

with instruments, had as yet taken such an observation. I had a telescope and a chronometer, which I knew to be exceedingly correct. In the part where the sun was to appear the horizon was free from vapour. We perceived the upper limb at 4^h 48' 55" apparent time, and what is very remarkable, the first luminous point of the disk appeared immediately in contact with the limit of the horizon, consequently we saw the true horizon; that is to say, a part of the sea farther distant than 43 leagues. It is proved by calculation that, under the same parallel in the plain, the rising would have began at 5^h 1' 50.4", or 11' 51.3" later than at the height of the peak. The difference observed was 12' 55", which arose no doubt from the uncertainty of the refraction for a zenith distance, of which observations are wanting.

We were surprised at the extreme slowness with which the lower limb of the sun seemed to detach itself from the horizon. This limb was not visible till 4^h 56' 56". The disc of the sun, much flattened, was well defined; during the ascent there was neither double image nor lengthening of the lower limb. The duration of the sun's rising being triple that which we might have expected in this latitude, we must suppose that a fog-bank, very uniformly extended, concealed the true horizon, and followed the sun in its ascent. Notwithstanding the libration of the stars,* which we had observed towards the east, we could not attribute the slowness of the rising to an extraordinary refraction of the rays occasioned by the horizon of the sea; for it is precisely at the rising of the sun, as Le Gentil daily observed at Pondicherry, and as I have several times remarked at Cumana, that the horizon sinks, on account of the elevation of temperature in the stratum of the air which lies immediately over the surface of the ocean.

The road, which we were obliged to clear for ourselves across the Malpays, was extremely fatiguing. The ascent is steep, and the blocks of lava rolled from beneath our feet. I can compare this part of the road only to the Moraine of the

* A celebrated astronomer, Baron Zach, has compared this phenomenon of an apparent libration of the stars to that described in the *Georgics* (lib. 1, v. 365). But this passage relates only to the falling stars, which the ancients, (like the mariners of modern times) considered as a prognostic of wind.