

# AS WE WERE...

## Christmas at Humphry's

In his quest to discover the properties of nitrous oxide, Humphry Davy (1778–1829) was no stranger to self-experimentation. On 23 December 1799, Davy (who was 'little accustomed to wine or spirits, and had never been completely intoxicated'<sup>1</sup>) decided to examine the effects of nitrous oxide following the excessive consumption of alcohol:

*'At four PM...I drank a bottle of wine in large draughts in less than eight minutes. Whilst I was drinking, I perceived a sense of fullness in the head, and throbbing of the arteries, not unanalogous to that produced in the first stage of nitrous excitement. After I had finished the bottle, this fullness increased, the objects around me became dazzling, the power of distinct articulation was lost, and I was unable to walk steadily. At this moment the sensations were rather pleasurable...the sense of fullness in the head soon however increased as to become painful and in less than an hour I sunk into a state of insensibility. In this situation I must have remained for two hours or two hours and half. I was awakened by head-ache and painful nausea. The nausea continued even after the contents of the stomach had been ejected. The pain in the head every minute increased; I was neither feverish or thirsty; my bodily and mental debility were excessive, and*

*the pulse feeble and quick. In this state I breathed for near a minute and half five quarts of gas [nitrous oxide]...but as it produced no sensations whatsoever, and apparently rather increased my debility, I am almost convinced that it was from some accident, either common air, or very impure nitrous oxide....The head-ache and debility still however continuing with violence, I examined some nitrous oxide which had been prepared in the morning, and finding it very pure, respired seven quarts of it for two minutes and half. I was unconscious of head-ache after the third inspiration; the usual pleasurable feeling was produced, voluntary power was destroyed, and vivid ideas rapidly passed through my mind... Immediately after the exhilaration had disappeared, I felt a slight-return of the head-ache; it was connected with transient nausea. After two minutes, when a small quantity of acidified wine had been thrown from the stomach, both the nausea and head-ache disappeared; but languor*

*and depression not very different in degree from those existing before the experiment succeeded.'*



Sir Humphry Davy. Oil Painting. Credit: Wellcome Collection. Reproduced under Creative Commons Attribution (CC BY 4.0).

Having recovered by Boxing Day, Davy resolved to inhale nitrous oxide 'in such quantities, as to produce excitement equal in duration and superior in intensity to that occasioned by high intoxication from opium or alcohol'.

*'On December 26th, I was enclosed in an air-tight breathing box...in the presence of Dr Kinglake. After I had taken a situation in which I could, by means of a curved thermometer inserted under the arm, and a stop-watch, ascertain the alterations in my pulse and animal heat, 20 quarts of nitrous oxide were thrown into the box. For three minutes I experienced no alterations in my sensations, though immediately after the introduction of nitrous oxide the smell and taste of it were very evident. In four minutes I began to feel a slight glow in the cheeks, and generally diffused warmth over the chest. In ten minutes...20 quarts more of nitrous oxide were thrown into the box, and well-mingled with the mass of air by agitation.... In 30 minutes, 20 quarts more of gas were introduced. My sensations were now pleasant; I had a... sense of exhilaration similar to that produced by a small dose of wine, and a disposition to muscular motion and to merriment. In three*

*quarters of an hour...the pleasurable feelings continued to increase...I had now a great disposition to laugh, luminous points seemed frequently to pass before my eyes, my hearing was certainly more acute and I felt a pleasant lightness and power of exertion in my muscles. In a short time the symptoms became stationary...I now came out of the box, having been in precisely an hour and a quarter. The moment after, I began to respire 20 quarts of unmingled nitrous oxide... my visible impressions were dazzling and apparently magnified, I heard distinctly every sound in the room and was perfectly aware of my situation. By degrees as the pleasurable sensations increased, I lost all connection with external things; trains of vivid visible images rapidly passed through my mind and were connected with words in such a manner as to produce perceptions perfectly novel. I existed in a world of newly connected and newly modified ideas. I theorised; I imagined that I made discoveries. When I was awakened from this semi-delirious trance...my emotions were enthusiastic and sublime...As I recovered my former state of mind, I felt an inclination to communicate*

*the discoveries I had made during the experiment. I endeavoured to recall the ideas, they were feeble and indistinct; one collection of terms, however, presented itself: and with the most intense belief and prophetic manner, I exclaimed..."Nothing exists but thoughts! – the universe is composed of impressions, ideas, pleasures and pains!"'*

### Reference

- 1 Davy H. Researches, chemical and philosophical, chiefly concerning nitrous oxide, or dephlogisticated nitrous air, and its respiration. J Johnson, St. Paul's Church-yard, London 1800.

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