, 6-inch O.G.
(amber filter)



Oct. 18 $\omega = 73^{\circ}1$
M. Atchison, 6-inch O.G.
(amber filter)



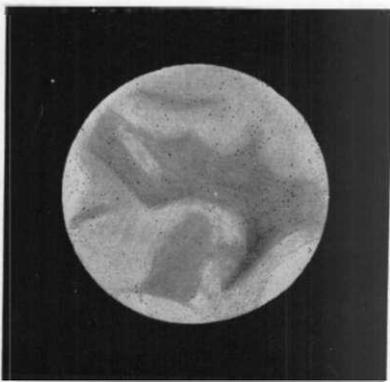
Oct. 27 $\omega = 311^{\circ}9$
M. Atchison, 6-inch O.G.



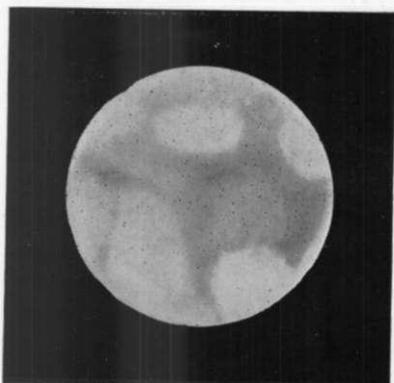
Oct. 28 $\omega = 314^{\circ}$
A. C. Curtis, 12-inch spec.



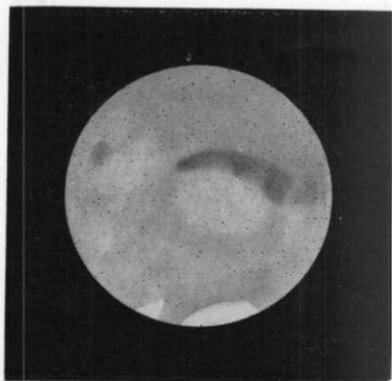
Nov. 2 $\omega = 259^{\circ}\cdot 2$
9-inch O.G.



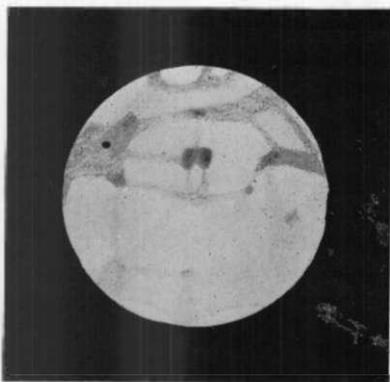
Nov. 7 $\omega = 246^{\circ}$
E. H. Collinson, 10-inch spec.



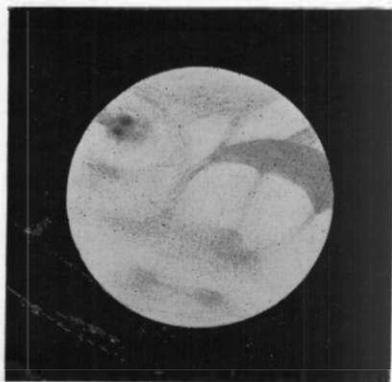
Nov. 8 $\omega = 254^{\circ}$
M. Atchison, 6-inch O.G.



Nov. 14 $\omega = 137^{\circ}\cdot 5$
M. Atchison, 6-inch O.G.

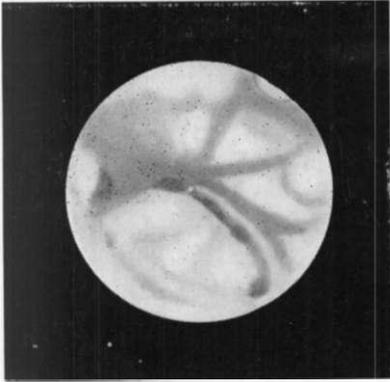


Nov. 16 $\omega = 86^{\circ}\cdot 2$
B. Burrell, 10-inch spec.

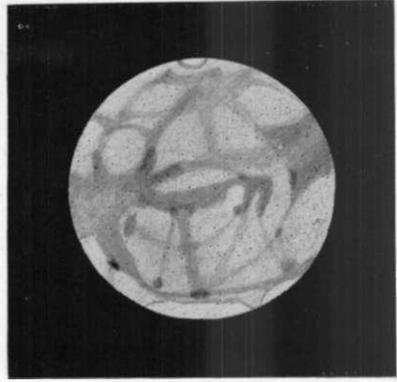


Nov. 18 $\omega = 128^{\circ}\cdot 3$
W. E. Fox, 10-inch spec.

