2. The sequence of these forms, if sufficient numbers of eclipses occurred, should be equatorial, intermediate, polar, intermediate, equatorial, &c.

3. The various forms of the corona are closely connected with the positions (as regards latitude) of the centres of action of the solar prominences.

4. The coronas of the "polar" or irregular type occur about the times when the prominences are most abundant near the solar poles.

5. The "equatorial" coronas occur when there is *one* centre of prominence action (about latitude $\pm$ 45) in each hemisphere.

6. The "intermediate" type is produced by two centres of prominence action in each hemisphere, but neither centres near the poles.

7. The peculiar "arched" form of some streamers is produced by the action of two zones of prominences situated near the extremities of their base.

8. Sun-spot activity has apparently no *direct* connection with the production of the coronal streamers.

Experiments as to the Actuality of the "Canals" observed on Mars.

By J. E. Evans and E. Walter Maunder.

The experiments described in the following paper were undertaken in order to ascertain whether the impression of a network of fine lines, such as forms what is now known as the "canal system" of *Mars*, could be produced upon entirely unbiassed observers without those lines having a real objective existence; and, should this prove to be the case, to find out the conditions most favourable for the creation of such an impression.

The experiments were made in the following manner. A circular disc, varying according to circumstances from 3·1 to 6·3 inches in diameter, was given to a class of boys to sketch. The boys in the class were usually twenty in number, and were seated at various measured distances from the disc. These distances varied in the extreme from 15 feet up to 62 feet, but more generally from about 17 feet to 38 feet. The boys were all supplied with a piece of drawing-paper upon which a circle 3 inches in diameter had been described, and were instructed to fill in that circle with all the details which they could perceive upon the disc. No hint was given them that they ought to see lines or dots or any other form of marking; they were simply urged to draw all that they could see and be sure of, each for himself, without noting what his neighbours were drawing. They were carefully watched during the experiment, and there can be no doubt at all that the drawings were independent; indeed, the internal evidence of the drawings themselves is sufficient to prove the point. The room used had a glass roof, affording excellent light; and care was taken to hang the diagram in a position free from glare or shade.

The first series of experiments was made on 1902 July 1, the last on 1903 May 22, the great majority having been made in the spring of the present year.

The boys employed in the experiments were from the Royal Hospital School, Greenwich. Their ages ranged from twelve to fourteen for the most part; a few were either a little older or a little younger than these ages. All of them were wholly and entirely ignorant of the appearance of *Mars* in the telescope, and of the discussions which have taken place as to the markings on his surface. They were simply shown, what was to them, an odd-looking figure, and were told to reproduce it as well as they could.

Several suggestions have been made at different times to account for the curious network of straight lines first seen upon *Mars* in any considerable development by Professor G. V. Schiaparelli during the opposition of 1877. These may be summarized as follows:—

(1) The "canals" are not really lines at all, but are the boundaries of districts differing in colour or brightness from the surrounding surface. This suggestion was due to the late Mr. N. E. Green (*Journal of the British Astronomical Association*, vol. i. pp. 110–113; *see* also *Observatory*, vol. v. pp. 135–137 and p. 143).

(2) They are "only the summation of a complexity of detail. far too minute to be ever separately discerned." This suggestion was made by Mr. Maunder (*Knowledge* for 1894 November, pp. 249–252, and for 1895 March, p. 58); also in somewhat different terms a few years later by Signor V. Cerulli (*Nuove Osservazioni di Marte: Saggio di una interpretazione ottica delle sensazioni areoscopiche*).

(3) The canals are purely subjective, and are suggested by the outlines of the "continents" or bright regions of the planet upon which they are seen. This is in effect the inference from Mr. B. W. Lane's experiments described in *Knowledge* for 1902 November, pp. 250, 251.

