

particular phrase, or, rather, its equivalent, but on some occasions only. We should still need its equivalent, and it would probably be a clumsier phrase, *e.g.* "the part of AB beyond B ". In fact, the ambiguity introduced into the meaning of AB would necessarily increase the complication of geometrical phraseology as a whole.

Suggestion (v) fails for similar reasons. S.C. pupils would hardly appreciate the distinction between quadrilateral and quadrangle, and certainly not the need for it. And the term "quadrangle", meaning a figure of merely 4 points, *without angles*, is a most unhappy one to introduce to elementary pupils. I well remember my own long confusion over this term and the likeness of the two figures, when I started higher geometry. Similar objections rule out suggestion (iii). It postulates an ambiguous term, $x^{\frac{1}{2}}$, for pupils for whom definiteness is a first essential. Would they be expected to give four answers to an exercise such as $64^{\frac{1}{2}} + 36^{\frac{3}{2}}$, or, in logarithmic work, interpret $10^{\pm 5}$ ambiguously? In the quadratic root formula would they be allowed to write as equally correct, $\sqrt{(b^2 - ac)}$ preceded by + or - or \pm ? Or would there be a further convention standardising one of these terms or forbidding their use?

To sum up, the general effect of adopting suggestions (vii), (v), (iii), would be to increase the difficulty and artificiality of mathematics for elementary pupils. The advanced pupil would lose much of the educational value mentioned above; and his master would lose in interest and effectiveness of teaching method, through anticipation of some of his subject-matter by the suggestions.

There remains one other suggestion, (vi), and this I am glad to support. The three-letter formulæ for congruence seem to me to be used very satisfactorily by S.C. candidates. May I put forward for consideration this set of formulæ for similarity:

$$AAA/SP, \quad SP/AAA, \quad SASP/S,$$

and, for the ambiguous case,

$$ASSP/AS, \quad ASSP/2R.$$

The large capital S should be replaced by some approved sign for similarity, *e.g.* Greek sigma, which is easily written, especially the small letter, σ . In considering the ambiguous case, it should be borne in mind that such formulæ should serve not merely as references for examiners, but also as aids to the pupil's memory of the content of the propositions.

Yours faithfully, R. S. WILLIAMSON.

NEED FOR A SYMBOL.

To the Editor of the *Mathematical Gazette*.

SIR,—Considering the ubiquity of the word "bisect" in elementary geometry, it is rather surprising that no generally recognised symbol is in existence for it.

By way of suggestion, " AB bisects CD " might be written " $AB \mid CD$ ", and, further, " AB bisects CD at right angles" as " $AB \top CD$ ".

Cracknell and Perrott use the vertical line for "is perpendicular to", possibly because the better-known symbol \perp is difficult to print (by analogy with the old factorial sign \sqcup). Does a new symbol seem called for, or are there too many already?

Yours truly, C. C. PUCKETTE.