Aug. 28 Komet wegen Mondeshelle nicht zu erkennen.

Sept. 4 Komet wegen der Dämmerung schwach.

—— 6 Himmel nicht ganz rein, daher Komet schwach.

—— 10 Komet steht inmitten eines Sternhaufens vom Perseus, daher in seinem Lichte sehr gedämpft.

—— 23 Komet bei starkem Mondlichte ganz hell.

Octb. 3 Himmel sehr wechselnd, beim Vergleichsterne sehr trübe.

4 Komet mit freiem Auge auszunehmen; wegen der hohen nördlichen Declination des Kometen die Durchgänge sehr schwer genau zu erfassen.

—— 7 Komet sehr hell; gut mit freiem Auge zu erkennen: Nebelhülle ausgedehnt; Kern stark excentrisch; Schweifansatz kurz und breit.

Oct. 14 Komet nimmt an Lichthelligkeit ab; erste Beobtung des Kometen (und überhaupt eines Kometen) mit dem Doppelpunktmicrometer des Meridiankreises.

—— 23 Komet wegen zartem Nebel sehr schwach.

Nov. 17 Komet wegen Mondeshelle sehr schwach. Witterung im November für Beobachtungen sehr ungünstig.

Dec. 5 Komet nur mit grösster Mühe noch zu erkennen.

—— 10 Nur noch eine schwache Spur des Kometen. Nach dem 10ten December durch viele Tage umwölkter Himmel, dann trat Mondschein ein, und ich konnte den Kometen nicht mehr erkennen.

Kremsmünster 1852, Dec. 28.

Aug. Reslhuber.

Observations of Neptune and his Satellite.

1852		Position. G. M. T.		Distance. G. M. T.		
Oct.	28	$7^h\,54^m$	37° 6′	$8^h\,8^m$	16″62	(*a*)
	29	6 43	48 36	6 56	13,19	(*b*)
	30	7 17	159 estim.			(*c*)
	31	6 55	215 57	7 9	16,23	(*d*)
Nov.	1	6 20	223 32	6 39	12,77	(*e*)
	2	7 7	9 13	7 23	4,45	(*f*)
	3	6 8	37 15	6 29	15,78	
	4	6 21	49 29	6 34	11,40	(*h*)
	5	7 0	177	7 0	4	(*i*)
	6	6 16	215 42	6 32	16,57	(*k*)
	9	6 26	38 34	6 40	17,20	(*l*)
	10	6 41	53 52	6 51	9,60	(*m*)
	11	6 15	197 53	6 41	5,26	(*n*)
	12	6 2	216 36	6 12	16,81	
	15	6 4	40 57	6 21	17,42	
	16	5 58	57 17	6 15	7,08	(*q*)
	17	6 13	205 12	6 25	7,64	(*r*)
	18	6 2	217 59	6 16	16,99	
	19	6 4	232 51	6 15	6,69	
	20	5 47	26 28	6 2	10,93	
	26	5 37	31 46	5 50	11,34	
	29	6 6	207 18	6 16	11,36	
Dec.	8	5 23	33 57	5 38	13,09	
	9	5 43	45 52	5 52	13,72	
	27	5 0	51 34	5 7	10,82	

(*a*) Sky hazy. No illumination of the field used but that given by the moon-lit sky itself rather too great. Yet the satellite was perfectly easy and the measures taken with great comfort and confidence. The planet was well defined and round.

(*b*) Planet round and well defined. Satellite bright. The rising moon rendered artificial illumination unnecessary.

(*c*) On turning the telescope on the planet he appeared as usual, attended by his satellite near its greatest elongation, and if I had not expected to find the satellite near its closest appulse to the planet, I might have proceeded to measure its position and distance. I did indeed apply the micrometer and found the distance about 2″ more than the satellite's greatest elongation. I mention the fact as one of the very rare instances in which a star of the identical magnitude, is found so near the place of a satellite as to be temporarily mistaken for it — and even here, applying the micrometer at once verified the illusion.