There will be no need to give in detail all the experiments made, as the results in each particular class were of the same character whatever the part of the planet represented. The region especially chosen was that called in Mr. Green's chart of 1877 (*Memoirs, R.A.S.*, vol. xliv.), *Beer Continent*, which shows two very characteristic markings, viz. the *Kaiser Sea*, or *Syrtis Major*, and *Dawes' Forked Bay*. The latter was of considerable practical importance in the experiments, as the clearness and fidelity with which it was rendered formed a very useful index of the observer's powers of sight and delineation.

Experiment 1.—A diagram, 5·3 inches in diameter, founded upon a drawing made by M. Antoniadi on 1901 February and published in *Knowledge* for 1902 April. The bulk of the disc was left smooth white; the *Syrtis Major* and *Sinus Sabæus* were in dead black, *Deucalionis Regio* in grey. Six small dots were put in in dead black roughly in the places of the following "lakes" or "oases":—

Coloe Palus	*Arethusa Lacus*
Copais Lacus	*Siloe Fons*
Ismenius Lacus	*Niliacus Lacus*

The diagram was of the most definite and hard character possible, and there is nothing in it which in the least suggests a "canal" when it is examined close at hand.

The twenty boys were stationed as follows:—

Row.	No. of boys.	Distance. Feet.	Diameter of disc.
a	2	25	61′
b	6	29	52
c	6	35½	43
d	6	41	37

The column "Diameter of disc" gives the angle in minutes of arc subtended by the diagram as viewed from the different benches.

The boys in rows *a*, *b*, and *d* made no indications of "canals"; but of those in row *c*, five showed canals corresponding in position with the following members of the Martian "canal" system:—

Argæus	5 observers
Arnon	5 "
Deuteronilus	2 "
Kison	4 "
Pierius	1 "
Protonilus	3 "
Pyramus	5 "

To put the matter in other words, these five boys joined up some of the black dots by straight fine lines, prolonging, in some cases, these lines till they reached the limb or the black oval drawn round the north polar cap.

With regard to the perceptive ability of the boys, all, except one at the smallest distance, represented *Dawes' Forked Bay* as a double inlet; the angular distance between the points of the fork as viewed from the several benches, being

$$a\ 230''\ ;\ b\ 200''\ ;\ c\ 160''\ ;\ d\ 140''$$

One boy showed all the six dots, the smallest having to him a diameter of 36″. For the other boys the smallest dots recorded were of the following diameters :—

34″	2 observers.	50″	2 observers.
42	3 ,,	54	2 ,,
46	3 ,,	60	3 ,,
48	2 ,,	70	2 ,,

The largest dots missed were

25″	1 observer.	42″	6 observers.
29	2 observers.	46	2 ,,
34	2 ,,	48	4 ,,
36	2 ,,		

The foregoing table is of some importance, for it shows that an isolated dot, even when dead black on a white ground, would not be perceived if of smaller diameter than about 34″, and would be generally missed if under 40″, whilst such a dot could hardly escape notice if above 50″. This conclusion was so precisely that reached in numerous later experiments that it would be a mere repetition to give the actual numbers obtained in them as well as the foregoing.

Experiment 2.—A hard black-and-white diagram like diagram No. 1, the outlines being copied from a drawing made by Professor Schiaparelli 1890 May 16 (*La Planète Mars*, p. 474). Twenty boys arranged in the same manner and at the same distances as in Experiment 1 took part. The boys were an entirely different set, and the diagram was only 3·1 inches in diameter, its angular diameter being—

$$a\ 35\tfrac{1}{2}'\ ;\ b\ 31'\ ;\ c\ 25'\ ;\ d\ 22'$$

Thus though the distances were the same as in the former experiment the angular diameter of the markings was much diminished. The distance between the points of the fork of *Dawes' Bay* was—

$$a\ 82''\ ;\ b\ 71''\ ;\ c\ 58''\ ;\ d\ 50''$$

This distance was much too small to allow of separating definition, and the *Bay* was therefore always seen as a single marking, or not shown at all. Only one dot was inserted. This was placed roughly in the position of *Arethusa Lacus*. Its diameter was—

$$a\ 41''\ ;\ b\ 36''\ ;\ c\ 29''\ ;\ d\ 25''$$

None of the boys represented it. No "canals," properly so called, were drawn; but of the six boys in set *d*, at the greatest distance, one drew a fine line from the *Nilosyrtis* to *Margaritifer Sinus*; but this was a segment of a circle and concentric with the edge of the disc, whilst three others drew a straight broad streak corresponding roughly to the northern portion of the *Hiddekel*.

