of his Geodesy to the study of the question: "Wie die Tieffe einers Weihers, Graben, See und anderer stillstehender Wasser, sollen künstlich abgemessen und ergründet werden?" He takes a hollow tin or copper sphere, hermetically closed, and provided with an eye by which a metal plate is attached. The top of the plate is furnished with a hook fitting into the eye of the sphere, the under part being fitted with a heavy foot. Whenever the apparatus touches the bottom the sphere is freed from the hook, and returns to the surface. This is exactly the idea of Cusanus, but Puehler added an apparatus to act as a clepsydra, measuring the time the sphere takes to re-appear. For this purpose he advises the use of a clay vase with a small hole at the bottom. The moment the bathometer is dropped, the vase is applied to the surface of the water, which filters through the small orifice at the bottom. He had noted the quantity of water entering the vase in a former experiment with his bathometer in water of which he knew the depth.

ALBERTI'S APPARATUS.

Cusanus' idea was again taken up by a Neapolitan architect named Alberti, of whom Blancanus[1] speaks in a work on architecture. Alberti describes an apparatus consisting of a heavy sphere (a) and a light bent metal tube (b), which is released on touching the bottom, and acts as a float. He says:—"Given water of known depth (p), b requires t (time measured by the clepsydra) to return to the surface, then you have for an unknown depth $t_1 : t = p_1 : p$, $p = \frac{tp_1}{t_1}$.

Cusanus, Puehler, Alberti, and all their successors who have endeavoured to solve the problem of the depth of the sea by means of apparatus with self-detaching floats, take it for granted that the descent of a heavy body through a resisting medium, such as water, is always uniform. This is only approximately the case. One might, indeed, admit that, when the appliance goes down, the velocity is very nearly uniform, for resistance here paralyses acceleration; but we must also admit that there will be acceleration of motion when the float, detached from the weight, returns to the surface.

HOOKE'S APPARATUS.

More than a century later Robert Hooke continued these bathymetrical experiments. He had a sphere made of wood, well varnished, and provided with a steel spring, to which a piece of metal was suspended; this became detached on coming in contact with the bottom, and allowed the float to ascend.[2] Soon after this Rochon made experiments in the Indian Ocean with a modified apparatus of this celebrated English physicist. But

sinken: und wenn du das erden gefäss auf daz wasser setzest und das wasser berürt, lasse die Kugel auss der hand: darnach sihe wenn die Kugel uber daz wasser auffart: in dem selben augenblick verhalt das löchlein das an dem boden des erden gefäss ist: als dann weg das wasser das in den erden gefässe gefunden auf das aller fleyssigest, merck das gewicht, wie schwär es gewogen hat: dergleichen sächte oder messe auch die tieffe des wassers, an dem ort da du das instrument gesenkt hast: und was für eine Proportion der Zal der Schwäre des gewichts des wassers zu der Zal der klaffter und tieffe des wassers hat: solche Proportion wird auch haben die zal oder schwäre des wassers in dem erden gefässe gefunden, wie jetz gesagt, zu der zal der Klaffter, die die tieffe des wassers ist" (Ein kurtze und grundliche anlaytung zu dem rechten Verstand Geometriæ, Dillingen 1563, p. 652).

[1] Blancanus, Sphæra mundi seu Cosmographia, Mutinæ, 1635, pp. 1470 *et seq.*

[2] See *Phil. Trans.*, vol. ii. pp. 439 *et seq.*, 1667 (reproduced in the tail-piece to this Introduction).