(*Monthly Notices* vol. lx. p. 248), and reduced by them to magnitudes, a very close agreement is obtained, as appears below :—

Star	Step.	Mag. B.	Mag. L.
a	0	12·2	12·2
h	25	12·8	13·1
n	27	...	13·1
e	28	13·2	13·2
f	40	13·7	13·6
g	43	13·7	13·7
d	44	13·5	13·8
c	49	14·0	14·0
b	52	13·8	14·1

University of Minnesota, Minneapolis :
1900 *September.*

Observations of Nebulæ made at the Chamberlin Observatory, University Park, Colorado. By Herbert A. Howe.

(*Communicated by the Secretaries.*)

The accompanying notes on nebulæ are a by-product of the series of measurements made with the Bruce micrometer on the 20-inch equatorial refractor, during the twelve months ending 1900 June 30. They are corrections of or additions to our previous information, and form a continuation of the notes published in former numbers of the *Monthly Notices*, the last being in the issue for 1899 December. When the position of a nebula is given below it is to be understood that the position previously published in the N.G.C. or *Index Catalogue*, or in some later list sent out by the discoverer, is erroneous by at least ten seconds in right ascension or two minutes in declination. Usually the errors are much larger than these. All positions are referred to the mean equinox of 1900·0.

It has seemed best to divide the nebulæ mentioned into three lists. The first contains those found in the N.G.C., arranged in the order of their current numbers. The second list is made up from the *Index Catalogue*. All nebulæ taken from it have their current numbers enclosed in brackets, to distinguish them from those in the N.G.C. The third list consists of nebulæ found by Swift at the Lowe Observatory in recent years. All but one of them are found in *A.N.* 3517, and are designated by affixing their current numbers in that publication to the word Swift. The one exception, which I have called "Swift 12, 3," is taken from the *Monthly Notices*, vol. lix. No. 10, p. 568. The words "minutes" and "seconds" refer to time only. A few of the notes are about clusters which have been examined.

Nebulæ from the N.G.C.

17 and 34. I was unable to find 17 in the N.G.C. position for it, though, according to its description by Müller, it should not be difficult with my telescope. I judge it to be identical with 34, which follows two minutes at nearly the same declination. Müller says of 17 "D * 2′ p," which is true of 34, which follows a double 8 seconds, 0′·1 south. The double is of mags. 10–11, angle 280°, and distance 6″. There is no double near the N.G.C. place for 17, except two faint stars about 50″ apart. The position of the nebula is $0^h\ 6^m\ 0^s$, −12° 39′·7.

45. The "L * cont. f." is of mag. 9. There is a star of mag. 7 about 5′ south preceding the nebula. The N.G.C. right ascension is ten seconds too small.

64. The position is $0^h\ 12^m\ 24^s$, −7° 22′ 8.

65. The position is $0^h\ 13^m\ 56^s$, −23° 26′·1.

66. The "* 9 n 1′" follows the nebula 1 second, 1′·5 north. The position of the nebula is $0^h\ 14^m\ 2^s$, −23° 29′·5.

77. This may be simply an extremely faint star. The "* 9 p 3′" appears to be of mag. 10, and precedes 13 seconds, 0′·6 north. The position of the nebula is $0^h\ 14^m\ 59^s$, −23° 5′·2.

100. This is 2′ long, and very narrow, the elongation being at 225°. It contains some condensations, but the moon was too bright at the time of observation to allow me to locate them definitely.

142, 143, and 144. The N.G.C. calls each "e F," the first two "S," and 144 "v S." The facts are that 144 is the brightest and largest, 143 next in size and brightness, and 142 faintest and smallest. Their positions are :—

			h m s	° ′
142	...	...	0 26 8,	−23 10·2.
143	...	...	0 26 16,	−23 6·7.
144	...	...	0 26 20,	−23 11·8.

150. One spot near the north preceding end of this pretty large nebula is brighter than the rest. The position of this spot is $0^h\ 29^m\ 18^s$, −28° 21′·2.

161. The discoverer says "nearly bet. 2 st." The stars are of mags. 8 and 9·5 respectively. A sketch shows that the first is about 6′ north preceding the nebula, while the second is south following at a distance of 4′ or 5′. I noticed another nebula 2′ south of 161. The position of 161 is $0^h\ 30^m\ 28^s$, −3° 23′·9.

166. The "* 11 np" seemed to me to be of mag. 10, and preceded 17 seconds, 2′·8 north. The position of the nebula is $0^h\ 30^m\ 47^s$, −14° 9′·7.

167. The position is $0^h\ 30^m\ 24^s$, $-23°\ 55'.6$.
168. The "* 10 nf 3′" is 2′.5 north, and follows 7 seconds. The position of the nebula is $0^h\ 31^m\ 40^s$, $-23°\ 8'.6$.
172. There is a star of mag. 13 close south preceding. The position of the nebula is $0^h\ 32^m\ 15^s$, $-23°\ 8'.3$.
177. Müller queried whether this were a star. It seemed to me to be a nebula.
179. The "B * np" is of mag. 8.5, and precedes a few seconds, about 5′ north. The position of the nebula is $0^h\ 32^m\ 46^s$, $-18°\ 23'.9$.
187. The position is $0^h\ 34^m\ 29^s$, $-15°\ 12'.3$.
190. The "sev. st nr sp" are all of less than mag. 10. There is one of mag. 12.5 which lies about 30″ due south of the nebula. Had the Moon been absent at the time of observation, perhaps the nebula would have been seen to extend to this star.
235. The nucleus of this is of mag. 11, so that it is favourable for measures of parallax. A star of mag. 9 lies 3′.5 north, a fraction of a second preceding.
276. Instead of a "* 11 n 3′" I find one of mag. 8, a close double, 4′ or 5′ (by a sketch) north following. There is a star of mag. 11, which is 3′.0 south, 6 seconds following. The position of the nebula is $0^h\ 47^m\ 12^s$, $-23°\ 13'.3$.
320. The "* 10 n" precedes 2 seconds, 1′.3 north. The position of the nebula is $0^h\ 53^m\ 52^s$, $-21°\ 22'.8$.
335. The position is $0^h\ 54^m\ 24^s$, $-18°\ 46'.4$.
363. The position is $1^h\ 1^m\ 19^s$, $-17°\ 4'.7$.
369. The position is $1^h\ 0^m\ 13^s$, $-18°\ 17'.7$.
417. The position is $1^h\ 6^m\ 11^s$, $-18°\ 40'.8$.
487. The position is $1^h\ 17^m\ 2^s$, $-16°\ 53'.5$.
554. The "* 11 f" follows 8 seconds, 0′.3 north. The position of the nebula is $1^h\ 22^m\ 23^s$, $-23°\ 14'.6$.
555. The position is $1^h\ 22^m\ 25^s$, $-23°\ 16'.8$.
556. This is fainter than 555, which in turn is fainter than 554; the three are close together. The position of 556 is $1^h\ 22^m\ 26^s$, $-23°\ 14'.9$.
580. The position is $1^h\ 25^m\ 36^s$, $-2°\ 30'.5$.
583. The position is $1^h\ 24^m\ 53^s$, $-18°\ 51'.3$.
648. The position is $1^h\ 33^m\ 50^s$, $-18°\ 20'.3$.
655. The position is $1^h\ 37^m\ 1^s$, $-13°\ 35'.2$.
667. Müller says "* 10 np 100″." It precedes the nebula 5 seconds, 0′.8 north. The nebula differs very little in appearance from a star of mag. 13.5. Its position is $1^h\ 40^m\ 14^s$, $-23°\ 25'.1$.
701. The elongation is at 210°.
725. The position is $1^h\ 47^m\ 47^s$, $-17°\ 0'.6$.
756. The position is $1^h\ 49^m\ 41^s$, $-17°\ 11'.9$.
836. The position is $2^h\ 5^m\ 47^s$, $-22°\ 31'.5$.
837. The position is $2^h\ 5^m\ 39^s$, $-22°\ 54'.3$.
849. The discoverer says "? neb." The object is as bright as

a star of mag. 12, and appeared to me a trifle un-starlike. I could see nothing else which appeared nebulous in the neighbourhood.