Experiment 3.—As before, a hard black-and-white diagram was prepared, founded in this case upon a drawing made by Professor Schiaparelli 1890 June 9 (*La Planète Mars*, p. 475). A large number of black dots of very different diameters were inserted irregularly in the diagram. The diameter of the disc was 5·95 inches. Twenty boys drew the diagram, and were stationed thus:—

Row.	No. of boys.	Distance. Feet.	Diameter of disc. ′
a	4	$38\frac{1}{2}$	44
b	4	$43\frac{1}{2}$	39
c	4	$49\frac{1}{2}$	34
d	4	$55\frac{1}{2}$	31
e	4	$61\frac{1}{2}$	28

Two boys, both in row *a*, drew "canals" to the number of seven or eight each. These consisted in every case of fine lines, straight or nearly straight, joining up two or more black dots, and prolonged to the nearest "sea."

Experiment 4.—The same twenty boys as in Experiment 3 were set to draw a black-and-white diagram based on a drawing made by Professor Schiaparelli 1888 May 8–10 (*La Planète Mars*, p. 423). In this diagram a large part of the disc was lightly stippled in with minute dots, far too small to be perceived even at the closest position adopted, but leaving *Elysium* bare, so that that region appeared a little brighter than its surroundings, as it actually does on the planet *Mars* itself.

The distances and the diameter of the disc were the same as in Experiment 3, but the individual boys were made to change their seats.

Five boys showed canals: two in row *a* and three in row *c*. Of the latter, two were the boys who had seen "canals" in row *a* in Experiment 3. Later experiments showed that boys who once began to see "canals" at a favourable distance were more ready to see them afterwards at unfavourable distances. These two boys inclosed *Elysium* in a rectangle of "canals" besides inserting "canals" in many other parts of the disc.

This experiment concluded those made with diagrams of dead black-and-white. Those that follow were all made with pencil-drawings on buff drawing-paper, so that the markings on them were not quite so far removed from the subdued character shown by those on the actual planet itself.

Experiment 5.—Drawing 6·1 inches in diameter based upon one by Professor Schiaparelli made 1888 June 13, and appearing in Tav. V. fig. xiv. of this sixth memoir on the planet. *Elysium* occupied the centre of the disc. Eighteen boys stationed as under took part in the observation :—

Row.	No. of boys.	Distance. Feet.	Diameter of disc. ′
a	3	17	103
b	4	21½	81
c	4	26	67
d	4	30½	57
e	3	35	50

Nine dots were inserted in the diagram, and two boys, one in row *b*, the other in row *c*, represented four of these dots by a slightly broken streak.

Experiment 6.—Drawing 6·05 inches in diameter based upon the diagram on p. 102 of Lowell's *Mars*. In this experiment the oases shown by Mr. Lowell were reproduced approximately as given by him, and three short canals were faintly indicated. Twenty boys observed, and every one without exception showed canals in addition to those really on the disc. These canals were made by joining up the oases by straight lines or by segments of circles, although in a number of cases the oases themselves were not represented. The canals were generally prolonged till they met the limb, or one of the great *Maria*. The boys were seated at the same distances as in Experiment 5, four boys in each row.

Experiment 7.—Drawing 5·8 inches in diameter based upon a drawing made by Professor Schiaparelli on 1888 May 27, and appearing in Tav. IV. fig. vii. of his sixth memoir on the planet, and showing *Dawes' Forked Bay*, the *Margaritifer Sinus*, and the *Mare Acidalium*. Nineteen boys at the same distances as in Experiments 5 and 6. No canals were drawn by them. This experiment, together with Experiments 1 and 2, was prepared with special reference to Mr. Lane's suggestion.

