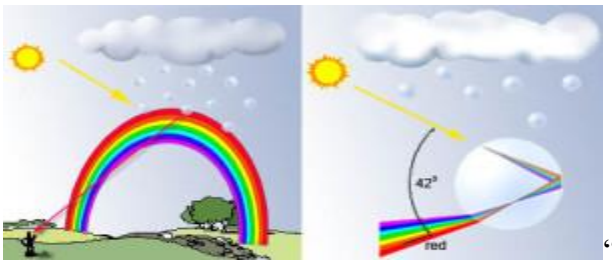
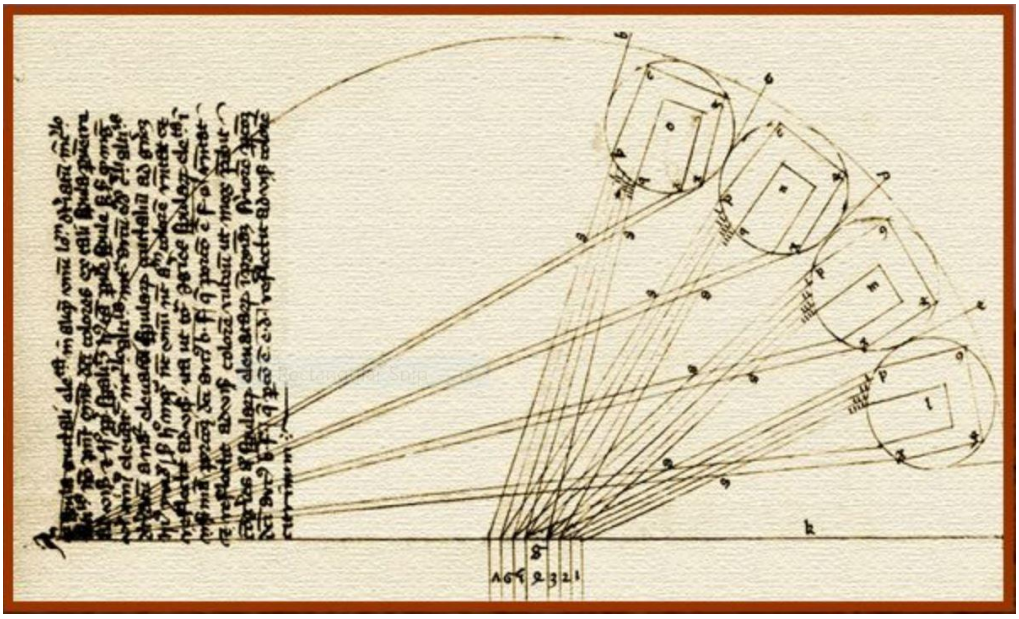
Light. Not all is said and done.

First: **Theodoric of Freiburg** who appears to have been somewhat forgotten.

The most outstanding piece of experimental work in the High Middle Ages was completed by a Dominican friar Theodoric of Freiburg (ca. 1250-1310), who studied at the University of Paris shortly after Aquinas' death and belonged to the same German province of Teutonia as Albert the Great, being one of his successors in the provincial office. Besides a large number of opuscula in philosophy and theology – obliged by the master of the Order, Aymeric de Plaisance – he wrote his treatise "On the Rainbow and Radiant Impressions" (*De iride et radialibus impressionibus*), which describes his scientific experimental work. William Wallace praises the ingenuity of his work saying that:



"Theodoric's place in the history of optics is guaranteed by his detailed analysis of the primary and secondary rainbows, of lunar and solar halos, and of other optical phenomena appearing in the earth's atmosphere. At a time when Peter Peregrinus provided the only real precedent for experimentation, Theodoric set about systematically investigating the paths of light rays that generate radiant colors in the earth's atmosphere, and did so largely by experimental means. He utilized spherical flasks filled with water, crystalline spheres, and prisms of various shapes to trace the refractions and reflections involved in the production of radiant colors. He also worked out a theory of elements that was related to his search for optical principles, and which stimulated experimentation along lines that could more properly be called verification than anything we have seen thus far.

