

# An historical perspective on this surveying process for (levelling survey)

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**SURVEYING: LEVELING** Leveling Survey Leveling is a surveying technique that involves the measurement of geodetic height using a digital level, dumpy level, spirit level, or a laser level. The objective of leveling is to locate the elevation of a given point relating to the given or assumed datum, and to establish a point at a given elevation regarding the given or assumed datum (Cazanescu and Mudura, 2010, 471). Leveling is a historical procedure that surveyors have conducted over the years using techniques such as barometric, differential, and trigonometric.

There are several older style optical instruments such as the wye level. Most of the older versions were bulky and involved tedious measurements and data collection. In addition, the telescopes were low-powered as compared to newer versions that are more powerful. Later on, William Grant, an English civil engineer developed the dumpy level, which was more compact and portable. Its disadvantage is the requirement of shorter sights, which means that one has to make several sights.

Surveyors used precise level designs, which had a micrometer adjustment to raise or lower the line of sight and an extremely precise spirit level tube, in large leveling projects that demanded accurateness. Even so, the automatic level revolutionized leveling because it guarantees that the line of sight remains horizontal after leveling the instrument. It is less tedious because it only requires to be leveled once, and the tripod needs minor settling. The laser level is a newer version, which projects a visible beam that is noticeable by a sensor on the leveling rod.

Figure 4. (Cazanescu and Mudura, 2010, 475)

#### List of References

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CAZANESCU, S. and MUDURA, R., (2010), Modern Technology for Land Levelling, Based On A 3d Scanner, Research Journal of Agricultural Science, 42 (3), 2010.