Experiments 8 and 9.—Drawing 6·25 inches based upon one by Professor Schiaparelli made 1890 May 16 (*La Planète Mars*, p. 474). In this experiment none of the canals shown by Professor Schiaparelli were inserted, but a number of small irregular markings were inserted at haphazard. River-like marks were drawn flowing into *Dawes' Forked Bay* and the smaller marking of the same character which Schiaparelli has represented some 30° from it at the mouth of the *Phison*. The region of *Meroe Island* was put in in half-tone.

The same diagram was used in both experiments, nineteen boys taking part in Experiment 8 and twenty in Experiment 9. Combining the two sets in one, the stations were as follows :—

Row.	No. of boys.	Distance. Feet.	Diameter of disc. ′
a	2	17	105
b	3	19	94
c	4	22½	80
d	3	24	75
e	8	28½	63
f	4	32½	55
g	4	34½	52
h	11	37½	48

The results from these experiments were very full and instructive. In row *a* the boys appeared to be just about the distance when the minute markings on the original were beginning to take the canal-like form. In row *b* one boy saw the markings in their true aspect, to another they appeared as canals, and the third saw them imperfectly as canals. Rows *c* and *d* in every instance showed some canals, some boys seeing several. In row *e* the canals are not quite so well represented, though every boy showed something of them. Row *f* showed very few canals, row *g* a fair number, whilst the great majority in row *h* showed no canals or anything like them.

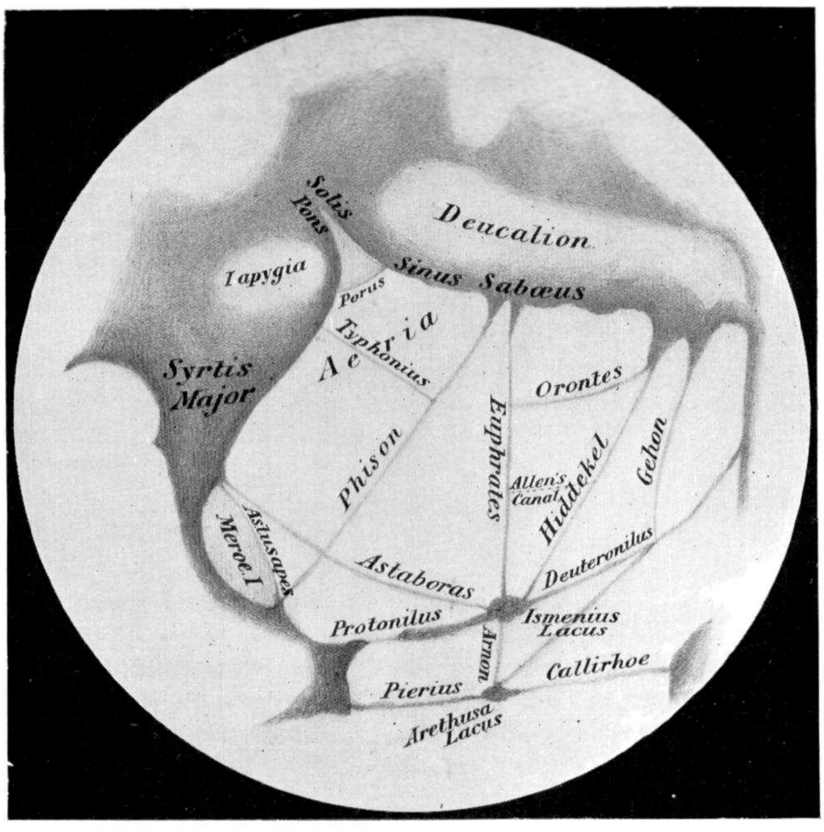
The drawings of the boys in rows *a* and *b* were especially instructive as showing that the actual details, the winding, river-like marks and the miscellaneous dots were to them just visible as such, or were just beginning to be fused into canal-like streaks.