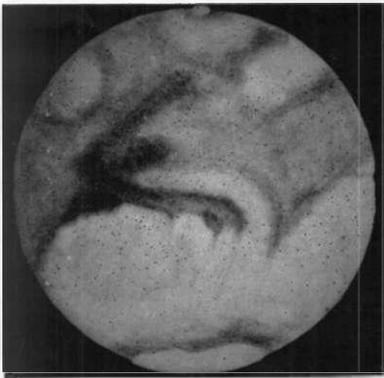
PLATE 17



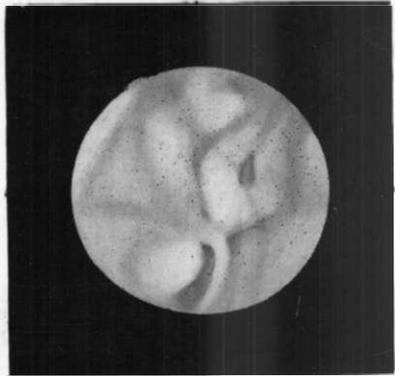
Nov. 19 $\omega = 324^{\circ}.1$
A. M. Forte, 6-inch spec.



Dec. 1 $\omega = 346^{\circ}.7$
B. Burrell, 10-inch spec.



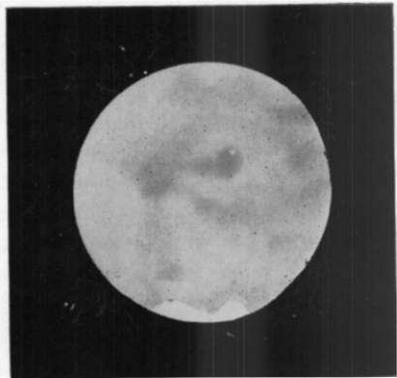
Dec. 5 $\omega = 343^{\circ}.6$
R. R. de F. Mourao, 18-inch O.G.



Dec. 13 $\omega = 109^{\circ}.5$
R. W. Boggis, 12-inch spec.



Dec. 13 $\omega = 111^{\circ}$
C. R. Edwards, 10-inch O.G.



Dec. 31 $\omega = 77^{\circ}.9$
M. Atchison, 6-inch O.G.

Observer	Locality	Instruments
P. Moore	East Grinstead	12½-inch Spec.
J. Morley	London	3-inch O.G.
R. R. De Freitas Mourao	Rio de Janeiro	18-inch and 8-inch O.G.
T. J. E. Palmer	London	3-inch O.G.
T. P. Pearce	Chingford	3-inch O.G.
B. M. Peek	Herne Bay	9¾-inch Spec.
M. V. Penston	Tonbridge	6-inch O.G.
D. H. Perks	Walsall	8-inch Spec.
O. C. Rank	Milton, Pennsylvania, U.S.A.	4-inch O.G.
J. H. Robinson	Teignmouth	8½-inch Spec.
J. R. Smith	Sevenoaks	8-inch Spec.
R. Troxel	Washington, U.S.A.	(8-inch Spec. and 15-inch O.G.)
R. L. Waterfield	Ascot	6-inch O.G.
Miss J. Wilcox	Finchley, London	6-inch O.G.
D. Wraige	Wallasey	6-inch Spec.
T. Youdale	Billingham	6-inch Spec.

Photographs were taken by Botham, Dall, and Wykes, but with less success than in 1956 when the planet's diameter was considerably greater.

A number of observers contributed drawings made using colour filters of various types. There is general agreement that yellow, amber, and red filters helped to increase the contrast. Comparisons of the appearance of the dark areas of the planet through yellow, green, and red filters were made by Boggis, Edwards, Forte, Firsoff, Robinson, and A. W. Heath. The differences in appearance recorded are mainly confined to detail and in the opinion of the Director cannot be considered as definitely established. Observations made through deep-blue filters revealed the presence of white cloud around the sunrise and sunset limbs of the planet and in the north polar regions. Peek made some visual observations of the magnitude of Mars in March comparing it with Aldebaran and Pollux. He deduced a magnitude of $+1.2$ on March 28 and $+1.4$ on March 30 which are in close agreement with the *Nautical Almanac* value of $+1.3$.

2. Observations of the surface features

Region I: ω 250°–10°—Syrtris Major to Furca; Hellespontus, as was to be expected in the late Martian summer, was much less conspicuous than in 1956 when it was a most prominent and dark feature. Atchison, however, remarked that it increased in darkness as the season progressed. *Depressiones Hellesponticae* and the adjacent dark areas, which were also so prominent in 1956 during the melting of the South Polar Cap, were very faint. *Hellas* was described as very bright by several observers and some internal markings were observed. On December 6 Peek described it as ochre tinted except in the North which was pale white. *Noachis*: Several observers recorded a dusky streak crossing this area roughly in the position of the streak which was so conspicuous in 1928. *Syrtris Major* and *Sinus Sabaeus* were seen in their usual shape unobscured by cloud. The northern end of *Syrtris Major* appeared tapered in August, September, and October, rounded and

darker than the central region. *Portus Sigeus* and the two prongs of *Furca* were clearly seen by observers using telescopes of adequate aperture. *Pandorae Fretum* was rather faint and differed little from its appearance in 1956. *Deucalionis Regio* generally appeared bright but was seen shaded by Burrell on 1959 January 13. *Mare Serpentis*, as in 1956, was dark and conspicuous. *Thoth-Nepenthes* appeared faint to most observers, but Brickett noted it as dark on November 2 and Atchison recorded it as broad and pronounced when fully on the disk. The canals Phison, Euphrates Hiddekel, and Oxus, were seen as faint shadings by Atchison, Blossfelds, Boggis, Burrell, and Herring.