856. The "F * close f" is of mag. 11, and follows 3·5 seconds, 0′·3 north.

858. The position is $2^h\ 7^m\ 53^s$, $-22°\ 56'·4$.

859. This is near 856 and 868, both of which are called "e F" by their discoverer, while 859 is called "p F." Yet, on the night on which I measured both 856 and 868 I was utterly unable to find their supposed brighter neighbour 859. Swift discovered 859 and 868 on the same night.

863. This contains a small nucleus of mag. 12, which is much brighter than the circumjacent nebulous matter.

866. This, like 859, I could not see on the night when I measured its supposably much fainter neighbours 856 and 868. Swift discovered 866 and 868 on the same night.

878. The position is $2^h\ 13^m\ 19^s$, $-23°\ 50'·7$.

899. The "D*p" is composed of two stars of mag. 10·5, widely separated. The nearer of the two precedes the nebulæ 5^s, 0′·9 south.

908. The nucleus is of mag. 13.

966. The "*9 s p 2′" is of mag. 9·5, and precedes 1 second, 0′·6 south. The position of the nebula is $2^h\ 27^m\ 10^s$, $-20°\ 19'·5$.

1034. The N.G.C. right ascension seems to be a minute out. The discoverer says "2 B st p 20^s." In that place I see two stars of mags. 11 and 12. The position of the nebula is $2^h\ 33^m\ 30^s$, $-16°\ 14'·4$.

1098. This has a good nucleus of mag. 12·5. The position is $2^h\ 40^m\ 13^s$, $-18°\ 4'·9$.

1099. The position is $2^h\ 40^m\ 38^s$, $-18°\ 7'·8$

1100. The position is $2^h\ 40^m\ 56^s$, $-18°\ 6'·6$.

1103. The "* 11 f" follows $1·5^s$, 0′ 2 north. Another similar nebula precedes this nebula 2^s, 2′·0 south.

1105. I found nothing in the N.G.C, place for this, but 4^m following was a very small nebula, about equal in brightness to a star of mag. 13. As Leavenworth observed his nebula only once, and took its place roughly, the two may be identical. The position is $2^h\ 47^m\ 36^s$, $-16°\ 7'·1$.

1119. The position is $2^h\ 43^m\ 38^s$, $-18°\ 24'·2$.

1120. The position is $2^h\ 44^m\ 20^s$, $-14°\ 53'·2$.

1140. This very small object is about equivalent in brightness to a star of mag. 10.

1148. This has a sharp nucleus of mag. 13.

1163. The position is $2^h\ 55^m\ 44^s$, $-17°\ 32'·9$.

1182 and 1205. The descriptions of these given by their discoverer in No. 146 of the *Astronomical Journal* agree closely, except in regard to the angle of elongation. Their rough right ascensions there given differ 3^m. Having

examined the locality very carefully on two fine nights I judge the objects to be identical. The "*9·5 3′ sp" precedes 8^s, about 2′ south. The position of the nebula is $2^h\ 58^m\ 38^s$, $-10°\ 3'·7$.

1187. This appears to contain two condensations, of mags. 13 and 13·5, the southern one being the brighter. Possibly the fainter is just outside the nebula.

1188. The position is $2^h\ 59^m\ 3^s$, $-15°\ 52'·5$.

1189. The position is $2^h\ 58^m\ 44^s$, $-16°\ 0'·8$.

1190. The position is $2^h\ 58^m\ 46^s$, $-16°\ 3'·0$.

1191. The position is $2^h\ 58^m\ 50^s$, $-16°\ 4'·5$.

1201. This, being pretty bright and pretty small, is good for parallax observations. A star of mag. 10 precedes $5·5^s$, 2′·6 north.

1203. Leavenworth says "neb ?" It is extremely faint and very small, and lies nearly midway between two stars of mags. 8·5 and 9. The brighter star precedes 10^s, 1′·1 south.

1204. The discoverer says in the original announcement in No. 146 of the *Astronomical Journal*, "B* and sev Fst inv in neb." I noticed simply a small triangle of stars of mags. 11, 12, and 13. The brightest star seemed to be enveloped in an extremely faint mantle of nebulous matter. The position of this star is $2^h\ 59^m\ 54^s$, $-12°\ 44'·1$.

1228. The position is $3^h\ 3^m\ 45^s$, $-23°\ 18'·4$.

1229. This has nearly the same right ascension as 1228, but precedes it a little, contrary to the description "f of 2," in the N.G.C. The position is $3^h\ 3^m\ 45^s$, $-23°\ 20'·6$.

1230. The N.G.C. says "?F*." The object is almost a star of mag. 12·5, but there is some extremely faint nebulous matter about it. The position is $3^h\ 3^m\ 50^s$, $-23°\ 22'·1$.

1262. The position is $3^h\ 10^m\ 55^s$, $-16°\ 14'·9$.

1263. The position is $3^h\ 11^m\ 0^s$, $-15°\ 28'·1$.

1289. The "4 st f" are of about mag. 10, and are not close together, the farthest being perhaps 10′ from the nebula. The nearest follows the nebula 13^s, 1′·8 south. The position of the nebula is $3^h\ 13^m\ 46^s$, $-2°\ 20'·2$.

1290. The position is $3^h\ 14^m\ 43^s$, $-14°\ 21'·1$.

1295. Of this Stone says "*10 f 3′." The star follows 13^s, 0′·5 north. The position of the nebula is $3^h\ 15^m\ 22^s$, $-14°\ 21'·5$.

1296. The position is $3^h\ 14^m\ 6^s$, $-13°\ 25'·6$.

1325. There is a nuclear condensation of mag. 13·5. The "*9·5 att" follows this condensation 3^s, 0′·3 north.

1359. This was observed in moonlight, but seemed to have a nucleus of mag. 13.

1368. The position is $3^h\ 30^m\ 22^s$, $-15°\ 59'·4$.

1371. The centre of this "p B" nebula is of mag. 11.

1391 and 1394. On p. 214 of the N.G.C. is the following note

about these nebulæ. "Nos. 373–74 of Prof. O. Stone's list, *Astronomical Journal*, No. 152, with these notes added: '1st of 3, one of which is G.C. 742,' and '3rd of 3.'" The facts are that G.C. 742 is the first of the three, 1391 the second, and 1394 the third. Micrometrical measures of the three are to be found on pp. 190–1 of Part 6 of Vol. I. of the Publications of the Leander McCormick Observatory. According to these measures the position of 1391 for 1860·0 is $3^h\ 32^m\ 34^s$, 108° 48′·8. On p. 225 of the *Index Catalogue* the N.P.D. of 1391 (derived from the measures mentioned above) is incorrectly given as 108° 45′·0. My measures of both nebulæ agree with those obtained at the McCormick Observatory.

1405. I did not notice the "F st inv" which are mentioned by the discoverer. The position is $3^h\ 35^m\ 43^s$, −15° 51′·3.

1414. The position is $3^h\ 37^m\ 8^s$, −22° 0′·0.

1450. The position is $3^h\ 40^m\ 48^s$, −9° 32′·8.

1452. The position is $3^h\ 40^m\ 53^s$, −18° 56′·7.

1509. The position is $3^h\ 59^m\ 11^s$, −11° 27′·2.

1568. The discoverer says, "nearly bet. 2 st." They are of mag. 10. The nearer one follows the nebula 3^s, 0′·6 north.

1575 and 1577. These are identical, Swift's position for 1577 being nearly correct. The "* nr s" of 1577, and the "* 9·5 s 2′" of 1575 are the same. This star follows the nebula 1^s, 2′·1 south. The central part of the nebula is of mag. 13.

