

Supplement of Ann. Geophys., 38, 1139–1147, 2020
<https://doi.org/10.5194/angeo-38-1139-2020-supplement>
© Author(s) 2020. This work is distributed under
the Creative Commons Attribution 4.0 License.



Supplement of

An early mid-latitude aurora observed by Rozier (Béziers, 1780)

Chiara Bertolin et al.

Correspondence to: Chiara Bertolin (chiara.bertolin@ntnu.no)

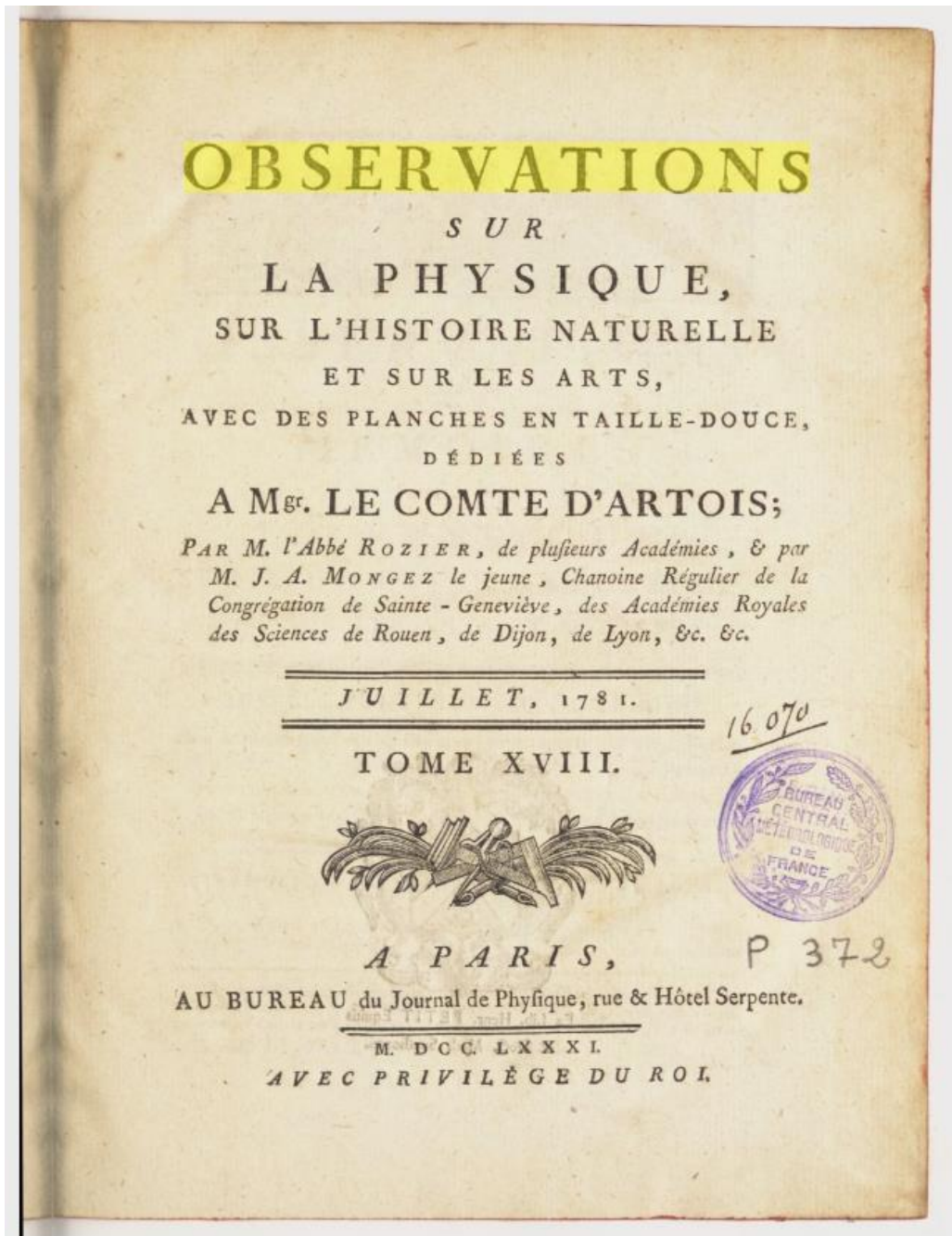
The copyright of individual parts of the supplement might differ from the CC BY 4.0 License.

1

2 Link to the Source Image preserved at Bibliotheque nationale de France with sign: Bibliotheque de Metro-
3 France, 2015-97519.

