much more involved formulae than this. For instance, in many texts the Sackur–Tetrode entropy formula is written.

$$s = \mathbf{R}(\tfrac{5}{2} \ln T + \tfrac{3}{2} \ln M - \ln P - 1{\cdot}164), \qquad (1)$$

and a note has to be added stating that M is the gram molecular mass of the gas concerned, T is the absolute temperature in degrees Kelvin (°K) and P is measured in atmospheres. In the quantity calculus equation (1) and this note are replaced by·

$$s = \mathbf{R}(\tfrac{5}{2} \ln T/°\text{K} + \tfrac{3}{2} \ln M/\text{g. mol}^{-1} - \ln P/\text{atm} - 1{\cdot}164). \qquad (2)$$

(In (1) and (2) **R** is the molar gas constant.) Another advantage of (2) is that it does not commit the error of taking logarithms of physical quantities (see G. N. Copley, *Journal of Chemical Education*, 1958, **35,** 366). Mathematicians insist, I understand, that this should never be done, and although I agree with them and have given, in the reference just cited, one instance of an inconsistency to which this leads, I would like to know of a more general mathematical discussion of the matter.

I hope, therefore, that teachers of mathematics will reconsider the teaching of the quantity calculus in dealing with applied mathematics. Am I right in saying that applied mathematics involves quantity calculus, whereas pure mathematics does not? I am sure that teachers of the physical sciences would welcome criticism of the quantity calculus, since it is most desirable that all teachers should be in agreement upon such an important subject.

Yours etc., G. N. COPLEY

To the Editor of the *Mathematical Gazette*

DEAR SIR,

The Pythagorean musical scale was abandoned in favour of equal temperament because the *intervals* of the latter, but not of the former, constitute a *group*. Does any reader know of any other conspicuous contributions made to life outside Mathematics by the elementary theory of groups? (I know about Campanology.)

Yours etc., A. W. FULLER

Wanted

Mathematical Questions from the Educational Times, 1912 to 1918 inclusive.
Journal of the Indian Mathematical Society, 1909 to 1933 inclusive.
Lewent—Conformal Representation.
Hilton—Theory of Groups.
Ganguli—Theory of Plane Curves, Vol. I—3rd ed; Vol. II—2nd ed.
McDowell—Exercises in Euclid and Modern Geometry.

Payment in advance. Anyone having any of these to dispose of, may communicate with Clifford Marburger, Denver, Pennsylvania, U.S.A.