In all twelve canals shown in the recognised charts of *Mars* were more or less faithfully indicated. Some of these were only shown by a single observer, but the six following were frequently represented:—

	a ft.	*b* ft.	*c* ft.	*d* ft.	*e* ft.	*f* ft.	*g* ft.	*h* ft.
Distance	17	19	22½	24	28½	32½	34½	37½
No. of observers	2	3	4	3	8	4	4	11
Phison	2	2	4	2	5	0	2	2
Euphrates	2	2	4	3	6	0	4	3
Hiddekel	2	2	2	2		0	2	2
Gehon	2	1	0	0	1	0	1	2
Arnon	1	1	4	1	3	2	2	4
Deuteronilus	1	1	2	0	1	0	2	0
"Allen's Canal"	1	0	2	0	0	0	0	0

Three boys, one in row *a* and two in row *c*, agreed very closely in inserting a short canal which does not appear to be in Schiaparelli's maps, and which we have here called from the name of its discoverer, "Allen's Canal." A very striking feature is shown in the drawing of this boy Allen in that he prolongs *Aeria* into

Photograph of the Original Drawing submitted to the Boys in Experiments 8, 9, 10, and 11.
Diameter of the original, 6·25 inches.



KEY MAP.

Fig. 1, 17 feet.

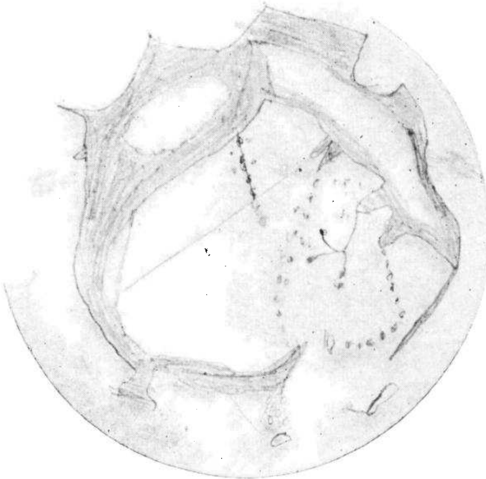


Fig. 2, 22½ feet.

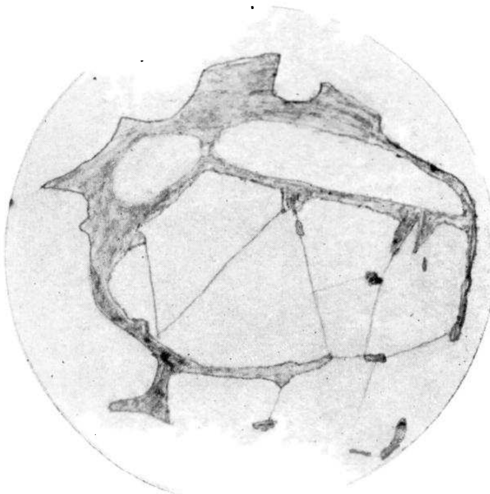


Fig. 3, 25½ feet.

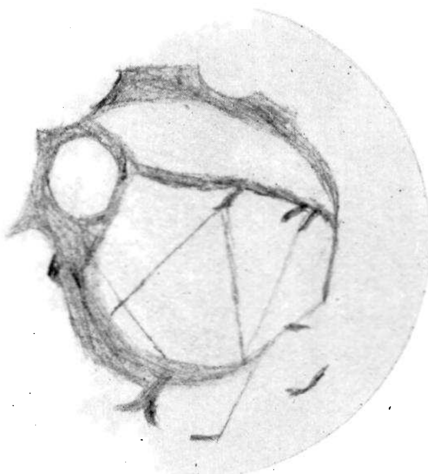


Fig. 4, 28½ feet.