4 <https://gallica.bnf.fr/ark:/12148/bpt6k96043313/f2.image> (Last URL access: February 13th 2020)

5 <https://gallica.bnf.fr/ark:/12148/cb399860128/date.item> (Last URL access: February 13th 2020)



6

7

8 Link to the original translated document:

9 <https://gallica.bnf.fr/ark:/12148/bpt6k9609788t.r=phosphoriqueobservations%20phosphorique%20observations>

10 [?rk=278971;2](https://gallica.bnf.fr/ark:/12148/bpt6k9609788t.r=phosphoriqueobservations%20phosphorique%20observations?rk=278971;2) (Last URL access: February 13th 2020)

11

12 **English Translation of the Rozier`s Observation**

13 **About a dense cloud made phosphoric by an overabundance of electricity, observed from Beausejour near**
14 **Bezier, August 15:**

15 The temperature of this day was 25.5 °C; the barometer foresaw a storm: white big clouds moved (travelled) in
16 the upper area of the atmosphere during the whole day and the sun hides behind a mass of these clouds that
17 intertwine each other.

18 At 7 pm, the atmosphere changed more and more; the clouds seemed to leave the upper region to lower towards
19 the earth, and a heavy and intense weather took away the possibility to breathe easily. The closer the night
20 approached, the more the clouds were pushed (or swelled) and accumulated towards the great chain of mountains
21 of the third order that cross the low-Languedoc from east to west.

22 At 7.45 am the uncertain light of some flash (lightning?) started from the west coast, suggesting that the thunder
23 roared too far (long) to be heard. Little by little the flashes multiplied, it happened with surprising speed, and the
24 sound of the thunders began to be audible.

25 At 8 pm, the winds opposed each other and gave different directions to the clouds; however, the winds from the
26 west were always the dominant. At this time the tones were doubled on the side of the mountain, and the sky was
27 all of fire. Night has come; it was no longer possible to distinguish the direction of the clouds because the vivacity
28 of the light of the flashes made the obscurity following (which came later) them deeper and deeper; finally, the
29 orange darted rapidly from west to east, and it was terrible toward the mountain.

30 At 8.05 am it was completely night. It was at this moment that, examining the direction and the effects of the
31 flashes, I noticed behind the slope of the hill, which on one side blocks the view from my house, a bright spot.
32 This light did not look like that of a candle seen from afar, nor that which spreads from a forest or grass when
33 they are set on fire. It seemed to me to have the whitish color of phosphorus burning in the open air, or rather of
34 that of mercury stirred in a tube without air.

35 This bright spot gradually acquired volume and space (but perhaps intensity). It imperceptibly formed an area, a
36 phosphoric band that appeared to my eyes at a height of 3 feet: and starting from the top of the hill almost to
37 Beziers, this area seemed to form the base of a 60 ° angle, whose summit corresponded to my eye (from whose
38 top it responded to my eye).

39 On this first luminous area, a second one of the same height formed and it had only 30 ° of extension (width), or
40 half of that of the lower area. Between them remained a void whose height equaled that of one of the two areas
41 considered separately.

42 Even if these two zones followed a horizontal direction, it is not to be believed that their line of demarcation followed
43 exactly a straight line. We noticed on both some irregularities, roughly as on the edges of that big white cloud,
44 before it was orange-colored, and these edges were not all equally luminous (they were not all bright at the same
45 way) even if the center of the zones showed a uniform light.

46 During the period of time when these areas were moving eastward, the lightning and thunder noise were more
47 rapid; finally, at three different times, the (a) flash started from the end of the lower area. But an object worthy of
48 note is that the noise following these flashes, if there was one, was weak and I would dare to say almost null
49 because I could not distinguish it from the noise of the thunder that was starting from the upper region and from

50 a greater distance. Every flash, launched by the general mass, made me clearly appreciate the vines, the crops, the
51 top (croup) and the sinuosity of the small mountains located in front of the big chain.
52 That light helped me to understand that the areas were closer to me and did not belong to the mass of clouds
53 pushed by the winds towards the mountain.
54 This phenomenon shone from 8.05 until 8.17. In this instant a blow of wind from the south changed the direction
55 of the clouds, bringing them closer to the big mountain chain, and the orange moved away from Beziers.
56 It would seem that (there is all the appearance that) these areas were a simple mass of vapors, only charged by
57 electricity, which made them transparent and phosphoric. It is proved by the fact that three times the flash
58 disappeared (it is gone) and the trail of light left by the flash appeared to be more than twice the diameter of
59 normal flashes. The (apparent) proximity of the objects could, it is true, be due to these optical effects (having
60 part inside these optical objects).
61 I am led to believe that these areas were detached entities (bodies) and that they did not belong to the mass of the
62 other clouds because the mountains were visible behind them when the flash formed (started from; departed from)
63 from the big mass; finally, when the flash started from these areas, there was no explosion.
64 I don't know if such a phenomenon has been observed elsewhere; but I never read anything that can be compared
65 to it.