1583. The position is $4^h\ 23^m\ 52^s$, −17° 49′·0.

1584. The position is $4^h\ 23^m\ 41^s$, −17° 44′·6.

1594. The position is $4^h\ 25^m\ 57^s$, −6° 0′·9.

1631. No description of this was given by h; I found it to be very faint and small.

1686. The position is $4^h\ 48^m\ 23^s$, −15° 30′·6.

1780. The position is $5^h\ 2^m\ 0^s$, −19° 36′·1.

1886. Instead of a "* 8 s p 40″" I find that a star of mag. 9 precedes 11^s, 0′·9 south. A star of mag. 8·5 is about twice as far away, nearly due south.

1889. This is given in the N.G.C. as a "Ld R" nebula, and is said to be a close double with 1888. I examined the locality on one night, when the seeing was excellent, and found a faint star close following 1888; I could, however, see no evidence of its nebular character. I suspected something excessively faint about 10^s following the nebula, but thought that "Ld R" would scarcely describe it as a close double with 1888.

1906. The position is $5^h\ 20^m\ 18^s$, −16° 2′·0.

1964. This appeared to contain one star of mag. 11, and three of mag. 12. The seeing was not good at the time of observation. H called the nebula "v S," but it is large.

2054. This was discovered by G. P. Bond, its description in

the N.G.C. being "vF, pS, iR, r? * 9—10 7′n." It appears to be simply a small triangle composed of two stars of mag. 12, and one of mag. 13. They are 7′ south of a star of mag. 9. No trace of nebulosity was visible, though the seeing was fine.

2280. The centre of this nebula is equal in brightness to a star of mag. 13.

2352. I saw nothing noteworthy in the place given for this cluster, except that the whole background of the sky in the vicinity contains myriads of minute stars, on the limit of vision.

2359 and 2361. In *Monthly Notices*, lviii., 9, on p. 518, there is a note to the effect that 2361 is a condensation in 2359. I have studied these objects on three more nights. 2359 is 6′·5 long, north and south, and its average breadth is 3′. It is much narrower in the centre than at the ends, the west side containing a deep notch. 2361 seems, as previously, to be simply the brightest part of 2359. It is possible that Bigourdan, when observing 2361, did not see the large extent of very faint nebulosity surrounding it, and constituting 2359. The N.G.C. right ascension of 2359 is a minute too small; if this error was also in Herschel's *General Catalogue*, Bigourdan may naturally have concluded that his nebula, 2361, was not identical with H's nebula, 2359. The northern edge of 2359 is bounded by a straight row of four stars of mag. 11. The southern half of the nebula is brighter than the northern.

2362. This cluster is 5′ in diameter, and consists of stars from mag. 10 down, surrounding 30 Can. Maj. The large star is in the centre.

2367. The stars in this cluster are few and scattered, being from mag. 10 down. There is one double of mags. 10—10, angle 95°, and distance 4″.

2374. The diameter of the cluster is 15′; the stars are irregularly scattered, and not particularly numerous; none are brighter than mag. 10.

2382. In *Monthly Notices*, lviii. 9, p. 518, an unsuccessful search for 2382 is noted. The trouble seems to have been that the N.G.C. declination is about 10′ out, and the right ascension 18^s in error. The position is $7^h\ 19^m\ 52^s$, $-27°\ 20'·0$.

2479. The stars are scattered, and form curves and straight lines, no one being brighter than mag. 10·5. The diameter of the group is about 10′.

2482. The diameter of the cluster is 20′. There is one star of mag. 9 in the preceding part of the cluster; none of the rest are brighter than mag. 10·5.

2483. In this the stars are from mag. 10 down.

2509. In this beautiful little cluster the stars are quite faint; there is one spot in it where the stars are closely

crowded, giving a nebulous gleam. The average diameter of the entire cluster is 5′.

2527. The diameter is 20′. The cluster contains a curious configuration like the Sickle in *Leo*.

2539. The diameter is 15′, and the brightest stars are of mag. 10.

2542. The discoverer, h, calls this a nebulous star of the fifth magnitude. I examined it on one night, and saw a faint halo about 2′ in diameter encircling it. It looked like a telescopic glare.

2571. The two brightest stars are of mag. 8·5. The mean diameter is 15′.

2580. The average diameter is 6′.

2587. This contains but one star of mag. 9. Most of the others are fainter than mag. 11.

2589. This I have searched for on three nights without success, though it is supposed to be only "p F."

2590. The star mentioned by Stephan is of mag. 13. The elongation of the nebula is at 80°.

2627. This measures 3′ north and south, and 6′ transversely. There are a few stars of mag. 11; the rest are very faint. A smaller cluster of the same general characteristics lies 5′ south.

2848. The "* 11 nf 3′" is of mag. 9·5, and follows 10 seconds, 1′·5 north.

2863 and 2869. H discovered 2863 and Müller found 2869. Their descriptions agree, but Müller's place for 2869 is erroneous. The two are identical. The two stars mentioned by each observer are of mags. 11·5 and 13 respectively; the brighter lies nearly north, and a rough sketch makes it less than 1′ distant; the other is twice as far away to the south. 2863 follows 2868 9 seconds, 0′3 south.

2868. The position is $9^h\ 18^m\ 35^s, -10°\ 0'·0$.

2890. The position is $9^h\ 21^m\ 44^s, -14°\ 5'·8$.

2983. A star of mag. 14 precedes 2 seconds, a trifle north.

2996. I cannot see any nebula in the N.G.C. place, though the description of h is only "v F." But 33 seconds following it, at nearly the same declination, is a nebula corresponding to h's description, except in one particular. The N.G.C. states "* 20 f 1′," while I find a star of mag. 9 which follows the nebula 4 seconds, 0′·3 north. The centre of the nebula is of mag. 13. Its position is $9^h\ 41^m\ 52^s, -21°\ 6'·6$.

3085. This is called "R" by h, but it seems to be much elongated at 90°.

3103. According to the N.G.C. this nebula lies between 3100 and 3108, at nearly the same declination. I find no nebula there; by a study of Swift's original record, a

copy of which he kindly sent, it becomes practically certain that he saw 3100, but did not take its place with sufficient accuracy. Therefore 3103 does not exist.

3208. This extremely faint nebula is 1′ in diameter, and lies half way between two stars of mag. 10·5 on nearly the same parallel. A rough sketch makes it 2′ distant from each star. Its position is $10^h\ 15^m\ 2^s, -25°\ 18'·9$.

3233. The position is $10^h\ 17^m\ 12^s, -21°\ 45'·8$.

3313. This is a nebulous star of mag. 12. The "* 15 n 3″" is really south of the nebula. The position of the nebula is $10^h\ 32^m\ 41^s, -24°\ 47'·8$.

3331. The position is $10^h\ 35^m\ 22^s, -23°\ 17'·9$.

3369. The position is $10^h\ 41^m\ 58^s, -24°\ 43'·0$.

3420. The position is $10^h\ 45^m\ 15^s, -16°\ 42'·7$.

3464. This has an excentric faint nucleus and is much elongated at 135°. It position is $10^h\ 49^m\ 48^s, -20°\ 32'·0$.

3479. The position is $10^h\ 53^m\ 57^s, -14°\ 25'·5$.

3508. Of this the N.G.C. remarks, "* nf inv." I see only a star of mag. 12, 30″ or 40″ distant at 20°. H noted the nebula as "S," with which my estimate of its size agrees; h called it "v L," and probably thought that the star just mentioned lay within the outlying nebulosity.

