PRINTING CONTRACTIONS.

To the Editor of the *Mathematical Gazette*.

SIR,—In connection with the style of printing contractions used in Que-nouille's book, of which you print a review on page 287, I think the attention of teachers of mathematics should be drawn to a recommendation of the Scottish Council for Research in Education published on pp. 10, 11 of their 22nd *Annual Report* (1949–50). It runs as follows :

" *Periods*

" In the punctuation of contractions or abbreviations the policy, advocated by H. G. Fowler in *Modern English Usage*, for words the contracted form of which ends with the same letter as the uncontracted form, of omitting the period should be adopted : " Mr " instead of " Mr.", " hr " instead of " hr.", " yd " instead of " yd.", " qr " instead of " qr.". This principle should be extended to such terms as " min ", " lb ", " oz ".

" Even where a contracted term forms an unabbreviated word, " number —no ", " inch—in ", the period should be omitted as the context usually indicates the meaning.

" *Plurals*

" The plurals of contracted arithmetical terms, as advised by *Rules for Compositors and Readers*, should be written without the " s " ; for instance, lb, oz, cwt, sec ; and metric system terms—cm, gm—should be used for both singular and plural."

I venture to submit that in some cases, such as the one I refer to in my review, adoption of this recommendation may not add to clarity in mathe-matical texts. I have seen no reference elsewhere to this recommendation, and would be glad to know what is the feeling among other teachers of mathe-matics, particularly those teaching at the most elementary level.

Yours, etc., FRANK SANDON.

UNITS IN DYNAMICS.

To the Editor of the *Mathematical Gazette*.

SIR,—In Mr. Welch's letter, *Mathematical Gazette*, No. 309, p. 181, he says that one school of thought is in favour of using gravitational units at first *without too much insistence on accurate terminology*.

He has no justification whatever for the words I have put in italics. I, like the others who advocate the early use of gravitational units, feel most strongly the importance of insisting on accurate terminology.

With beginners it seems wise to use the same units in Statics and Dynamics. Much trouble is bound to arise if in Statics we talk of a force of M gm. ; M gm. is essentially a mass, the force is the weight of that mass, *i.e.* M gm.wt. I strongly urge that in both Statics and Dynamics care should be taken to speak of a force of M gm.wt., and to measure work in ft.lb.wt. (not in ft.lb.).

What muddled thought, or muddled teaching, can have led to such solu-tions as Mr. Welch gives? The pupil who has been brought up on gravitational units would write :

Let P gm.wt. be the required force.

Then $P - \mu M$ gm.wt. produces α cm./sec.

But M gm.wt. produces g cm./sec.

$$\therefore \frac{P - \mu M}{M} = \frac{\alpha}{g}.$$

$$\therefore P = \mu M + M \frac{\alpha}{g}.$$

The required force is $M\left(\mu+\dfrac{\alpha}{g}\right)$ gm. wt.

<div align="right">Yours, etc., A. W. SIDDONS.</div>

To the Editor of the *Mathematical Gazette*.

DEAR SIR,—Certainly it is true that teachers of mechanics are divided in their choice of the most appropriate system of units to use in introducing the subject. But is it not also true that there is a danger of this being decided for us by the compilers of our examination syllabuses? Moreover, they not only influence teaching directly, but also decide the emphasis of our elementary textbooks.

What justification is there for continuing to examine pupils in mechanics at the Ordinary level of the G.C.E., either as a separate subject or as part of a paper in " Additional Mathematics "? Few teachers are allowed more than 60 periods in which to teach the subject before the examination is taken. In that time they may either try to introduce the ideas of mechanics (and I regard such a course as being of great educational value to a pupil who is not intending to specialise in science or mathematics) ; or they may prepare for the examination. It is surely impossible adequately to do both.

If a teacher makes the attempt, however, he is virtually compelled to adopt the gravitational system of units, whatever his own preference. No boy at that age can be expected to master two different sets of equations ; and at present the examiners have decreed that, although they may ask him to define a poundal or to distinguish weight from mass, he shall give his answers in lb.wt and in ft.lb. So long as the examination continues, we shall be expected to enter our pupils for it. Is there not then a case for having two alternative syllabuses, one on the lines of the existing syllabus, the other based on the use of absolute units and involving a more fundamental treatment of dynamics?

<div align="right">Yours faithfully, D. A. QUADLING.</div>

LAPLACE TRANSFORMS.

To the Editor of the *Mathematical Gazette*.

SIR,—In his review of *Transformation Calculus and Electrical Transients* by S. Goldman (*Gazette*, XXXIV, No. 309) Mr. H. V. Lowry deplores the fact that the author defines the Laplace transform of a function $f(t)$ by

$$\int_0^\infty e^{-st}f(t)\,dt$$

rather than by

$$p\int_0^\infty e^{-pt}f(t)\,dt.$$

In favour of the " p-method ", Mr. Lowry instances the fact that it transforms a constant into itself. However, in an elementary course which excludes the inversion integral, the extra p in the " p-method " adds considerably to the labour of splitting up the rational algebraic fractions arising into their partial fractions. On this account, the saving in time seems to leave the advantage with the " s-method ".

<div align="right">Yours, etc., M. HUTTON.</div>

CAR WHEELS.

To the Editor of the *Mathematical Gazette*.

SIR,—The question posed by Professor Brown in the discussion on " The