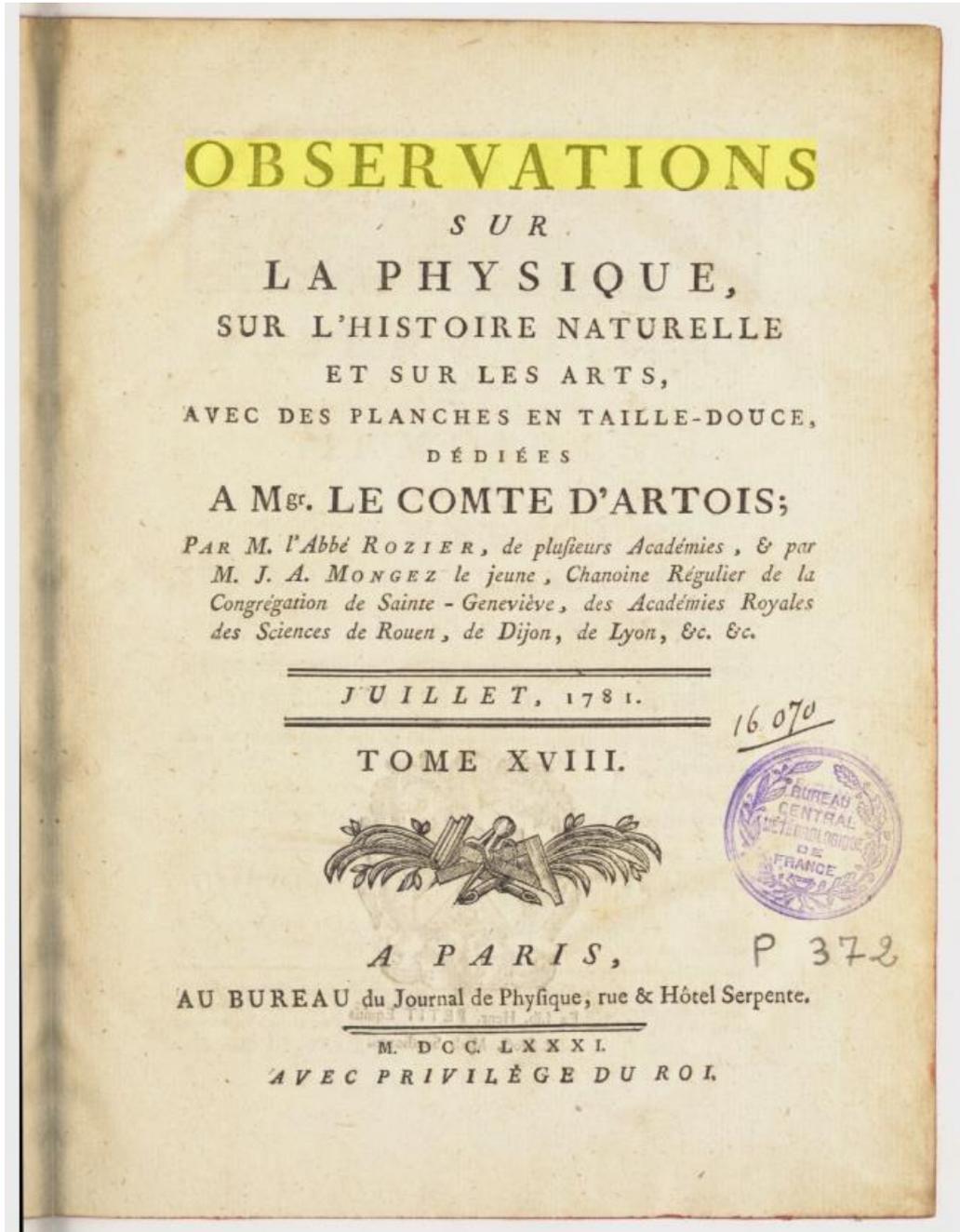
1   **Supplementary Material 1**

2   Link to the Source Image preserved at Bibliotheque nationale de France with sign: Bibliotheque de
3   Meto-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   **Reference:**

8   Rozier, F. 1781. Observations sur la physique, sur l`histoire naturelle, et sur les arts/ Par M. l`abbe
9   Rozier. Tome XVIII Bureau du Journal de physique (Paris).

13

English Translation of the Rozier`s Observation

15

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

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

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

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

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

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

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

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

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

During the period of time when these areas were moving eastward, the lightning and thunder noise were more rapid; finally, at three different times, the (a) flash started from the end of the lower area. But an object worthy of note is that the noise following these flashes, if there was one, was weak and I would dare to say almost null because I could not distinguish it from the noise of the thunder that was starting from the upper region and from a greater distance. Every flash, launched by the general mass, made me clearly appreciate the vines, the crops, the top (croup) and the sinuosity of the small mountains located in front of the big chain.

That light helped me to understand that the areas were closer to me and did not belong to the mass of clouds pushed by the winds towards the mountain.

This phenomenon shone from 8.05 until 8.17. In this instant a blow of wind from the south changed the direction of the clouds, bringing them closer to the big mountain chain, and the orange moved away from Beziers.

It would seem that (there is all the appearance that) these areas were a simple mass of vapors, only charged by electricity, which made them transparent and phosphoric. It is proved by the fact that three times the flash disappeared (it is gone) and the trail of light left by the flash appeared to be more than twice the diameter of normal flashes. The (apparent) proximity of the objects could, it is true, be due to these optical effects (having part inside these optical objects).

I am led to believe that these areas were detached entities (bodies) and that they did not belong to the mass of the other clouds because the mountains were visible behind them when the flash formed (started from; departed from) from the big mass; finally, when the flash started from these areas, there was no explosion.

I don't know if such a phenomenon has been observed elsewhere; but I never read anything that can be compared to it.

Reference:

Rozier, F. 1781. Observations sur la physique, sur l`histoire naturelle, et sur les arts/ Par M. l`abbe Rozier. Tome XVIII Bureau du Journal de physique (Paris).