3717. This "m E" object is remarkable in that it looks like a comet with a bright head.

3727. The "* 11 sf 1′" is of mag. 12, and follows 5 seconds, 0′·7 south. The position of the nebula is $11^h\ 28^m\ 38^s, -13°\ 19'·5$.

4024. The position is $11^h\ 53^m\ 25^s, -17°\ 47'·3$.

4188. The position is $12^h\ 8^m\ 59^s, -12°\ 1'·7$.

4201. The position is $12^h\ 9^m\ 33^s, -11°\ 1'·6$.

4680. The discoverer said "1 or 2 st inv." I did not see any, but a star of mag. 11 follows the nebula 1 second, 0′·1 south.

4700. The "B * p" is of mag. 10 and precedes 9 seconds, 0′·1 north. The nebula is nearly 2′ in length and very narrow. At times there seemed to be 3 or 4 minute condensations.

4802. This was searched for in vain on one night. Its description is so similar to that of 4804 that they may be identical, if the declination of 4802 is just 1° in error.

4862. Another was suspected perhaps 5′ south of this one. The position of 4862 is $12^h\ 54^m\ 15^s, -13°\ 35'·5$.

5051. The position is $13^h\ 10^m\ 50^s, -27°\ 45'·4$.

5072. This nebula of d'Arrest's I observed in moonlight, when it looked almost like a double star of mags. 12–13, angle 30°, and distance 15″. The "*14 nf" is of mag. 11·5, and follows 7 seconds, 0′·7 north.

5097. This appears to be elongated at 45°. The discoverer

says "nearly bet. 2 st." The stars are of mags. 9·5 and 11. The brighter of them follows the nebula 9 seconds, 0′·8 north. The fainter is about twice as far away.

5291. The "$\overset{*}{*}$ p" is of mags. 9·5 and 10, and wide, with an angle of 200°. The brighter star precedes the nebula 9 seconds, 0′·9 north.

5304. The "v F * f" is at 160°, 0′·7 distant, and is of mag. 12. The position of the nebula is $13^h\ 44^m\ 19^s$, $-30°\ 4'·9$.

5425. The nebula is much elongated at 290°. The position is $13^h\ 56^m\ 57^s$, $+48°\ 55'·6$.

5439. The elongation is at 0°. The position is $13^h\ 58^m\ 1^s$, $+46°\ 47'·7$.

5459. The "p B * sp" is of mag. 10·5, and precedes 6 seconds, 1′·4 south.

5495. The "* sf" is of mag. 10, and follows 2 seconds, 0′·4 north.

5597. There is a good nucleus of mag. 12·5.

5624. The position is $14^h\ 23^m\ 9^s$, $+52°\ 2'·1$.

5664. Two or three other very faint nebulæ are suspected near by. The position of 5664 is $14^h\ 28^m\ 15^s$, $-14°\ 10'·8$.

5707. The N.G.C. description is "B, pS, R." This is correct for the central portion of the nebula. But there appear to be two extremely faint and opposite extensions, which bring to mind certain drawings of the solar corona.

5734 and 5743. The discoverer puts these a minute apart in right ascension, and gives them the same declination. I find two nebulæ at nearly the same right ascension, which differ 2′·6 in declination, and see nothing else in the neighbourhood; 5743 is much elongated at 90°. I make 5734 brighter than 5743, while the discoverer has it fainter. It is possible that Leavenworth did not notice the nebular character of one of the objects which I saw (as it is very small, and has a stellar nucleus of mag. 13), and either saw something which I missed, or saw 5743 on two different nights, recording it as two objects because of the differing positions obtained for it. Yet it seems preferable to assume that we observed the same objects, and that the preceding one of the two should be called 5734. Possibly a larger telescope will be needed for a definite decision. The positions are :—

			h m s	° ′
5734	...	...	14 39 29,	− 20 26·9.
5743	...	...	14 39 31,	− 20 29·5.

5762. The position is $14^h\ 43^m\ 55^s$, $+12°\ 52'·4$.

5763. The position is $14^h\ 44^m\ 11^s$, $+12°\ 54'·4$.

5766. The position is $14^h\ 47^m\ 26^s$, $-20°\ 58'·3$.

5781. The "*16 s p" I did not see. But there are two stars of mag. 12 close by the nebula, south, preceding and following respectively.

5793. The elongation is at 160°. The position is $14^h\ 53^m\ 50^s$, − 16° 17′·6.

5801. The position is $14^h\ 54^m\ 56^s$, − 13° 30′·5.

5802. The position is $14^h\ 55^m\ 0^s$, − 13° 31′·4.

5803. The position is $14^h\ 55^m\ 4^s$, − 13° 29′·9.

5810. The nebula lies "bet. 2 v F st" which are of mag. 13·5 and are distant from the nebula about 0′·7, nearly north and south respectively. The position of the nebula is $14^h\ 57^m\ 5^s$, − 17° 28′·5.

5815. I could not find any nebula in the N.G.C. place for this, but 100 seconds preceding was a nebula which answered the description of 5815, except that I saw no "D * inv." But the seeing was not very good. The position is $14^h\ 54^m\ 54^s$, − 16° 26′·1.

5817. The position is $14^h\ 54^m\ 7^s$, − 15° 46′·9.

5855. The "2 st n f" are of mags. 10·5 and 13. The brighter follows the nebula 3 seconds, 1′·3 north.

5878. The centre is of mag. 12.

5978. The position is $15^h\ 36^m\ 54^s$, − 12° 54′·8.

6080. This is accompanied by a star of mag. 12·5, 20″ distant at 45°, which appeared to be nebulous

6168. The "F * at p end" I did not see. The position of the nebula is $16^h\ 25^m\ 32^s$ + 20° 27′·1.

6225. The N.G.C. says "F st inv." These I did not see, but there is a star of mag. 13 which follows 1 second, a little south.

6335. This is described by L as "Dif. neb. in patches." On one good night this was carefully sought, both with the twenty-inch, and with its five-inch finder. Nothing was discerned except possibly a very diffuse and extremely large nebulous region.

6356. In the N.G.C. this is described as a globular cluster of stars, "vB, c L, vgvmbM, r r r, st 20." It was very carefully examined on one night when the seeing was fine, but no stellar character could be made out. The longer one looked the more probable it seemed that the object was a nebula. The brilliant part of it is 30″ in diameter, the brightest spot being a little south of the centre of this brilliant portion. A number of 14 mag. stars were close to the nebula, south preceding.

6360. For this h notes "Neb in patches (Milky Way)." On one good night nothing definite was discernible here. However, the general background of the sky in this region was noted as being not so dark as would be expected if no nebulous matter were present.

6450. On each of three nights I hunted unsuccessfully for this; from its description it should not be difficult.

6562. The position is $18^h\ 3^m\ 13^s$, + 56° 15′·2.

6582. A star of mag. 13·5 precedes about 2 seconds. The position of the nebula is $18^h\ 8^m\ 37^s$, + 49° 53′·0.

6585. The elongation is at 45°, the nebula being 1′·0 or more in length, and brighter in the middle. It appeared to have a backbone or central stripe of greater brightness than the rest. The position is $18^h\ 9^m\ 5^s$, + 39° 36′·3.

6592. The position is $18^h\ 8^m\ 48^s$, + 61° 23′·9.

6597. The "B * nr" is of mag. 8·5, and precedes the nebula 25 seconds, 0′·3 north.

6601. The position is $18^h\ 10^m\ 43^s$, + 61° 25′·6.

6607. On three nights this was looked for without success. On one of the nights, which was fine, I suspected one or two objects in the immediate vicinity, but could not be certain. As it is "v. diffic." a larger telescope might well be tried on it.