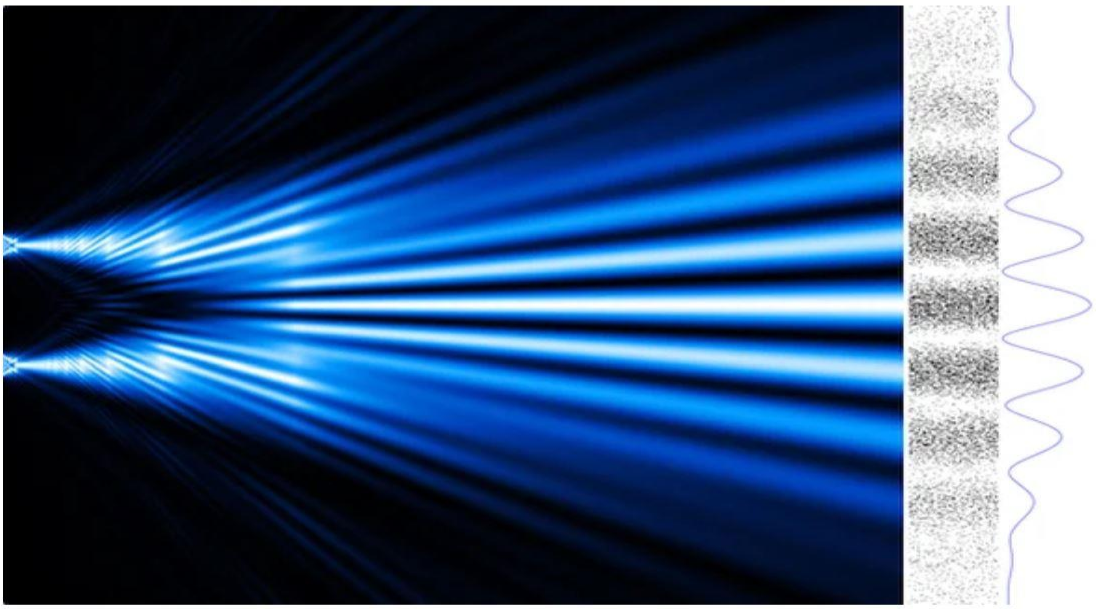


Enter **Isaac Newton's Rainbow** experiments:

In the 1660s, English physicist and mathematician Isaac Newton began a series of experiments with sunlight and prisms. He demonstrated that clear white light was composed of seven visible colors.

By scientifically establishing our visible spectrum (the colors we see in a rainbow), Newton laid the path for others to experiment with color in a scientific manner. His work led to breakthroughs in optics, physics, chemistry, perception, and the study of color in nature.

Still, the problem of particle beam vs waves of pure energy persists as light behaves sometimes as on sometime as the other. It would appear to be at the edge of what is possible, a place where a certain instability of state might be expected as material transcends into energy and vice versa. The speed of light not easily breached by mass.



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Young's experiment, when done with single photons or even single particles of matter, such as electrons and neutrons, is a conundrum to behold, raising fundamental questions about the very nature of reality.

Some have even used it to argue that the quantum world is influenced by human consciousness, giving our minds an agency and a place in the ontology of the universe.

It is tempting to go that far, I myself would not go there without some further evidence. Although if the axiom: *to observe things is to change them* is true there might be something in this idea. I myself would explore the accuracy of measurement first. It appears that all arguments hinge about the speed of light currently clocked at: 299 792 458 m / s in vacuum (but then: How accurate is a meter. We are dealing with the very edge of things here and we are probing with "telephone poles as a stylus".) As nature is said to abhor a vacuum one immediately suspects bombast convenience in the service of commerce. What about old light, unbundled light, colored light, light in the middle of a gravitational and electromagnet quantum soup!? I speculate that there is significant difference in the speed of light in all these situations and further study might lead us to further answers.

A question that comes to mind in a similar vain of pursuit: Is a permanent magnet really permanent? If so how permanent is it. Can it allow a *perpetuum mobile* by cleverly arranging mechanisms that rely on unbalance between geometry, magnetics and gravity? Mind you: Such machines have already be demonstrated, but how permanent are the ingredients?

Sincerely,

Frau Dulent