http://www.geology.19thcenturyscience.org/books/1858-Higgins-Earth/README.htm

changed, and that it was affected by the varying conditions of the atmosphere. It then came into use as an atmospheric prognosticator, and is still employed as a measurer of atmospheric pressure, and as the foreteller of meteoric changes, though not always upon the most scientific principles.

The barometer in common use is that invented by Dr. Hook; and as its construction is not perhaps so generally known as its external appearance, it may be desirable to give a description of it. It consists of a glass tube containing mercury, the upper end being expanded into a small globule, the lower turned upward to the height of two or three inches. The column of mercury in the tube is supported by the pressure of the column of air resting upon the open end of the tube, and upon the surface of the mercury is placed a glass float, to which is attached a string passing over a pulley, and balanced by a weight. As the weight moves up and down, it turns the pulley, to which is attached a hand or index, that points out upon a graduated circle the exact amount of change in the altitude of the mercurial column, which it does with extreme accuracy.

Pascal's experiment can scarcely fail to suggest the use of the barometer to measure heights, and it has consequently been employed by philosophers for that purpose. At first considerable difficulties stood in the way, and many errors, for which the observers could not account, were observed in the results of the experiments. De Luc afterward discovered that the greater number of these might be traced to the circumstance of not considering the comparative expansions of mercury and of air; for a temperature which would greatly expand the latter would have no influence whatever on the former.

If the density of the atmosphere were uniform, nothing could be more simple than the measurement of heights by the barometer. It has been found by experiment that when the thermometer is 32° Fahrenheit, and the mercury of the barometer stands at thirty inches, it falls about one tenth of an inch if carried to the height of eighty-seven feet. Now, if the density were equal throughout, it would only be necessary to multiply eighty-seven by the number of tenths of an inch that the mercury fell, and we should have the height in feet. But the density of the atmosphere is not uniform, and consequently the difficulty of the problem is increased. So neces