

## Ekphrasis, Experience, and Experiment

Ekphrasis possesses the potential, most thoroughly analyzed by Ruth Webb, to bring a reader virtually into the presence of objects and events even if they are absent or purely imagined. This potential suggests a set of cognitive processes comparable to those invoked by mental models of experimental processes, including thought experiments as well as experiments carried out in the laboratory or the external world. While such models are often thought of as inhabiting a purely scientific territory, Nancy Nersessian points out that “the practice is a highly refined extension of a common form of reasoning. It is rooted in our abilities to anticipate, imagine, visualize, and re-experience from memory.” Nersessian focuses on the imaginative construction, through narrative, of a “dynamical model in the mind” upon which the work of the thought experiment is carried out, noting that while the model is communicated through language, the thought experiment is conducted on an imagined system that relies heavily on mental images and other elements that extend the imaginative experience beyond the purely linguistic domain.

Nersessian’s analysis makes plain the strong similarities between the work performed by such mental models and the cognitive effects of ekphrasis. Like other kinds of ekphrasis, mental models of experimental processes often supplement explicit description with appeals to the reader’s prior experiences of different sensory modalities from the visual to the kinesthetic. Certain kinds of texts may include additional elements, such as diagrams, which are too abstract to replace the work of the verbal description but rather serve as a kind of auxiliary scaffolding for visualization. These texts provide the opportunity to consider how such supplementary features interact with the verbal description to create a more vivid imagined experience.

This paper will examine how several ancient authors used ekphrastic techniques to create the cognitive conditions for readers to imagine and perform “experiments” of various kinds, both “thought experiments” and concrete actions in the world. Texts that yield particular insight into the relationship between ekphrasis and experiment include the layered interactions of lived and described experience in the Peripatetic *Mechanical Problems*, Seneca’s conscription of everyday experiences to answer questions about remote physical phenomena in his *Natural Questions*, and Hero of Alexandria’s *Pneumatica* and *Mechanica*, where practical experimental guidance is combined with visualizations on diagrams in novel ways.

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