we may without loss of generality suppose that the two parallel line segments PP', QQ' have a common right bisector."

Yours faithfully,

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New Zealand

D. B. SAWYER

DEAR SIR,—I wonder whether any reader of the *Gazette* would help me with the following question.

A perfectly flexible inextensible string of length L is thrown down at random on a horizontal table. It is assumed that the form of the string is represented by $x=x(s)$, $y=y(s)$, these functions possessing derivatives of all orders for $0<s<L$. The experiment is repeated many times. What is the average value of the rectilinear distance between the ends of the string?

In spite of the obvious idealisation involved, this looks like a valid mathematical model of a performable experiment, like the famous experiment of the Comte de Buffon (cf. T. H. O'Beirne, *Puzzles and Paradoxes*, Oxford University Press (1965), p. 193). But do we actually have here a well-stated mathematical problem? And, if so, what is the answer?

Yours faithfully,

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J. L. SYNGE

DEAR SIR,—Mr. J. P. Marchant's article in the October, 1967 issue of the *Mathematical Gazette* was certainly friendly and frank. I hope I will not be thought unfriendly if I add that its attitude was that of a 20th Century Luddite.

I too have been deeply involved in computer education for the past five years but, unlike Mr. Marchant, I am greatly excited by the prospects of computer education. I hope that, in this country, it develops to a stage where we can be confident that we are giving our students an education likely to enable each of them to make their maximum contribution to society, not only in this decade but in the last three decades of this century and beyond.

I agree with Mr. Marchant's aims " to instil a high standard of morality and sense of duty ", . . . " to teach growing people to think clearly and to be able to communicate clearly ", these are thoroughly laudable ideals shared by many enthusiasts *for* computer education and I fail to see how computer education comes to be linked in Mr. Marchant's mind with a lack of morality and sense of duty.

" Quality of work " and " tenacity of labour " are two more widely accepted ideals which Mr. Marchant mentions. What could be of a higher quality than a well-written, well-conceived, skilfully programmed,

logically correct and complete algorithm for solving a problem? Perhaps the Sixth Form student who has written a realistic program for helping complete our school timetable, who worked evenings and nights and got bored with correcting mistakes caused by imperfect equipment, could be credited with both tenacity of labour and the ability " to concentrate on work which is not necessarily interesting or tasteful ". Is there also an implication that using a computer enables us to avoid real work? Using a computer to solve a problem demands a real and profound understanding of the problem and gives the student worthwhile practice in logical thinking: by removing from the student the burden of arithmetic, the computer enables him to concentrate on the important work—the analysis of the problem itself. In designing an algorithm, the student has to solve a class of problems, not one individual problem.

Organisation and planning are certainly vital and nowhere more vital than when using computers. Visits to computers can be of value, but unless something really positive is done with computers by the students, such visits tend to have the same value as a group of English pupils spending a weekend in Paris with no knowledge of French between them. Similarly I cannot follow Mr. Marchant's implication that studying computer methods and mechanics (which incidentally many Sixth Form students can do better than their teachers) need detract from either their fluency in English or their ethics. My computer is not my hobby nor is it a luxury hobby for the students in Havering, it is a basic tool in a variety of academic and general courses and is vital to some valuable educational research.

Mr. Marchant has used many evocative phrases and loose implications to link computer education with a lowering of standards in many spheres but should our educational thinking return to a kind of " leaky shoe " policy held by John Locke? Discomfort does not always make children healthy, boredom does not necessarily make them wise and a refusal to face the future does not mean that the really valuable things in education can be preserved.

Yours faithfully,

The Royal Liberty School Computer Dept.,
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Essex
W. R. BRODERICK

DEAR SIR,—I wish to take up a point raised by A. J. M. Spencer in the *Mathematical Gazette*, Volume LI, October 1967, concerning the alleged failure of those new Technological Universities which have developed from former Colleges of Advanced Technology, to offer the right kind of training in undergraduate mathematics to those of its students who are seeking an industrial career in mathematics.

So far as this University is concerned, we have a four year sandwich course in Technological Mathematics, many of the students being industry-based. In addition to the traditional courses which they receive in pure and applied mathematics, the students have a sound training in what the writer has styled management-type subjects (i.e. computer sciences, statistics, operational research, systems analysis) and