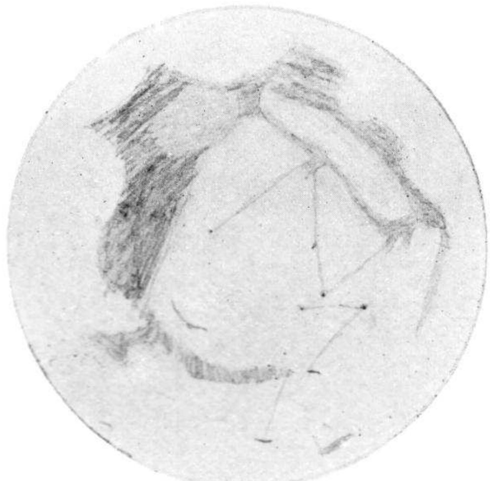


Fig. 5, 34½ feet.

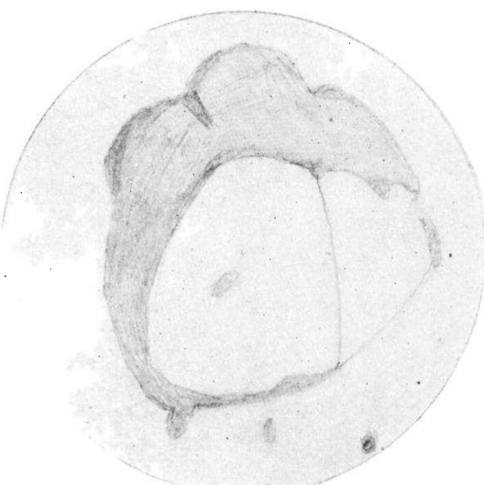


Fig. 6, 37½ feet.

Photographs of the Actual Drawings made by Boys placed at the indicated distances from the original drawing.

the horn-like promontory *Solis Pons*, and cuts it off at its base by the little canal *Porus*, precisely as shown in M. Antoniadi's chart of *Mars* (*Knowledge*, 1902 November, p. 252). There was absolutely no justification in the diagram which he was copying for this marking, but clearly the presence of the two half-tone districts *Iapygia* and *Deucalion* tended to produce the impression that the narrow dark marking between them was partially split by a bright horn. Several other boys showed *Aeria* drawn out into a pointed horn, but not to the same extent that Allen did.

An important feature of this series of drawings was that eleven boys instead of drawing *Meroe Island* as a half-tone district drew the canal *Astusapes*. Only three showed *Meroe Island* distinctly as a half-tone district, and one of the three added a straight line, the canal *Astusapes* as its boundary. The entire marking, however, was not sufficiently distinctive to be clearly recognised by the more distant boys. Only one boy in row *g*, one in *h*, and none in *f* recognised the canal *Astusapes*; and none on these three rows showed any indication of *Meroe Island* as a shaded region. Of the nearer boys, therefore, 50 per cent. showed the canal *Astusapes*, and only 15 per cent. the shaded region.

The following table may prove of interest as indicating the degree of sharpness of sight possessed by the boys in their power to resolve *Dawes' Forked Bay* and the smaller fork at the mouth of the *Phison*.

Row.	No. of boys.	Dawes' Forked Bay. Angles.	Dawes' Forked Bay. Resolved by	Fork of Phison. Angles.	Fork of Phison. Resolved by
		$''$		$''$	
a	2	323	1	202	1
b	3	289	3	181	3
c	4	244	3	153	2
d	3	229	3	144	1
e	8	193	7	121	2
f	4	169	3	106	1
g	4	159	3	100	0
h	11	147	11	92	0

The table shows that the resolution was almost always effected down to 150″, the few failures being probably due merely to carelessness or inattention. Below 140″ the falling off is very marked, and none resolve the fork of the *Phison* under 105″. This result is in entire agreement with Experiments 1 and 2, and shows that whilst a single dot is generally seen down to 40″, and even a little below, the resolution of two neighbouring spurs requires a separation about three times as great.

Experiments 10 and 11 were made upon the same drawing, some of the boys in Experiment 8 being moved to new places in Experiment 10. Similarly some of the boys in Experiment 9 were moved to new places in Experiment 11.

In the two experiments taken together, twenty-three boys observed. Of these sixteen were brought forward, seven were moved further back. The results for the boys who were brought forward were of the same general character as in Experiments 8 and 9. Two boys were stationed at only 15 feet from the drawing to be copied. These and those at 17 feet were too near to confuse any details. The boys placed at middle distance perceived canals a little more readily than had been done by their comrades in the same position.