I proceeded to look more carefully for the real satellite, with the usual measuring power of 760, but was for a long time disappointed, and feared I must give up the search. At length I took off the micrometer and applied Dollond's polycratic wheil of single convex lenses, powers 222, 479, 628, 805, 1292 and 1917, changing the powers successively from the 2nd or 3d, but failed to get a steady glimpse of the satellite until I got to the highest, 1917, with which I saw it pretty steadily and well; though the planet itself with this power was like a ball of wool. I estimated the distance of

the satellite about $\frac{3}{4}$ of the planet's diameter from its limb, and think it did not exceed 8 or 9 tenth at the utmost. In position it appeared at right angles with the small star, whose position I measured in order to get at the angle of position of the satellite, which could not be measured directly.

(*d*) Satellite rather faint from the haziness of the sky — yet independently of this I have an impression that the satellite is fainter than in the opposite point of its orbit, though the difference does not amount to a certainty. Power 760. seven measures each of position and distance taken.

(*e*) I have again the impression that the satellite is not so bright as in the opposite part of its orbit.

(*f*) The satellite extremely close, but the fineness of the night enabled me to get six measures, well and satisfactorily, with power 760. Planet round and well defined. Applied single lens 1292, with which the satellite was much brighter: estimated distance $1\frac{1}{3}$ diameter off. Definition very good for the power. In a fine black field, I looked carefully round for other satellites, to the distance of about a minute, without finding any. (With a heavy dew, the night was delightfully calm and mild) I am satisfied that on this occasion I should have seen a point of light considerably less than half the magnitude of the satellite, had there been one.

(*h*) Air remarkably fine. I receive a decided impression of ellipticity in the direction of the greatest elongation of the satellite, powers 650 and 805. There is also an impression of an extremely flattened ring in the direction of the transverse axis. I think I have never seen Neptune so well before. (I copy this record of the appearance of Neptune from my observation-book, yet I suspect some illusion).

(*i*) The satellite was seen with 760, but much better with 1292. It was too faint and close to measure, in either position or distance, and the place given is the result of estimation. Atmosphere less favourable than usual.

(*k*) Surveyed the neighbourhood of the planet round for satellites, power 1018, none appeared. The field fine and black. Certainly no point of light could be detected within three times the greatest elongation of the known satellite. A minute star about half its magnitude was in the field, but was proved to be a star on the 9th Nov. Field of the eyepiece 3′ 36″.

(*l*) The neighbourhood of the planet again examined round to the distance of 3′, with power 1018, without finding any points of light which might be satellites. From the brightness of the known satellite, I am more and more confirmed in the opinion that although he probably has other satellites, none of them bears a greater proportion of magnitude to the known one than Tethys or Dione, among Saturn's satellites, does to Titan. More optical power therefore than I possess will be necessary for their discovery.

(*m*) The distance, a mean of eight accordant measures, but the sky is more disturbed than usual and clouds are passing, Power 760.

(*n*) Measures of the satellite, from its proximity, taken with difficulty. Five measures of the diameter of the planet gave 2″324.

(*q*) Notwithstanding the closeness of the satellite, some haziness of the sky, and the bright moonlight, the distance is the result of nine coincident measures — the position, of seven measures.

(*r*) The haze of the sky, neighbourhood of the moon, (and such a moon as is not seen in England) and diffused vision arising from an aggravated sirocco wind, rendered observation difficult

Dec. 7. After some interruption of the fine weather by gales of wind, and occasional showers I turned the telescope upon Neptune and measured a companion which I took to be the satellite, in position and distance. The former 328° the latter 12″¼. But on reducing the measures I found that I must have measured a star, as the true satellite at this distance never could be in this position: though the magnitude and distance might very well have belonged to it. Not having any notion, at the time of observing, where the satellite would be situated and the fact being that it was almost at its closest approach to the planet: and moreover being deceived by the star, I overlooked the true satellite. But even here the outstanding of the position angle immediately detected the error. Seven measures of the diameter of the planet with 1027 gave 2″991.

