Inclined Plane Encyclopedia Article

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The inclined plane is one of the simple machines of antiquity, the physical operations of which were first theorized by Archimedes in the second century B.C., and then further explained by Hero of Alexandria in the first century A.D..

Inclined planes are often confused with wedges; while loads are moved along stationary inclined planes, wedges themselves move stationary loads. (Examples of early wedges include prehistoric axes, spears, and arrowheads.) Around 2600 B.C., inclined planes in the form of ramps were used, at least in part, to raise the blocks of stone that make up the Great Pyramid. Between 1900 B.C. and 1400 B.C., inclined planes might also have been used to elevate and place large stone crosspieces at Stonehenge.

Before the advent of inclined planes, levers, pulleys, cranes, gears, and belts, heavy objects had to be hoisted, moved, and positioned by brute force. According to the *law of equilibrium* (which traces back to Archimedes' "law of levers"), as it applies to inclined planes, the total force required to move an object up the length of an inclined place is force = (weight x height) ÷ distance. In other words, since for an inclined plane the height is constant, the force will vary inversely with the distance (or length) of the inclined plane. Increasing the length of an inclined plane (which decreases the angle of lift) will always make a task seem easier, though the total *work* done, which equals (weight x height) is always the same no matter what the angle of the inclined plane.