Combining these sixteen boys with the thirty-nine boys who had observed the same diagram before, and grouping together observers at distances which differed only by a few inches, the number of "canals" represented was as follows :—

Distance. Feet.	No. of boys.	Canals drawn.	Canals per observer.
15	2	4	2·00
17	8	26	3·25
19	5	16	3·20
23	9	36	4·00
25½	3	15	5·00
28½	8	21	2·63
33½	9	15	1·67
37½	11	14	1·27

The seven boys who were moved back to row *h* from rows *b* and *c*, either from memory or from the practice they had already obtained, were much more successful in seeing canals than the boys who had formerly been in this position. It would appear to be not wholly a matter of memory, for one of the seven drew an additional canal beside those which he had seen at the smaller distance. As a rule nothing like "doubling" of the canals was perceived by any of the observers. There were, however, two exceptions, and both related to the same canal, *Hiddekel*. This was clearly doubled in Experiment 9 by a boy at 37½ feet, and in Experiment 10 by another at 25½ feet.

Experiment 12 was upon the same original drawing as that used in Experiment 6; but whereas on that occasion Mr. Lowell's drawing had been reproduced with the oases, but with no canals, now the canals were shown but not the oases, the object being to see whether the boys would insert dots at the juncture of the canals to resemble the oases of Mr. Lowell's original drawing, and also to see whether they would detect actual canals when presented to them. With one single exception all the boys (eleven in number) showed the canals very strongly and unhesitatingly. They had not the slightest difficulty in seeing them. They were seated at 22½ feet (four boys), 28½ feet (four boys), and 37½ feet (three boys). The only boy who did not represent the canals was one at the middle distance, who showed instead a general shading over the whole district covered by the canals. As a rule oases were not shown, the exceptions being one boy at 28½ feet and two at 37½ feet. The first-named of these three was tried a second time on the back row, and showed more canals than he had done in the nearer position, beside introducing three or four more oases.

Experiment 13.—The same drawing was used as in Experiment 12, with the exception that the canals were not shown but short wavy lines were drawn, radiating irregularly from the position occupied by Mr. Lowell's oases. Ten boys observed, stationed as follows :—

Row.	No. of boys.	Distance in feet.	Diam. of disc.
a	1	15	1′15
b	1	19	90
c	1	24	71
d	2	28½	60
e	2	32½	53
f	3	37½	46

The boy in row *a* showed a number of canals, but was near enough to the original to see that the markings were not straight. The boy in row *b* put in two canals and some blurred markings. The boy in row *c* developed a fine canal system, showing some eighteen canals in all. The two boys in row *d* showed seven and eight canals respectively. The two boys in row *e* showed a great number of canals, one drawing being specially interesting, as it was a very fairly accurate representation of Mr. Lowell's entire system both of canals and of oases. The boys in row *f* showed little beyond a long elliptical canal, only corresponding roughly with Lowell's system.

Thus in Experiments 6, 12, and 13 the same drawing of the planet was submitted to the boys, but with the following differences :—

Experiment 6.—Oases inserted, but no canals.

Experiment 12.—Canals inserted, but no oases.

Experiment 13.—Neither canals nor oases inserted, but instead short wavy lines.

In each case many canals were drawn by the boys and some oases.

It appears to us in reviewing the entire series of the experiments that it is impossible to escape the conclusion that markings having all the characteristics of the canals of *Mars* can be seen by perfectly unbiassed and keen-sighted observers upon objects where no marking of such a character actually exists. They are in a sense truly "seen," not imagined, because they are the natural rendering by the eye of real markings of a different character.

There are several ways in which this impression of canal-like markings is caused. First, Mr. Green's suggestion that the canals are boundaries of regions of differing shade or tone receives some support. Such boundaries are capable of giving rise to the impression of canals.

