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NOTE ON A NEW INSTRUMENT FOR SURVEYING DEEP BORE HOLES.

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(Read before the Mining Section, 30th November, 1905.)

It is a well-known fact that deep borings are seldom true, and although artesian wells seldom depart very much from the vertical owing to the method of drilling them, yet diamond drill holes and other borings with rotary apparatus very frequently drift very far out of line. So long as the hole is not deep this drifting is not a serious matter, but on holes of say 1,000 feet, the departure from line sometimes exceeds ten per cent. In extreme cases such as certain very deep recent borings near Johannesburg, holes which were intended to be vertical have drifted more than 2,500 feet to one side of their aim.

In view of the great cost of these deep borings it is extremely desirable that the exact location of cores brought to the surface should be determinable, and a number of devices have been introduced within the last few years for the purpose of surveying holes. Most of these devices are comparatively crude and their use involves a great deal of labor.

The apparatus most generally used of late years has been a cylinder of glass, partially filled with hydrofluoric acid. This cylinder, usually less than one inch diameter, is enclosed in a brass case and attached to the end of a string of screwed rods and lowered into the hole to a known depth where it is left for