6608 and 6609. A nebula supposed to be 6609 was measured in two nights. Its position differs from that given by Swift only 16 seconds in right ascension, and 0′·4 in declination. The "F * nr" is of mag. 12, and lies about 25″ south of the nebula, a little preceding. There is another star of mag. 13·5 which is on the opposite side of the nebula, at about the same distance. 6608 is supposed to precede 6609 by 5 seconds at the same declination, but I could not find it on any one of three nights, one of which was very fine. I presume that it is identical with 6609. The position is $18^h\ 11^m\ 30^s$, + 61° 18′·2.

6612. I was unable to find anything in the N.G.C. position for this "v. diffic." object, but I measured a supposed nebula about 5′ away, making at the time of observation the following note "e F, e S; a little question whether there really is nebulosity here." Possibly 6612 is identical with (1279), with an error of 5 minutes in right ascension. The position of the measured nebula is $18^h\ 12^m\ 41^s$, + 36° 2′·5.

6617. The position is $18^h\ 13^m\ 2^s$, + 61° 17′·0.

6621 and 6622. In the N.G.C. these have the same right ascension. One precedes the other several seconds. I retain the number 6622 for the northern one of the two; it appears to be a star of mag. 12·5, with a faint formless surrounding nebulosity. 6621 seems to be a star of mag. 13, with a shred of nebulous matter clinging to it. The positions are:

			h m s	° ′
6622	...	...	18 13 24,	+ 68 19·9.
6621	...	...	18 13 28,	+ 68 19·3.

6636. The three stars mentioned by Swift are of mags. 9, 9·5, and 10·5. The one of mag. 9·5 follows the nebula 4 seconds, 1′·0 south. The others precede, and are also south.

6645. This is composed of scattered faint stars, is about 10′ in diameter, and has in its centre a nearly circular "hole," 2′ in diameter, in which only a few tiny stars are visible.

6646. In hunting for (1288) I came across this nebula, and noted that it contained a good condensation of mag. 13.

6647. Here is simply a region where small stars are a little more crowded than commonly. It seems hardly sufficiently condensed to be called a cluster.

6649. This is a widely scattered cluster about 5′ in diameter. The brightest star is of mag. 9, and is at the southern end of the cluster; it has a companion of mag. 11 at 90°, 5″ distant.

6651. The position is $18^h\ 25^m\ 52^s$, +71° 32′·4.

6666. An unsuccessful search for this was prosecuted on two nights. As it is called "v. diffic.," the region may well be examined with a larger telescope. Swift writes that this was discovered by his son, and that its position may not be very exact.

6667. The double-star mentioned by Swift is of mags. 11—11, and distance 40″; it follows the nebula several seconds. The elongation is at 90°±. The position of the nebula is $18^h\ 31^m\ 0^s$, +67° 54′·7.

6668. This is called "pB, pS, mE" by its discoverer, and therefore ought to be an easy object. I have searched for it on three nights unsuccessfully, and conclude that no such nebula exists in or near the place given for it. It may be identical with 6677, which follows about 3^m at nearly the same declination.

6676. The position is $18^h\ 33^m\ 15^s$, +66° 52′·7.

6677. The N.G.C. says: "bet. * v close and v FD *." I did not notice the very faint double star; the other one is of mag. 12, and follows the nebula 2^s, 10″ south. The position of the nebula is $18^h\ 33^m\ 42^s$, +67° 1′·7.

6678. Though this is only "pF, pS," I was unable to find it on either one of two nights. Its presumably fainter neighbours 6677 and 6679 were measured.

6679. This is a nebulous double star of mags. 12·5, distance 5″, and angle 60°. The N.G.C. place is 8′·5 out in declination. The position is $18^h\ 33^m\ 37^s$, +67° 3′·3.

6687. The position is $18^h\ 36^m\ 1^s$, +59° 33′·2.

6690. This is given as "R" in the N.G.C. But it really has two faint wings stretching out north and south from the much brighter centre, making the nebula 1′·5 long. At its northern end is a star of mag. 12.

6691. For this the N.G.C. gives the note "pB * Snr," which is evidently intended for "pB * snr." The star is of mag. 9·5, and is 3′·0 distant.

6696. The N.G.C. place is 1^m out in right ascension and 2′ in declination. The nebula is elongated north and south,

and is a difficult object. The position is $18^h\ 38^m\ 39^s$, $+59°\ 14'\cdot3$.

6701. The elongation is very pronounced, and is at 120°, the nebula pointing at a star of mag. 10, less than 1′ distant. There is one condensation of mag. 13; one of mag. 14 was suspected at the preceding end of the nebula.

6714. On three nights this was looked for unsuccessfully. Upon each of them there was noticed a group of four stars of mag. 14, about 1^m following the N.G.C. place of 6714, and near "sev B st," as noted by the discoverer. On one night of the three an extremely faint nebula was suspected close to the N.G.C. place of 6714. A larger telescope or keener eye may be needed to clear this matter up.

6732. This is star-like, and of mag. 12·5. The "F * nr" is of mag. 11, and precedes 1^s, 0′·6 north. The position of the nebula is $18^h\ 54^m\ 5^s$, $+52°\ 14'\cdot7$.

6747. On two nights this was searched for in vain. Swift says "p B st sf." I saw a star of mag. 8·5 in the vicinity, and only very faint stars in the location of the nebula. As Swift calls it "ee F v. diffic.," a larger telescope may well examine the region.

6757. Swift says "3 F st inv." I was unable to verify this, but saw two stars of mag. 12 close south preceding. The position is $19^h\ 3^m\ 7^s$, $+55°\ 33'\cdot8$.

6759. The "v FD * close sp" noted by Swift, is of mags. 11·5—12·5, and distance 15″. I think that there are involved in the nebula three stars of mags. 13·5, 14, and 14.

6762 and 6763. These are identical; Swift admits it. The region was scrutinised on one night, the definition being fine. A star of mag. 13 follows the nebula 1^s, a few seconds of arc south. It is doubtless the star referred to in the description of 6763, and does not appear to be nebulous. The position is $19^h\ 4^m\ 51^s$, $+63°\ 46'\cdot7$.

6764. The elongation is north and south. Four stars of mag. 13·5 are involved, one near each end, and the others in the middle.

6786. The "2 st n f" are of mag. 10. The nearer one follows 11^s, 1′·0 north. The more distant is very nearly north of the nebula, at a distance of about 2′. The N.G.C. description is "e e F," but the nebula appears to be only "F."

6787. The "4 st s f" are of mag. 10·5, form a rude square, and are judged by a rough sketch to be 5′ distant from the nebula. The position is $19^h\ 14^m\ 45^s$, $+60°\ 14'\cdot3$.

6796. This is very much elongated at 0°, and certainly contains one bright spot of mag. 13·5; perhaps there are others. There is a resemblance to the great nebula in *Andromeda*. The position is $19^h\ 20^m\ 10^s$, $+60°\ 57'\cdot3$.

6801. This contains at least one stellar point of mag. 13·5.

The "F * s nr" is of mag. 11·5, and precedes the nebula 3^s, 1′·3 south.

6817. The position is $19^h\ 36^m\ 8^s$, +62° 9′·4.

6825. The "F*nr" is of mag. 10, and precedes the nebula 3^s, 0′·5 north. Two stars of mags. 8·5 and 9 are about 5′ south following. The position is $19^h\ 40^m\ 54^s$, +63° 50′·1.

6829. The "p B*" mentioned by Swift is of mag. 9, is 0′·7 south of the nebula, and follows 2^s. The position is $19^h\ 45^m\ 25^s$, +59° 39′·5.

