

Pneumatics and the Alchemy of Weather: What Is Wind and Why Does It Blow?

In Renaissance Europe, in the years between 1530 and 1620, a number of pre-existing traditions about wind, spirit, the element air, and pneumatic devices resonated with each other, giving rise to new views on the nature and origin of wind. Eventually, winds came to be regarded as resulting from the air's tendency to rarefy and expand under the influence of heat. This is essentially the same opinion that is held today.

Simple as this explanation may seem, it was—and still is—highly non-trivial, both because of the complexity of wind phenomena and the general difficulty of conceptualising the motive force of heat. Moreover, in the Renaissance much more was at stake in connection with this subject than merely the application of a known principle to a new field. Explaining winds—or wind—might be an opportunity to demonstrate how rational thought could grasp the inner principles according to which nature produced its most complex phenomena. For some philosophers, understanding the origin of winds even meant understanding how divine power descended to Earth, bringing movement, change, and life. Thus, behind the complexity of wind the greatest mystery of all lay hidden.

For Renaissance Europeans, the main feature of wind was its variety, represented by the long-standing tradition of the wind rose. However, during the sixteenth century philosophers took an increasing interest in discussing the possible common nature and origin of all winds, and I shall present an overview of their opinions.¹ In doing so, I will focus on the role—or better: roles—played by technical artefacts in the attempts at conceptualising wind and its motive force. The devices we shall encounter most frequently will be pneumatic engines; that is, machines in which motion was generated by allowing air (or sometimes steam) to expand and contract. Springs will be mentioned, too, as well as some (al)chemical products, notably gunpowder. No machines made of gears, weights, levers, or pulleys entered late Renaissance discussions on the

¹ I consciously use the term “origin” here because although authors of the period often spoke of “cause” or “causes” of wind, their notions of causality cannot be employed without a long discussion.