

Sources of Knowledge by Roger Bacon (1214-1293)
from *Opus Majus* (Translation by Robert Burke, language
simplified)

I now wish to explain the principles of experimental science. Without experience nothing can be sufficiently known. There are two ways of acquiring knowledge—by reasoning and through experience. By reasoning we can draw a conclusion and grant that the conclusion fulfills the test of reason. But reasoning does not alone make the conclusion certain. Only experience can make us accept a conclusion with certainty. A man who has never seen fire is able to prove by adequate use of reason that fire burns and injures things and destroys them. Still, his mind would not be satisfied, and he would not avoid fire. He would place his hand or some substance in the fire so that he could prove by experience the conclusion he had reached through reason. When a man has had the actual experience of fire, his mind is certain of its effects and rests knowing the truth. Reasoning does not suffice, but experience does.

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