

But of all the effects of the non-density of the air, the most manifest was the extreme acceleration of human respiration. Upon Mont Blanc, where the barometrical column undergoes a depression of nearly one-half, and where the lungs consequently receive at each inspiration just half the quantity of oxygen which they would receive in the plain, it is obvious the respirations must necessarily be twice as numerous for the blood-making to be maintained in its normal and physiological conditions. The necessity of these continually-repeated respirations explains the anguish and fatigue which men endure at great elevations.

But at the same time that the respiration is accelerated, the circulation of the blood is quickened in the same proportion. De Saussure wished to assure himself of this fact in an accurate manner, and to prevent any erroneous ascription of the accelerated pulse to the fatigue of the ascent, he did not make the trial until after four hours of almost tranquil rest on the mountain's summit. Then he found that his servant's pulse beat 112 times in a minute, his own 100, and that of Pierre Balmat 98. This trial, repeated next day at Chamounix, after some hours' repose, gave for the same individuals respectively, 60, 72, and 49 pulsations.

Thus the intrepid explorers of Mont Blanc were incessantly in a feverish condition, which explains the thirst that tormented them, as well as their antipathy to wine, strong liquors, and even to every kind of food. They longed only for cold water, and nothing else would they endure; eating snow did but increase their pain. However, when they kept themselves perfectly tranquil, they did not suffer seriously.

Some of the guides and men engaged in the expedition could not endure so many varieties of torture; they were compelled to descend to a more condensed air.

"Nature," says De Saussure, "has not made man for these lofty regions; the intense cold and rarefied air drive him from them; and as he can find neither animals, nor plants, nor even metals, nothing attracts him thither; curiosity and an ardent desire of instruction are the sole impulses which ever lead him to surmount for a brief period the numerous obstacles in his way.

"I remained, however, upon the summit until half-past three o'clock, P.M., and although I lost not a single moment, I could not perform in these four and a half hours all the experiments which I have frequently completed on the sea-level in three hours. It was with much regret I set out without having accomplished my entire project, but it was absolutely needful to allow ourselves a sufficient margin of time to cross before night the dangerous passages we had to traverse. . . .

"I quitted, with great reluctance, at half-past three, this magnificent *belvédère*.

"We passed near the spot where, on the preceding night, we had, if not slept, at least reposed, and we pushed forward another league to the rock in whose vicinity we had halted on our ascent. I determined to pass the night there; I caused my tent to be raised against the southern extremity of the rock, in a truly singular situation. It stood on a snowy declivity overshadowed by the Dôme du Goûter, with its crown of pinnacles, and terminating southward in the peak of Mont Blanc. At the bottom of this declivity yawned a broad and deep crevasse, which separated us