6831. The position is $19^h\ 46^m\ 15^s$, +59° 38′·5.

6869. The position is $19^h\ 59^m\ 56^s$, +65° 56′·9.

6907. By my sketch this is much elongated at 90°. The centre is as bright as a star of mag. 13. The "3 st p," mentioned in the N.G.C., do not appear in my sketch, and are therefore probably more than 5′ away.

6916. The "F* close p" is of mag. 12, and the position of the nebula is $20^h\ 21^m\ 21^s$, +58° 1′·3.

6927, 6928, 6930, (1325) and (1326). On page 137 of my communication in *Monthly Notices*, vol. lx., No. 2, the opinion was expressed that (1325) and (1326) were identical with 6928 and 6930 respectively. But the fact that I had not noticed the much fainter object 6927, which was in the same field of view, threw some doubt upon my conclusions. But on the evening of 1899 October 6, I measured the positions of objects which are in the places given in the N.G.C. for 6927, 6928, and 6930. The seeing was good, the stars being bright and quiet. (1326) must be identical with 6930, because their positions and descriptions, as given by Swift and Marth respectively, agree well enough with each other and with my description of the same object. The elongation noted by all of us is at 180°. The "p F*s" mentioned by Swift is of mag. 10, is 0′·9 south of the nebula, and precedes it $1{\cdot}4^s$. 6928 is the brightest of the three, and my position of it agrees with Marth's. Swift's position for (1325) agrees exactly in right ascension with Marth's for 6928, but differs 3′·0 in declination. I am confident that no nebula answering to the description of (1325) exists in the N.G.C. place of that object. 6927 is extremely faint and extremely small, looking like a star of mag. 13, with but a trace of outstanding nebulosity. South and a little preceding 6927 is a row of four small stars, 1′·5 long, pointing at the nebula; the nearest star is only 2′ from it. Possibly this line of stars is a trifle nebulous. The positions are :—

			h m s	° ′
6927	...	...	20 27 49,	+9 34·6
6928	...	...	20 28 1,	+9 35·2
6930	...	...	20 28 10,	+9 32·0

6931. Though this is very small, it is much elongated at 120°. At times it appeared to have a condensation near each extremity, but the seeing was not very good. The position is $20^h\ 28^m\ 13^s$, $-11°\ 42'\cdot5$.

6951. The position is $20^h\ 35^m\ 59^s$, $+65°\ 45'\cdot2$.

6953. I could not find this, which is called by Swift "eeF, p L, v. diffic." 17^s preceding and $0'\cdot2$ south of the place given by Swift is a small group of at least four stars of mag. 14, which was scrutinised for nebulosity, but in vain. The position of the preceding one of the stars was taken, and is $20^h\ 36^m\ 23^s$, $+65°\ 24'\cdot7$.

6981. This is a bright and easily resolvable globular cluster. But the most brilliant portion is not at the centre, but near the preceding edge.

7015. This contains a condensation of mag. 13·5.

7136. A note about this appears on p. 359 of the *Monthly Notices*, vol. lviii., No. 6. The nebula has been observed again, with the same result concerning its appearance. In the N.G.C. we read "*9·5 f 2′." The magnitude of the star is really about 10·5.

7302. This is suitable for parallax measures, having a good condensation. A star of mag. 8·5 is about 3′ distant.

7306. The "*11 p" appears to be of mag. 10, and precedes 8^s, $0'\cdot7$ north. The nebula seems brighter near its preceding end.

7308. This nebula would be good for parallax observations with a large telescope. Its position is $22^h\ 29^m\ 13^s$, $-13°\ 27'\cdot0$.

7437. The "F * nr n f" is of mag. 10·5, and follows 4^s, $1'\cdot4$ north. The position of the nebula is $22^h\ 53^m\ 12^s$, $+13°\ 46'\cdot3$.

7455. Swift says "F*close p." I found none there, but a star of mag. 10 follows $5\cdot5^s$, $1'\cdot2$ north.

7495. The "*9 n f nr" is of mag. 10·5, and follows less than 1^s, $1'\cdot3$ north. There is a star of mag. 9 about 5′ south following.

7511. There is a star of mag. 13·5 about 30″ south of the nebula. The discoverer says "sev st n f." I see a row 15′ in length, composed of six stars of average mag. 10, which runs at a position angle of 135°; its centre lies about 3′ north following the nebula.

7522. A search on three nights failed to reveal this.

7573. The N.G.C. right ascension is about 50^s too large. Accurate measures were prevented by the coming up of haze.

7627. I failed to find this on two nights. In reply to a letter of inquiry, Swift says that this is identical with 7641, one of Stephan's nebulæ which I have measured. With this opinion I agree, having seen near 7641 the "2 st n" mentioned by Swift.

7720. There seems to be a small nest of nebulæ clustered about this one. I have measured two, and suspected some others. An examination with a large telescope might be fruitful. 7720 is described as "l E, b M." It looks like a nebulous double star of mags. 12–13·5, angle 10°, and distance 10″.

7754. The N.G.C. right ascension is a minute and a half too small. The position is $23^h\ 44^m\ 2^s$, $-17°\ 9'·3$.

7759. The "B*n" is of mag. 8·5, and precedes the nebula a fraction of a second, 2′·7 north. The nebula has a good nuclear brightening, and would readily lend itself to parallax observations. The position is $23^h\ 43^m\ 45^s$, $-17°\ 5'·8$.

7763. The "F*f" is of mag. 13·5, and follows about 2^s, a trifle north. The position of the nebula is $23^h\ 45^m\ 7^s$, $-17°\ 8'·7$.

7774. The N.G.C. says "in centre of 3 st." Each side of the triangle is about 4′ long, and the stars are of mags. 10, 11, and 12.

7808. The "stell. N" is of mag. 13. The "* 8·5 sp 3′" precedes 13^s, 1′·6 south. The position is $23^h\ 58^m\ 25^s$, $-11°\ 18'·1$.

7813. I do not find anything in the N.G.C. place of this Müller nebula. But 55^s following, at nearly the same declination, I found a similar object, elongated, however, at 160°, while Müller puts the elongation at 80°. He says "*8·5 f 38^s," while I found such a star preceding 49^s. He also says "*9 np 40^s." There are two such stars about 8′ north, and a few seconds preceding. The region may well be examined with a larger telescope. The position is $23^h\ 59^m\ 2^s$, $-12°\ 32'·4$.

Nebulæ from the Index Catalogue.

(81). I could find no "*close n f." A star of mag. 11 follows 3^s, 0′·3 south. The position of the nebula is $1^h\ 4^m\ 16^s$, $-2°\ 13'·8$.

(179). The "*9·5 n f" follows 10^s, 1′·4 north. The position of the nebula is $1^h\ 54^m\ 13^s$, $+37°\ 32'·2$.

(395). The "F*close f" is of mag. 12, and follows $1·5^s$. The position of the nebula is $4^h\ 44^m\ 26^s$, $+0°\ 4'·7$.

(438) and Swift 88. These are identical, despite their differing descriptions. Swift, writing under date of 1900 January 27, says that "they are no doubt the same." The "v wide D* nr p" is of mags. 9–9·5, distance 45″, and angle 170°. The brighter of the two stars precedes the nebula 15^s, 0′·7 north. I have discovered another fainter nebula, which precedes 24^s, 5′·4 north.

(453). On the fine night on which I measured (452) I looked for this one in vain. In its place I could see only two or

three stars of mags. 13–14. Bigourdan, the discoverer, says "* 13 in S neb, or 2 or 3 st close."

(468). I hunted for this on two fine nights unsuccessfully. There are hosts of stars in the vicinity. The place is near that of the large nebula 2359.

(507). A search for this on three nights has failed.

(760). Either there is a star of mag. 14 at 150°, or the nebula is elongated in that direction.

