

# OLBERS to GAUSS

Bremen

September 19th, 1802

Translated from the German by Tarrajna Dorsey

Many, many thanks for your instructive letter from the 14th of Sept., which, however, I do not reply to today, because I have communicated to you *very important* observations in the consideration of our *Pallas*. On the 1st of Sept., MÉCHAIN wrote to BODE, that he had discovered the comet on the 28th of August, *as he had just then managed to observe* ♄. According to this, MÉCHAIN observed *Pallas* until the end of August! Indeed, he communicated to BODE not the latest, but rather eight observations until the 7th of Aug., which BODE sent to me. Therein, BODE wrote: “I ask that you do not communicate the observations *in their entirety* [*in extenso*] to anyone, if Herr MÉCHAIN does not send the complete ones himself, they will appear in the 1805 almanac, which is expected to go to press at the beginning of next month.” — At the end, the following post script is attached: “Herr Dr. GAUSS has kindly sent me his newest elements of the orbit of ♄ and an ephemeris of the same for next year. I ask that when you write to him next, you would please communicate *one or the other* of MÉCHAIN’s observations of ♄ for the benefit of his calculations, in my name, and commend my best to him.”

That forbidding of the communication probably only refers to Herr v. ZACH. Partly, ZACH and BODE are known *not* to be friends now, partly, BODE wants to reserve these observations for his almanac and not have them divulged earlier in the *Monatliche Correspondenz*. I now presume that MÉCHAIN will have sent the same observations to ZACH as well (although ZACH appears not to have obtained as much news as Paris for some time), meanwhile, I will naturally adhere to BODE’s request literally. Only I do not see why I should not send *all* eight of MÉCHAIN’s observations to you, my dearest friend, since I know that you will certainly not make use of them contrary to BODE’s views. Here are all eight:

	Mean Times	Apparent Right Ascension	Apparent Declination
July	12. 10 <sup>h</sup> 52 <sup>m</sup> 47 <sup>s</sup>	192° 2' 10.4''	17° 42' 42.8''
"	14. 10 <sup>h</sup> 28 <sup>m</sup> 49 <sup>s</sup>	192° 35' 45.7''	17° 29' 54.8''
"	16. 9 <sup>h</sup> 51 <sup>m</sup> 43 <sup>s</sup>	193° 9' 33.7''	17° 16' 4.7''
"	17. 10 <sup>h</sup> 16 <sup>m</sup> 13 <sup>s</sup>	193° 27' 11.2''	17° 9' 0.6''
"	18. 10 <sup>h</sup> 25 <sup>m</sup> 40 <sup>s</sup>	193° 44' 56.2''	17° 1' 51.5''
Aug.	4. 9 <sup>h</sup> 36 <sup>m</sup> 28 <sup>s</sup>	198° 58' 52.1''	14° 58' 28.8''
"	5. 9 <sup>h</sup> 33 <sup>m</sup> 37 <sup>s</sup>	199° 18' 11.4''	14° 51' 6.1''
"	7. 9 <sup>h</sup> 22 <sup>m</sup> 45 <sup>s</sup>	199° 57' 6.8''	14° 36' 13.2''

“These observations were made outside of the meridian, and the results of observations repeated six, nine, and twelve times daily with near stars according to LE FRANÇAIS and v. ZACH.”

Your exemplary exactness in observation, dear friend, is as well known to me as MÉCHAIN’S, and so you will most likely prefer these observations to those of ORIANI, which go until the 8th of Aug., and which our friend ZACH will have communicated to you. These observations will thus provide a real test for your latest elements, about whose result I am naturally very curious. — It very much annoys me, that I have not located ♀ again due to the cessation of the nightly twilight [*nächtlichen Daemmerung*] and due to my return to Rehburg. I would have certainly been able to observe them still in August too.

The weather is very disadvantageous for me, for the comet. I have only seen it again one time, on the 13th of Sept.; since then it is always cloudy. Also, on the 13th the comet was hardly discernable in the large telescope because of the bright moonshine. The observations were:

Sept. 13. 8<sup>h</sup> 14<sup>m</sup> 20<sup>s</sup> RA 253° 59' 13'' Decl. 20° 15' 7''

I have now used these observations from the 13th in order to calculate as improved elements for the orbit of the same, as were preliminarily possible with an interval of only five days. In the meantime, these elements will not turn out much more differently than the former ones, if no error has crept into the former calculations. Namely, I had thoughtlessly written 1.10460 for  $r'$  instead of 1.10046, and this had thus changed the situation of the orbit. Here are the new elements:

Time of the ☉ distance. . . 1802, Sept. 9. 19<sup>h</sup> 34<sup>m</sup>  
 Long. ♄ . . . . . 10<sup>s</sup> 10° 10'  
 Incl. Orb. . . . . 56° 58'  
 Long. Perih. . . . . 11<sup>s</sup> 2° 0'  
 Log. Dist. Per. . . . . 0.039297

Dir. Mot.

According to these elements the distance of the comet from the Earth on Aug. 28th was 0.3918, 0.4606 on Sept. 2nd, 0.5978 on Sept. 13th. — On Sept. 30th around midnight, the right ascension will be:  $258^{\circ} 36'$ , the declination  $33^{\circ} 49'$ , and the distance 0.8312.

I calculated the locations of ♁ for next year according to your element no. III. You will already guess that, for convenience, I have based the true anomaly on non-uniform intervals of time and have sought the respective times and distances.

[An ephemeris of *Pallas* from February 5th, 1803 to June 30th follows.]

For March 1st, 1797, I find for ♁, a right ascension of  $107^{\circ} 47'$ , and declination of  $13^{\circ} 18'$  S. from your new elements. Thus, what is derived from element no. III differs very little from this (RA  $107^{\circ} 24'$ , Decl.  $13^{\circ} 26'$ ). You would render a service to me, if you would also, some time or other, calculate the position of ♁ for March 1st, 1797.

I do not know, what the *Hist. Cèl.* costs. I received it as a gift from LA LANDE. — However, you could *certainly* obtain the promised books if the new volume of *Conn. des tems* was sent to you.