

*A convenient Device to be applied to the Hand Compass.
By Persifor Frazer.*

(Read before the American Philosophical Society, December 5, 1884.)

In the course of my professional work, it is very often necessary to make rapid recognizance surveys where absolute accuracy of detail is not necessary, and where superfluous equipage is to be avoided as much as possible. As a consequence those who have most experience with this kind of rough geological topography, following to the extent of their ability the example of its most distinguished expositor, Prof. J. P. Lesley, rely very largely upon determination of direction by the ordinary hand compass. This has many inconveniences, and is only possible of application by those who have had considerable experience. In the first place, there are no sights to direct the eye, nor any means to prevent the derangement of the needle, between the time that the sight is taken, and that when it is read off. Add to this the liability of the ordinary hand compass to be broken if its glass face be unprotected; or the cover lost, if this be of the ordinary unattached kind.

The difficulty alluded to last, had already been met, by the hunting case pocket compass which has been recently quite widely distributed. As regards the other difficulties, the old prismatic compass is their most satisfactory solution, except that it is more expensive, more liable to get out of order, and more accurate than the necessities of the case frequently require. A hunting case pocket compass with a bright reflecting inner surface of the cover was provided with a slot, one millimeter in width, reaching from the top to the north point of the compass dial. By holding this compass in the ordinary position for taking sight with the open cover at a distance of the diameter of the compass dial from the eye, it will be found that objects can be seen with sufficient distinctness to enable one to centre them easily, and at the same time the position of the needle can be read off by its reflection in the movable cover. This slot also takes the place of the gnomon in the ingenious compass devised by Major T. B. Brooks, some ten years ago, and like that compass may be used to determine the variation of the magnetic needle. In the absence of local attraction, the time of noon being known, the true north can be determined, and hence the magnetic declination of the place. Or the variation being known, the time of day can be determined by suitable marks on the periphery of the disc, or the variation being known, the needle can be used to discover the direction and amount of local magnetic attraction.



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