Dec. 8. Measured diameter of Neptune mean of 5 measures with power 1027 gave 2″645. On going up to the observatory this evening I observed Mercury very near the horizon, shining very brightly for his position. I watched him go behind the horizon as behind a transit wire, very obvious one moment, gone the next. Such was the clearness of the atmosphere. Canopus too, which has here only a meridian altitude of 1°49′ including refraction, occasionally shines out with a brilliancy almost rivalling Rigel, although the latter is so far above him.

Dec. 9. Remeasured the diameter of Neptune with 1027 mean = 2″774. The power however seemed rather too great for the circumstances.

Dec. 20. Remeasured the diameter of Neptune, power 1027. The mean of 6 measures gave 2″796.

Dec. 22. Remeasured diameter of Neptune mean of 8 measures with 1027 gave 2″450, mean of 6 measures with 219 gave 2″710.

Dec. 27. Mean of 10 measures of diameter with 760 gave 2″628. No stars or points of light visible within 4′ of the planet. Power 778. The measures of distance were obtained in very strong twilight.

1853 Janr. 1. Remeasured diameter of Neptune. Disk capital and circumstances very favorable mean of 8 measures with 366 gave 3″035, mean of 5 measures power 614 gave 2″774.

The mean of all the measures of the planet's diameter is 2″713. The difference of the various sets is greater than I should have expected, but there are many things which must influence the results, e. g. the state of atmosphere, the magnifying power and the degree of illumination. As varieties of these have accompanied the measures, I hope this mean will not be far from the truth. The feeble light of the disk and its minuteness render its accurate measurement a task of great difficulty.

The observations of the satellite compared with former ones made at various periods will I believe require a somewhat longer period than has been given, viz. about 5,8779 days.

Valetta 1853, Jan. 5.

W. Lassell.

Elemente und Ephemeride der Lutetia, von Herrn *C. Bruhns.*

Elemente,

berechnet aus den Beobachtungen Nov. 28 Hamburg und Dec. 18, Jan. 6 Berlin.

Epoche 1852 Dec. 18,286172 m. Berl. Zt.

M_0	68°43′ 44″0	Mittl. Aeq. 1853 Jan. 0.
π	331 15 32,7	
Ω	80 25 50,1	
i	3 5 54,2	
φ	8 21 37,9	
log. a	0,389359	
„ μ	2,965968	

Ephemeride für 12^h mittl. Berl. Zeit.

		α.	δ.	lg. Δ
1853 Janr.	8	2^{h}30′ 30″	+13°30′ 9	0,27196
	9	31 1	35,0	
	10	31 34	39,3	
	11	32 8	43,6	
	12	32 44	48,1	0,28452
	13	33 21	52,6	
	14	34 0	+13 57,2	
	15	34 40	+14 1,9	
	16	35 21	6,7	0,29692
	17	36 3	11,5	
	18	36 47	16,4	
	19	37 32	21,4	
	20	38 19	26,4	0,30912
	21	39 7	31,5	
	22	39 56	36,6	
	23	40 46	41,8	
	24	2 41 37	+14 47,1	0,32119
	25	2 42 29	+14 52,4	
	26	43 23	+14 57,8	
	27	44 18	+15 3,3	
	28	45 14	8,8	0,33229
	29	46 10	14,4	
	30	47 7	20,0	
	31	48 6	25,6	
Febr.	1	49 6	31,3	0,34451
	2	50 7	37,0	
	3	51 9	42,7	
	4	52 12	48,5	
	5	53 16	+15 54,3	0,35576
	6	54 21	+16 0,1	
	7	55 27	6,0	
	8	56 34	11,9	
	9	57 41	17,8	0,36677
	10	58 49	23,7	
	11	2 59 59	29,7	
	12	3 1 9	35,6	
	13	2 20	41,6	0,37744
	14	3 32	47,6	
	15	4 44	53,6	
	16	5 57	+16 59,6	
	17	7 12	+17 5,7	0,38780
	18	8 27	11,7	
	19	9 43	17,8	
	20	10 59	23,8	
	21	12 16	29,9	0,39784
	22	13 34	35,9	
	23	14 53	42,0	
	24	16 12	48,1	
	25	3 17 32	+17 54,2	0,40756