(784). The "p B * s" is of mag. 8·5, and precedes $0{\cdot}6^s$, $2'{\cdot}9$ south. The N.G.C. declination is several minutes of arc out. The elongation of the nebula is at 90°, and its position is $12^h\ 17^m\ 22^s$, $-4°\ 5'{\cdot}9$.

(847). The description "bet. 2 st" given in the *Index Catalogue*, I cannot verify from my sketch of the field of view.

(852). Corresponding to the description "B * p" I find one of mag. 9, which precedes about 3′, by a rough sketch, and is a little north. The position of the nebula is $13^h\ 3^m\ 37^s$, $+60°\ 41'{\cdot}5$.

(997), (998), Swift 168, and Swift 169. I have examined this locality with considerable care, and see three nebulæ, one of which is evidently a *Nova*, as its description is widely different from that of any of the others. (997) and Swift 168 agree in description, and are thought to be identical. The "* with dist. comp. nr n" is of mag. 9·5, and follows the nebula less than 1^s, $1'{\cdot}3$ north. Its companion is of mag. 10·5, and is 40″ distant from the brighter star, at an angle of 225°. (998) is very much fainter and smaller than (997), and is judged to be identical with Swift 169. Near it is a star of mag. 14, at an angle of 180° and distance of 20″. Perhaps it is involved in the faint outlying nebulosity. It is to be noticed that, according to the *Index Catalogue* (998) follows (997) 18^s, $1'{\cdot}0$ north, these differences of coordinates being identical with those obtained from *A.N.* 3517, for Swift 168 and 169. The positions of the three nebulæ are :—

			h	m	s	°	′
Nova	...	...	14	14	12,	−4	1·6
(997)	...	...	14	14	47,	−3	59·5
(998)	...	...	14	15	7,	−3	57·4

(1027). Swift suspected "another nr." I saw no nebula near by, but there was a star of mag. 13, which was $0'{\cdot}7$ south preceding.

(1031). The position is $14^h\ 30^m\ 50^s$, $+48°\ 28'{\cdot}5$.

(1071). The position is $14^h\ 49^m\ 13^s$, $+5°\ 9'{\cdot}5$.

(1101). The *Index Catalogue* gives no description of this. I find it to be extremely faint and very small. A star of mag. 13 follows $1{\cdot}5^s$, at nearly the same declination, and another precedes 2^s, a little north.

(1121). The "v F * close p" is of mag. 13·5, and is 20″ distant at 315°.

(1149) and Swift 182. These are identical. The "trapezium," mentioned by the discoverer, is nearly a rhomboid, whose longer diagonal is about 8′ in length, by a rough sketch, and stands at a position angle of 135°; the shorter diagonal is about 4′ long. The stars are of mags. 9·5, 10·5, 10·5, and 11·5, the brightest being in the southern end of the long diagonal. The position of the nebula is $15^h\ 53^m\ 26^s$, +12° 21′·4.

(1196). Of this the *Index Catalogue* says "nr p * of 3 in line." It is somewhat difficult to determine which stars are referred to. The brightest star near by is of mag. 8·5, and follows the nebula 8^s, 1′·3 south.

(1247). On two nights this was hunted for in vain. On the second night, when the seeing was fine, it was noted that there is a star of mag. 13 in the place given, which satisfies the description "* 9·8 sp 0′·7," but no trace of nebulosity was discernible about the star.

(1268). The position is $17^h\ 46^m\ 13^s$, +17° 14′·3.

(1269). As the position given in the *Index Catalogue* differs from mine 20^s and 2′, and I was unable to verify Swift's description of "p L, 2 F st nr," I examined the locality with care, under excellent atmospheric conditions. But I found only the following "eeF, vS" nebula, which is assumed to be (1269). A number of faint stars lie near, most of them being south of the nebula. Perhaps there are a dozen brighter than mag. 13 within a distance of 5′. The brightest one is of mag. 10, and is (judging by a rough sketch), about 4′ south preceding the nebula. No other brighter than mag. 11·5 is shown in the sketch.

The position is $17^h\ 47^m\ 52^s$, +21° 35′·6.

(1279) and (1281). In the *Index Catalogue* is a query whether these are identical. Their descriptions are not radically divergent. I see only one nebula in the vicinity, and call it "v F, p S." Within 5′ north following are four stars of mag. 9; 11^s following and 1′·0 south is a double of mags. 9·5 – 10, and distance 3″.

The position is $18^h\ 7^m\ 45^s$, +35° 59′·0.

(1288). The discoverer mentions "3 st nr." They are of mag. 10, and form a triangle within which the nebula lies, near the middle of the south following side. The triangle lies about 5′ south of a star of mag. 8·5, and follows it a few seconds.

(1289). The stars referred to in the description "3 st nr" probably are the ones constituting a triangle each side of which is about 5′ long, which lies south of the nebula. The vertices nearest the nebula are marked by stars of mag. 10 and 10·5, which have nearly the same declination. The third vertex is marked by a star of mag. 8·5, which is nearly due south of the nebula, distant about 7′.

The position of the nebula is $18^h\ 26^m\ 46^s$, $+39°\ 53'\cdot7$.

(1291). The discoverer mentions a "F * close n." This I am unable to see. Two stars of mag. 12 lie north following and north preceding, respectively. North following the nebula, at a greater distance lie two of mag. 10, which point at it. They are (by a rough sketch) 1′ or 2′ apart. The nearer one precedes the nebula 8^s, 2′·3 north.

The position is $18^h\ 31^m\ 19^s$, $+49°\ 11'\cdot8$.

(1293). Swift describes this as "eeF, S, lE, * in centre, ? D." It appears to consist of three stars of mag. 14, of which the following one is nebulous.

(1300) and (1301). On each of two nights I searched for these in vain. A letter from Swift states that the N.P.D. given for (1300) in the *Index Catalogue* is 1° too great. Making this correction (1300) becomes identical with 6798. In the same letter Swift states that the declination of (1301) is about +49° 40′, which is 35′ greater than the declination (for 1900·0) computed from the *Index Catalogue*.

(1368). This is called "R" by its discoverer. On each of two nights I noted it as much elongated at 225°. On one of the nights it appeared to contain two stellar points, one near each end.

(1420). The position is $21^h\ 57^m\ 48^s$, $+19°\ 16'\cdot1$.

(1487). The "F * nf" is of mag. 12, and is close to the nebula. There is also a star of mag. 11·5 at about the same distance south preceding. The "* 8 f" must be a long way off, as I saw no such star in the vicinity. There is a star of mag. 7, which precedes about 15 seconds, 9′·2 south.

Swift's Recently Discovered Nebulæ.

Swift 12, 3. On p. 568 of *Monthly Notices*, vol. lix. No. 10, the discoverer says that a "wide D * close p point to it." The magnitudes of the components of the double are 9·5 and 12, and by a rough sketch I judge their distance apart to be 1′ or 2′. The star of mag. 9·5 precedes the nebula 8 seconds, 0′·1 north. A star of mag. 13 is close to the nebula, south following.

Swift 10. The "9^m * nearly in contact np" precedes 0·5 second, 0′·5 north, and I rated it as of mag. 10. The position of the nebula is $0^h\ 56^m\ 44^s$, $-16°\ 6'\cdot3$.

Swift 26. The position is $1^h\ 46^m\ 11^s$, $-10°\ 17'\cdot2$.

Swift 28. The "9^m nr np" precedes 7 seconds, 1′·6 north. The position of the nebula is $1^h\ 51^m\ 8^s$, $+5°\ 8'\cdot3$.

Swift 32. Swift says "bet. 2 southern of 4 stars." The stars are of mag. 10·5, and form a large trapezoid, the southern and longest side of which is about 7′ in length, and stands at a position angle of 60°.

