

# Science<sup>®</sup> News

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**Cover:** An assemblage of spikes and pennant-shapes forms a single character in Hurrian cuneiform, the written language of the ancient city of Ugarit in what is now Syria. There, some 3,400 years ago, an unknown scribe impressed it on a tablet that remains as the oldest piece of written music in the world. See p. 172. (As copied by Emmanuel Laroche)

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# To the Editor

## A flip-flopped fraction

I read "Dirac's new field theory—A strange, variable-gauge universe" (SN: 2/9/74, p. 92) with much interest, and think that there is much food for thought. I have a question.

The article states that the ratio between the gravitational and electromagnetic forces between the proton and the electron in a hydrogen atom is  $10^{30}$ . Fine.

Then he goes on to say (or at least Dietrick Thomsen says he states) that the age of the universe, expressed in similar units is  $10^{30}$  units.

This is all acceptable to me, but the hard part is his choice of gravitation as the decreasing element in the first ratio. Taking it as a simple equation,

$$\frac{\text{grav forces}}{\text{e-m forces}} = 10^{30}$$

there seems to be a problem. If the age of the universe is increasing, and Dirac wants the ratio to increase, then either gravitational forces must increase, or the electromagnetic forces must decrease, in order to have the two numbers increase.

At least this is the way that the article is worded. It occurs to me that perhaps you meant to say that the ratio of e-m forces to gravitational forces is equal to a large number. In any case, I thought this might be pointed out.

Seth McEvoy  
E. Lansing, Mich.

(In Dirac's equation the e-m force goes in the numerator. The sentence should have been worded with the e-m forces first to be exactly precise.—Ed.)

## On sorting sperm

Your February 2, 1974 issue carries a letter containing a serious misstatement. In D. K. Lowe's letter commenting on your article about recent research on separation of X- and Y-bearing sperm, he implies that the cattle artificial-insemination industry routinely uses centrifugation to separate bull sperm on the basis of the sex chromosomes they contain, "to get the female sperm for breeding purposes."

Unfortunately, this is not true. Although a number of attempts at separation have been made, no method has proven consistently successful, in spite of occasional claims to the contrary.

The ability to predetermine the sex of animals would certainly increase the efficiency of animal production. A few scientists throughout the world are working directly on this problem while others are constantly on the lookout for leads. I believe the problem will eventually be solved, but probably not without considerable research effort in basic aspects of biology.

Charles A. Kiddy  
Research Animal Scientist  
United States Department of Agriculture  
Beltsville, Md.

## More than a confirmation

The fact that the addition of cyclic AMP causes transformed cells to lose growth characteristics of cancer cells and to assume properties of normal cells was indeed published by Abe Hsie and myself in 1971, and was also later confirmed by other investigators (Cyclic nucleotides affect cell growth and vision, SN: 2/23/74, p. 118). However, Pastan and his team did not merely confirm our work. On the contrary, they made the same observation and published it in the same issue of the same journal in which we published. This discovery then was independently and simultaneously made by both laboratories and it is not justifiable to make it appear that Pastan simply confirmed our work. It is true that a presentation of part of our work was presented earlier at a scientific meeting and was published as an abstract in 1970. However, for all I know, the same might be true of Pastan's group. In any case, I consider the date of formal publication as the time of initial discovery. Our laboratory was the first to show a synergistic effect between testosterone and cyclic AMP and also between prostaglandins and cyclic AMP.

I did not participate in the work on measuring the level of cyclic AMP and cancer cells. This work was done by Hsie alone and other laboratories have also made such measurements. I realize that these details may appear to be trivial but I am anxious that errors not arise and be perpetuated in the historical record.

Theodore T. Puck  
Director, Institute for Cancer Research  
University of Colorado Medical Center  
Denver, Colo.

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