01 June 1988

Mr. James Corbett
RME 1117 Farrells Road
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Dear James,

In reference to the sight adjustment calculator, details of which you forwarded on 24 May last, it is advised that the figures are basically correct, but it also appears that the originator has his facts mixed. It is stated that "one vernier will cause a shot displacement of one inch per every one hundred yards away from target", and then shows a table of varying sight movements necessary to achieve that condition.

The true fact is that, in any sight, the movement corresponding to one "minute" is a fixed amount determined by the pitch of the screw and number of detents in the control nuts. In a CENTRAL sight this is 1/120 inch.

The mathematics have been over complicated by the introduction of trigonometry, whereas the basics may be determined by consideration of simple ratios…

> **A movement of 1/120" of the sight on a rifle having a 30" sight radius will give 1" movement on the target at 3600" (100 yards).**

If - A = the peep movement for one vernier = 1/120 inch.
B = the sight radius (in inches)
C = displacement at the target, then
D = distance of target in inches.

Then the basic rule is AB = CD
and also:- AD = BC

In the case of CENTRAL sights, dimension A = 1/120" and D = 3600 (100 yards).
These are fixed and cannot be varied.

Substituting figures:- 1/120 x 3600 = 30 = B x C…and………………………………….C = 30/B
Thus the movement of ONE MINUTE or VERNIER projected onto a target at 100 yards is:-

For	28"	sight radius – movement is	1.071" (=30/28).
	29"		1.034" (=30/29).
	30"		1.000"
	31"		0.968"
	32"		0.937"
	33"		0.909"
	34"		0.882"
	35"		0.857"
	36"		0.833"
	45"		0.666"

A table showing this movement has been included in the instruction Sheet packed with CENTRAL sights for many years. (Copy enclosed).

This is the basic of the mathematics of CENTRAL sights **made since about 1935**. Please note the emphasis, and our discussion will be restricted to current sights for the moment.

The movement of 1 inch at the target 100 yards away subtends an angle of approximately 1 minute (actually 0.954929"); hence the general use of that term, but the movement of 1 inch for each 100 yards is quite precise for a rifle having a 30" sight radius and a CENTRAL sight.

It is not difficult to understand that there is not a wide selection of screw threads that will give the movement of 1/120 inch which is required, and that it is not very convenient to change to concept of 1" per 100 yards without causing many problems for shooters who are used to that movement.

It is a fundamental fact that the sight radius affects the accurate alignment of the firearm (compare a short barrel pistol with a long barrel pistol or a rifle) and it follows a longer sight radius and allows more precise alignment with the target. However, it is useful only if the shooter is capable of using it effectively.

The movement of the sight of (say) a 33" s.r. (10% longer) is 0.9091" and you must compensate by increasing the movement of the sight by 10%, i.e. 11 minutes instead of 10; 22 instead of 20; 33 instead of 30, etc… as is shown on the upper part of the calculator.

It is noted on the calculator diagram that the ½ minute sight has 6 indents. This is correct for the current production, but when CENTRAL were first made the rifle in use was the Long Lee Enfield having a sight radius of 36". On these sights there were 5 indents on the wind arm control nut, and 10 on the elevation nuts (which had a coarser thread). This gave 1" adjustment at 100 yards range with the 36" sight radius.

When the S.M.L.E. was adopted, the control nuts on CENTRAL sights were changed (to 6 and 12 indents) to again give 1" per 100 yards, and the Bisley model sights carry a notation to that effect.

However, **Parker Hale did NOT change** their sights when the S.M.L.E. was adopted and the P.H. sights still give 1" per 100 yards for a 36" sight radius and 1.2" for a 30" sight radius, having a sight movement for one vernier of 1/100".

How many shooters use Parker Hale sights believing they are moving 1" per 100 yards? Most would not know or care?

How many shooters can determine that they need "exactly" 20 minutes of wind, say, and then decide that as they are using a 33" sight radius that it must be increased to 22 minutes? Would not most of them say "about 20", and then adjust as necessary to get into the centre?

The answer to those questions is the answer to how useful the calculator would be.

Have fun with it, but do not let it cloud your skill by attempting to be too technical – it is much more practical to know how many minutes from ring to ring on each target for your rifle, using the information we have been publishing for years, and move your sight accordingly.

Yours faithfully,

Rod. Johnson.