DEAR EDITOR,

There is an error in Marián Trenkler's article on magic cubes [1]. The number 31 on the front should be 32. I discovered this when I followed up the author's suggestion to write a program to generate magic squares. So far I have found several hundred cubes of side 4 and, of these, 256 have the additional property that the space diagonals share the magic sum of 130. As an example of this we have

1	20	46	63	60	41	23	6	24	5	59	42	45	64	2	19
52	33	31	14	9	28	38	55	37	56	10	27	32	13	51	34
30	15	49	36	39	54	12	25	11	26	40	53	50	35	29	16
47	62	4	17	22	7	57	44	58	43	21	8	3	18	48	61

For example, $1 + 28 + 40 + 61 = 130$ is one space diagonal.

I suggest calling cubes meeting Trenkler's definition *semi-magic cubes* and reserving the term *magic cube* for examples such as the one above.

Reference

1. Marián Trenkler, Magic cubes, *Math. Gaz.* **82** (March 1998) pp. 56-61.

Yours sincerely,

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DEAR EDITOR,

I liked the tone of your Editor's note on page 313 of the July 1998 *Gazette* but the line 'non-professional mathematician, such as students and school teachers' made me wish to enquire of you what your definition of a professional mathematician was. I would like to think of myself as both a professional mathematician and a school teacher, as I am paid to work with mathematics and to explain it and explore it with my students.

Yours sincerely,

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Editor's note:

I have received two letters of complaint concerning my use of the term *non-professional* in my reply to Harley Flanders' letter on p. 313 of the July 1998 *Gazette*. I welcome this opportunity to set the record straight.

The offending sentence said 'I am always pleased to receive articles from non-professional mathematicians such as students and schoolteachers'. I apologise if I gave the impression that I considered teachers to be *unprofessional mathematicians*. My intended meaning might have been better conveyed by one of the terms *non professional-mathematicians* or *amateur mathematicians*.

As a schoolteacher and sometime student, I have never considered myself a professional mathematician, reserving the term for those who are paid to do mathematical research or to apply mathematics. School mathematics teachers are paid to *teach* mathematics. This is a professional enterprise, but the profession is that of *teaching*, not that of *doing* mathematics.

I am delighted that some mathematics teachers continue to do mathematics for its own sake and I have argued elsewhere that we need a mechanism to ensure that *all* mathematics teachers continue to be mathematically active [1]. However, I have yet to see a contract or job description that required a school mathematics teacher to do any mathematics beyond that required to teach the students. In that sense someone like Nick Lord, a professional teacher who writes many fine mathematical articles, is an amateur mathematician.

Reference

1. Steve Abbott, Where have all the A level teachers gone?, *TES Friday Magazine*, October 2nd 1998, pp. 24-25.

DEAR EDITOR,

In the second paragraph of the letter from John E. McGlynn (November 1997) about the mathematics of bowls, I noted a discrepancy between his formula and subsequent statement concerning the skidding distance after launching a bowl. I agree with the result $\frac{5}{7}V$ for the speed of a spherical bowl when skidding ceases, but his expression $0.25V$ for the distance travelled at that stage caught my attention because it is dimensionally incorrect. My calculations (reproduced below) give $12V^2/49\mu g$, which does indeed increase when μ decreases.

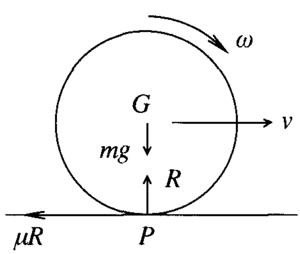

FIGURE 1

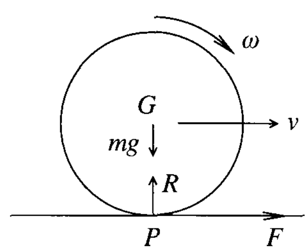

FIGURE 2

For a uniform spherical bowl of radius a, mass m, centre G and moment of inertia mk^2 about an axis through G, the equations of motion while skidding lasts are (Figure 1)

$$m\dot{v} = -\mu R, \qquad 0 = R - mg, \qquad mk^2\dot{\omega} = (\mu R)a,$$

so $\dot{v} = -\mu g$ and $k^2\dot{\omega} = \mu ga$. Since $v = V$ and $\omega = 0$ when $t = 0$, we have $v = V - \mu gt$ and $k^2\omega = \mu gat$. The speed at time t of the contact

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