

*Science et Représentations*  
Colloque International en mémoire de Pierre Souffrin

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*Heron of Alexandria and the Principles of Mechanics*

In his *Mechanica*, Heron of Alexandria reduced all complex machines to five simple powers or machines and then sought their common principles. He showed that in all five the multiplication of power is accompanied by what he called retardation, such that the greater the power the more slowly the load is moved, which some historians have seen as an implicit appeal to the principle of virtual work. Explicitly, Heron adopted from the pseudo-Aristotelian *Mechanica* the principle of circular movement, which, combined with Archimedes' law of the balance, he used to explain the lever and the wheel and axle. But because the pulley, wedge, and screw were not susceptible to analysis into circular movements, Heron devised a new principle, which I call the principle of dividing and sharing the load. And because he saw retardation merely as a result of the operation of machines, he cannot be credited with recognizing it as the principle of their effectiveness.