

ticipating any wider proofs of the impossibility of a *perpetual motion*, drawn from principles subsequently discovered, but would be referring the question to certain fundamental convictions, which, whether put into Axioms or not, inevitably accompany our mechanical conceptions.

In the same way, Stevinus of Bruges, in 1586, when he published his *Beghinselen der Waaghconst* (Principles of Equilibrium), had been asked why a loop of chain, hung over a triangular beam, could not, as he asserted it could not, go on moving round and round perpetually, by the action of its own weight, he would probably have answered, that the weight of the chain, if it produced motion at all, must have a tendency to bring it into some certain position, and that when the chain had reached this position, it would have no tendency to go any further; and thus he would have reduced the impossibility of such a perpetual motion, to the conception of gravity, as a force tending to produce equilibrium; a principle perfectly sound and correct.

Upon this principle thus applied, Stevinus did establish the fundamental property of the Inclined Plane. He supposed a loop of string, loaded with fourteen equal balls at equal distances, to hang over a triangular support which was composed of two inclined planes with a horizontal base, and whose sides, being unequal in the proportion of two to one, supported four and two balls respectively. He showed that this loop must hang at rest, because any motion would only bring it into the same condition in which it was at first; and that the festoon of eight balls which hung down below the triangle might be removed without disturbing the equilibrium; so that four balls on the longer plane would balance two balls on the shorter plane; or in other words, the weights would be as the lengths of the planes intercepted by the horizontal line.

Stevinus showed his firm possession of the truth contained in this principle, by deducing from it the properties of forces acting in oblique directions under all kinds of conditions; in short, he showed his entire ability to found upon it a complete doctrine of equilibrium; and upon his foundations, and without any additional support, the mathematical doctrines of Statics might have been carried to the highest pitch of perfection they have yet reached. The formation of the science was finished; the mathematical development and exposition of it were alone open to extension and change.

[2d Ed.] ["Simon Stevin of Bruges," as he usually designates himself in the title-page of his work, has lately become an object of general interest in his own country, and it has been resolved to erect a