Swift 43. The position is $2^h\ 37^m\ 18^s$, $-28°\ 35'\cdot8$.

Swift 60. I have not yet observed this, but it may be

identical with one which was observed by Müller in 1887, but which is not found in the *Index Catalogue*, or in the N.G.C. The observation of it is No. 171 on pp. 192–3 of Part 6 of vol. I. of the *Publications of the Leander McCormick Observatory*. Its position for 1900·0 is $3^h\ 37^m\ 15^s$, $-18°\ 35'·2$, which differs from that of Swift 60 by 14 seconds in right ascension, and 2′·9 in declination. It is also noteworthy that if the sign of $\Delta\alpha$ in Müller's observation be changed, the position of his nebula will coincide with that of 1440. The region $3^h\ 33^m$ to $3^h\ 43^m$ between the declinations $-18°\ 30'$ and $-19°\ 0'$ might well be explored thoroughly with a large telescope, as it contains many nebulæ.

Swift 74. Swift's declination for this is nearly 10′ in error. He says "close to e e e FD ✶." The double is of mags. 12·5—12·5, distance 90″, and angle 210°. The nebula is near the northern one of the two stars. The position of the nebula is $5^h\ 2^m\ 32^s$, $-20°\ 28'·6$.

Swift 75. The discoverer says "7^m ✶ 15^s p l s" nearly obliterates it. The star precedes 14 seconds, 3′·6 south. The position of the nebula is $5^h\ 15^m\ 39^s$, $-25°\ 10'·0$.

Swift 85. The elongation is at 90°. The position is $5^h\ 42^m\ 30^s$, $-18°\ 45'·7$.

Swift 96. Of this Swift says "vF ✶ close nf, pB ✶ near sp." The very faint star is of mag. 12·5, and is distant 40″ at 10°. The brighter star is of mag. 9, precedes the nebula 6 seconds, and is 2′ 4 north instead of south. The position of the nebula is $9^h\ 40^m\ 14^s$, $-31°\ 19'·9$.

Swift 106. The trapezium mentioned by Swift consists of stars of mag. 9·5. The position of the nebula is $10^h\ 11^m\ 51^s$, $-33°\ 2'\ 8$.

Swift 107. The "9^m p close f" follows the nebula 9 seconds, 0′·4 south Nearly between the two is a star of mag. 10 5. There is also a star of mag. 12·5, which follows 40″, at 80°. The nebula has a good nucleus of mag. 13. Its position is $10^h\ 17^m\ 6^s$, $-33°\ 45'·8$.

Swift 108. 3257, 3258, and 3260 are in the same field, and I measured them all on the same night, but could not see Swift 108, which is supposed to be close by. 3260 has a star of mag. 11 5 about 20″ south, and Swift 108 is said to have an "e F ✶ in contact." Since the position and description of Swift 108 agree closely with those of 3260, I judge them to be identical.

Swift 111. The "8^m ✶ close p" is of mag. 9, and precedes 4 seconds, 0′·2 north. The description "eE" may have arisen from the fact that there is a star of mag. 13 close by, south following.

Swift 115 and 116. Swift says in a letter that these are to be dropped. The former is evidently identical with the

h nebula 3333. The "* 15 att" is of mag. 13, and directly south of the nebula.

Swift 120. This has a stellar nucleus of mag. 13·5.

Swift 130. There is no nebula in the place given for this, but about 15′ away there is one corresponding to the description, and answering the condition "7^m * sp." Its position is $11^h\ 50^m\ 11^s$, $-37°\ 8'·4$.

Swift 131 and 133. These were discovered on different nights; their positions agree closely, and their descriptions fairly. I examined the locality on two nights, and found only one nebula, which is elongated at 120°, is about 1′·5 long, and points toward a star of mag. 9, which follows 15 or 20 seconds.

Swift 132. This must be identical with 4087, since both are pretty bright, and their places agree within three seconds in right ascension and 1′ in declination. The "triple * sp" mentioned by Swift is of mags. 10, 12, and 12; the brightest component precedes the nebula 8 seconds, 3′·9 north.

Swift 134. The "D * s f" is of mags. 10–10·5, angle 45°, and distance 40″; it is 8′ from the nebula. Just south of the nebula, and pointing at it is a row of five stars of average mag. 11′·5, the farthest being less than 10′ away. The nebula is considerably brighter than the description "e e e F, v diff." would imply.

Swift 135. The "* close sf" is of mag. 10·5, and follows 2 seconds, 0′·6 south. The position of the nebula is $12^h\ 3^m\ 51^s$, $-30°\ 57'·7$.

Swift 137. The position is $12^h\ 19^m\ 51^s$, $-39°\ 13'·2$.

Swift 139. I see no "7^m * nr p," but found one of mag. 8·5, which precedes 15 seconds, 1′·5 south. The position of the nebula is $12^h\ 22^m\ 19^s$, $-38°\ 47'·0$.

Swift 140. Instead of "2 or 3 vF st in contact," I noticed only one of mag. 12·5, south and a little preceding. The position of the nebula is $12^h\ 35^m\ 30^s$, $-36°\ 12'·4$.

Swift 145. This is larger and much brighter than the description "e e e F, e e e S" implies. The nearest of the "3 vF st n" is of mag. 10, and precedes 5 seconds, 1′·0 north. The "7^m * s" is 10′ distant. The position of the nebula is $12^h\ 52^m\ 50^s$, $-22°\ 20'·1$.

Swift 149. The "11^m * nr p" is of mag. 12, and precedes 11 seconds, 0′·3 north.

Swift 150. The position is $13^h\ 2^m\ 41^s$, $-23°\ 15'·7$.

Swift 158. There is an error of about 7′ in the declination given in *A. N.* 3517, the nebula being north of the position there given.

Swift 159. Of this the discoverer says "like a D *, one nebulous." I cannot perceive this appearance.

Swift 183. I have searched for this in vain on two nights.

As it is called "e e e F" perhaps a larger telescope may well look for it.

Swift 197 and 198. The announced positions put these at the same declination, and make them differ only 15 seconds in right ascension. They were discovered on the same night. 197 is called "v F, R," and 198 "ee F, eE." I examined the locality on three nights, and could find only one nebula which is 1′ in length, and elongated at 160°; on one night it was suspected of being binuclear. Swift says of 197 "2 F st near nf point to it," and of 198 "near p * of sev. curved." Both these statements are true of the nebula which I observed. On two of the three nights I also measured Swift 199, which is in the same field of view, was discovered on the same night, and is described by Swift as fainter than 197 and 198. Swift has sent me a copy of his original records, which says of 198 "sp of 2," and of 199 "nf of 2." For 197 there is no such remark. I conclude that there is no nebula corresponding to the position and description of Swift 197. The position of Swift 198 is $20^h\ 37^m\ 8^s$, $-30°\ 12'\cdot7$.

Swift 199. The position is $20^h\ 37^m\ 28^s$, $-30°\ 3'\cdot8$.

Swift 241. I saw nothing in the place given by Swift, but measured one 34 seconds following at nearly the same declination. It precedes a star of mag. 8, 17 seconds, 2′·3 south. This star has a companion of mag. 12 at 70°, 6″. The position of the nebula is $23^h\ 46^m\ 26^s$, $-28°\ 55'\cdot2$.

Note on the Total Eclipse of the Sun, 1900 *May* 28, *observed at Algiers.* By the Rev. C. D. P. Davies, M.A.

With regard to the time of first contact chronicled on p. 589 of vol. lx., and the supposition of Mr. Crommelin that the time noted was probably five seconds late, it will be absolutely safe to read "certainly" for "probably," unless Mr. Crommelin saw the contact before he proclaimed it, as I distinctly saw it in my guiding refractor of 2-inch aperture fully five seconds before Mr. Crommelin announced it.