Region II: ω 10°–130°—Margaritifer Sinus to Solis Lacus; Margaritifer Sinus and Aurorae Sinus appeared in their normal shape. Ganges was broad and conspicuous to Atchison, Blossfelds, Burrell, and Herring in October and December and is well shown on a photograph by Dall taken on November 24. *Juventae Fons* was generally invisible but was observed by Atchison on October 18 in excellent seeing. *Agathodaemon* and *Tithonius Lacus* were conspicuous objects throughout the apparition. *Phoenicis Lacus* was small and faint, as it was in 1956, but was noted by Atchison as being clearly visible on November 14, and is shown on a drawing by Burrell on November 16. *Solis Lacus* was the main feature of interest in this region. It was invisible to Atchison on August 2, faintly seen on September 6, but on September 9 and thereafter until December it was very conspicuous. It was in fact one of the darkest markings on the planet and darker than in 1956. Its darkness was well shown on a photograph taken by Dall on November 18. *Solis Lacus* was oval in shape, its major axis lying in an east–west direction but it was described as ‘banana shaped’ by Botham and Brickett. Atchison, Burrell, Edwards, and Fox recorded two nuclei and three were recorded by Forte and Herring. *Solis Lacus* was probably darkest in October and November, but in December and January it became less conspicuous and, according to Atchison, larger. *Thaumasias*, heavily shaded in 1956, was bright throughout the apparition.

Region III: ω 130°–250°. Mare Sirenum to Mare Tyrrhenum; Mare Sirenum, generally of normal appearance, but its preceding end was often blunted, the ‘beak’ being absent. Described by Atchison as being the darkest feature of the planet in October. *Memnonia*: Lighter than the surrounding desert areas. *Amazonis*: A number of delicate faint shadings were shown on drawings by Atchison, Boggis, Burrell, and Fox. *Mare Cimmerium* and *Mare Tyrrhenum*: No features of interest were noted in these maria, but the brightness of *Hesperia*, which separates them, was noted by several observers. *Trivium Charontis* was rather too far north to be satisfactorily observed but it is well shown on a drawing by Atchison on October 5. *Aethiops*: The darkness of this area, which lies between the north end of *Mare Cimmerium* and *Nodus Alcyonius*, was the most interesting feature of the apparition. It involved the canals *Aethiops*, *Adamas*, and *Amenthes*, and merged into *Thoth-Nepenthes*. Herring reported that when seen the three canals appeared ‘diffuse and indistinct against the generally darkened background in contrast to their appearance in 1956 when they were often seen

plainly'. Brickett noted that the preceding side of the shading was well defined and that the following side was ill-defined. Some detail was seen in the general shading by Brickett on November 2 and the Director noted it as being mottled. Seeing this feature for the first time on November 7, the Director at once noticed the unusual appearance of this region of the planet. It is well shown on a photograph taken by Botham on November 2 and on two photographs taken on November 22 with the 36-inch refractor of the Lick Observatory by Dr Jeffers, included in a series kindly sent by him to the Director.

Region IV: South Polar Regions. As was to be expected the South Polar Cap diminished rapidly in size during the late Martian Summer and was difficult to see during the latter part of the apparition. On November 14 it was described by Peck as 'a minute white dot' and on 1959 January 2 by Atchison as 'minute but beautifully white'. On 1959 February 18 and 23 Atchison observed an extensive area of whiteness in the south polar regions, no doubt the onset of autumnal mists.

Region V: North Polar Regions. White areas were frequently seen in this region, changing in shape and extent from night to night. Neith Regio, Dioscuria, Tempe, and Arcadia being particularly bright. They are clearly shown on Dall's photographs.

3. Atmospheric conditions

No extensive cloud formations, such as appeared in 1956, were observed during this apparition but at times parts of the planet's surface became veiled. The region between Aurorae Sinus and Mare Sirenum was particularly affected.

4. Summary

No changes of any significance were observed during this apparition in the dark areas of the planet. The darkening of Acthiopis, which is a desert area, is of interest as it was apparently unrelated to the melting of either polar cap. It represents an extension of the dark area seen around Nodus Alcyonius in 1954.

The atmosphere of Mars in 1958 was much less cloudy than in 1956 but some veiling of the surface features was observed, indicating the presence of haze or dust.

E. H. COLLINSON, *Director*

FOUR "ERRATIC" VARIABLES IN 1935 AND 1936

This report is in continuation of that published in *Journal* 49/1 (1938). The method of discussion is unchanged, and all data are derived entirely from B.A.A./V.S.S. observations. In the tables a query denotes a value, doubtful mainly to dearth of observations, which, as Table I reveals, are not so numerous as those discussed in the previous report. The column headed 'Seven