Next, so far as the experiments go, the most fruitful source of the canal-like impression is the tendency to join together minute dot-like markings. If these are fairly near to each other it is not necessary, in order to produce the canal effect, that they should be individually large enough to be seen.

But it is not necessary that the markings should be dot-like, that is to say, approximately circular. They may be of any conceivable forms provided only that they are outside the limit of distinct vision and are sufficiently sparsely scattered. In this case the eye inevitably sums up the details which it cannot resolve into fine lines essentially "canal-like" in character. A slight aggregation may give the impression of a spot, or, to use the nomenclature now adopted for the planet *Mars*, an "oasis"; or, if the aggregation be greater still and more extended, to the idea of a shaded area.

So far as these experiments go they do not confirm, as such, the experiments made by Mr. B. W. Lane, or the conclusions which he reached. It was not found that the outlines of the continents of *Mars* were sufficient by themselves to give rise to the impression of the canal system. It is of course a question whether a little training and practice might not have led the boys to recognise canals upon continents which were entirely bare of all internal markings; but we were especially careful not to give the boys the slightest hint that we expected them to see straight lines or dots or anything of the kind. They were told repeatedly to draw all that they could see, but nothing of which they were not certain. And, as a matter of fact, in all these experiments whenever a boy drew a canal there was something on the original which had given rise to that impression, however unlike a canal that something might be.

It will be seen from the figures given above in the body of the paper that the distances at which the boys were stationed ranged in many of the experiments from one whereat the minutest markings were within the range of distinct vision to one so great that to most of the observers these minute markings produced no effect at all; generally speaking, the canals were best seen a little outside the limit of distinct vision.

The result of repeating the experiment with the same boys showed that practice tended to increase the readiness to perceive canals, so that in a second sketch a boy though removed to a greater distance still saw as many canals as at first, in some cases even more.

Generally speaking, the best draughtsmen, that is to say, those who most truthfully represented the salient features of the drawing, also showed the greatest numbers of canals. It is also worth note that on the whole the agreement as to the canals was greater than the agreement as to the broad features of the original drawing.

We consider Experiment 12 an exceedingly important one, particularly when taken in connection with certain experiments upon the limits of vision not here described. Objects near the limit of vision necessarily divide themselves into two great classes—dots and lines. Now the limit of vision for a straight line is such that if it be of reasonable length its breadth may be $\frac{1}{15}$ of the diameter of the smallest perceptible dot, and it will still be seen. It follows, therefore, that if the surface of *Mars* were really covered with a series of straight lines, like those represented in the charts which we owe to Professor Schiaparelli and Mr. Lowell, there could be no doubt, no controversy, about their existence. Every observer would see them. A straight line can be seen when its angular breadth is very far indeed below the limit of vision for any other form. Consequently when a drawing of *Mars* upon which actual canals were drawn was submitted to the boys they were practically unanimous in showing them with unhesitating distinctness and certainty.

Our conclusion from the entire experiment is that the canals of *Mars* may in some cases be, as Mr. Green suggested, the boundaries of tones or shadings, but that in the majority of cases they are simply the integration by the eye of minute details too small to be separately and distinctly defined. It would not therefore be in the least correct to say that the numerous observers who have drawn canals on *Mars* during the last twenty-five years have drawn what they did not see. On the contrary they have drawn, and drawn truthfully, that which they saw; yet, for all that, the canals which they have drawn have no more objective existence than those which our Greenwich boys imagined they saw on the drawings submitted to them.

It seems a thousand pities that all those magnificent theories of human habitation, canal construction, planetary crystallisation, and the like are based upon lines which our experiments compel us to declare non-existent; but with the planet *Mars* still left, and the imagination unimpaired, there remains hope that a new theory no less attractive may yet be developed, and on a basis more solid than "mere seeming."

Recent Observations of Mars and Jupiter. By W. F. Denning.

On 1903 May 19 and 21 telescopic definition was very good, and a considerable amount of detail visible on *Mars*, especially on the latter night. The *Syrtis Major* appeared abnormally dark and sharply outlined on both dates, while on May 21 a very