Accurate Equations

To the Editor:—The equations outlined by Gershwin, Smith, and Suwa (ANESTHESIOLOGY 40:89, 1974) to obtain base excess using a calculator are extremely useful to anyone with a desk-top calculator. It is unfortunate, therefore, that there appear to be several printing errors.

Equation 1 gives a positive answer while the slope of a pH, log P_{CO_2} plot is negative. The way the equation is printed is confusing as $(0.0204 \text{ Hb} - 0.01434 \text{ BE})$ is an exponent of e. Therefore

$$S = -1.16e^{(0.0204 \text{ Hb} - 0.01434 \text{ BE})} \tag{1}$$

Equation 4 should read

$$BE = 59.4 \log [3.36 (pH_a - 7.1)] \tag{4}$$

In Equation 5, C is incorrect as dy_o should be a negative term, making

$$C = dsx_o - dy_o + bd - C$$

With these corrections the equations work well.

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To the Editor:—We thank Mr. Kay and Dr. Noble for their careful perusal of our paper. The points they raise certainly deserve comment. Equation 1 was in fact intended to be an exponential equation. It was printed in the galley proofs as two separate lines of type, one to the right of and above the other, and through a misunderstanding was changed to its final form.

Although the suggested brackets might expedite the use of equation 4, their absence does not lead to ambiguity. The only alternative interpretation of equation (4) as it stands in our article is that BE equals 59.4 times the logarithm of 3.36 times quantity $pH_a - 7.1$. But the logarithm of 3.36 is a constant, 0.5263, and as such would be multiplied by 59.4 to give 31.3 $(pH_a - 7.1)$.

The (−) sign in equation 5 was inadvertently omitted in one of the typings, and escaped the notice of all of us.

We apologize for any inconvenience caused by these errors. We are sure, however, that Mr. Kay and Dr. Noble realize the ease with which typing or printing errors can pass copy readers, since their version of our equation (5) contains on the right side a capital C, which should in fact be lower case. Thus, the last equation in their letter should read

$$C = dsx_o - dy_o + bd - c$$

We are glad that in spite of these problems our work has proved useful.

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