

## The “Mechanical Philosophy”

**All action – i.e. all change of state – only through direct contact of one body or aggregate of matter with another**

### **Corpuscularian school**

**Gassendi (following Lucretius), Boyle, Huygens, ...**

### **Plenist school**

**Descartes, Leibniz, ...**

### *As a constraint on theorizing*

**No “power” should be postulated or hypothesized without specifying a possible mechanism by which it can be effected through contact alone.**

### *Rationale*

**For otherwise the means through which the power is effected remains beyond our capacity to understand it and hence mysterious, so that any explanation appealing to it amounts to nothing but an invocation of a word, and hence a pseudo-explanation.**

**“All the properties which we clearly perceive in it are reducible to the sole fact that it is divisible and its parts are movable; and that it is therefore capable of all the dispositions which we perceive can result from the movement of its parts.” [II, 23]**

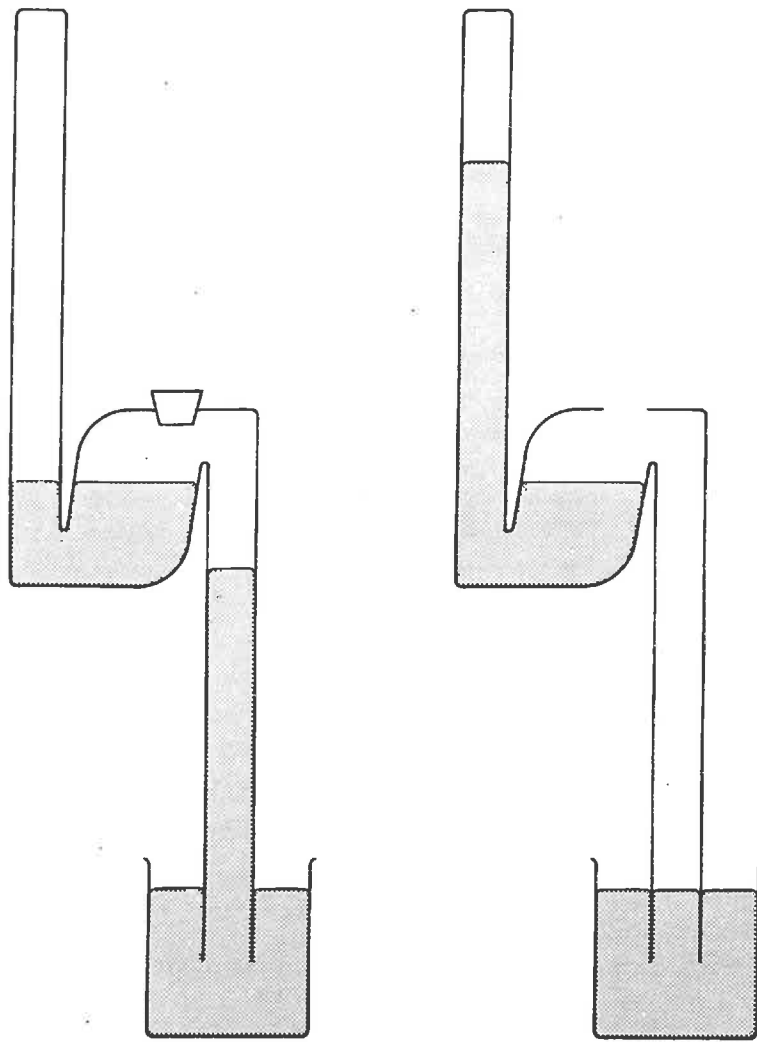


Figure 3.2. *Pascal's vacuum in a vacuum.*

A tube was blown and bent so as to leave two vertical legs, each something over twenty-nine inches long, end to end, with a large bulb between the two where a reservoir of mercury could collect. (See Fig. 3.2.) When the entire apparatus was filled and erected in a dish of mercury, the lower leg functioned as an ordinary barometer. No atmosphere bore down on the surface of mercury in the central reservoir, however, and the mercury in the upper tube stood no higher than the surface of the reservoir. A hole at the top of the lower leg, closed with a plug, could be opened to admit air slowly. As the air entered, the mercury in the lower leg dropped while that in the upper leg rose until, when the hole was fully opened to the atmosphere, the upper leg functioned as an ordinary barometer, and the mercury in the lower leg stood at the same level as that in the dish.

After Pascal's experiments, it was no longer possible to contend intelligently that the barometer does not function as a simple mechanical balance. In his treatment, the weight of the atmosphere alone was the