metic operations in a predetermined sequence and could never think in any sense of the word." This cliché still represents the dominant attitude of many scientific and engineering publications on both sides of the iron curtain. An elaboration, which often follows the cliché, explains that the sequence of arithmetic and logical operations is completely predetermined by a human programmer, and any appearance of thinking by the computer is merely a manifestation of the thinking of the human programmer. (The general-purpose digital computers do carry out sequences of arithmetic and logical operations as specified by the programmer, but the programmer may specify that the sequence shall vary as a function of the input variable [or sensory] data.)

These projections of their own ignorance by pseudo experts may be amusing to researchers who are daily engaged in mechanized-thinking experiments on general-purpose and special-purpose computers. However, a scientist seeking employment or approval for a new project from a director of a research laboratory may not find these negativistic attitudes at all amusing. Such negativistic statements are almost invariably followed by a challenge to demonstrate the mechanized-thinking process by deriving the general theory of relativity. This seems comparable to requiring the Wright brothers to prove that they could fly by flying nonstop around the world.

It may seem improbable that research directors would be so ill informed concerning subjects relevant to their work. However, this seems to be the rule rather than the exception. It would appear that prominent scientists and engineers should be more cautious about asserting that certain things cannot be done merely because they do not know, at the moment, of any feasible method. They not only leave themselves open to ridicule in many instances but may also hinder the progress of research, for the direction of scientific research may be greatly affected by a simple, negativistic, dogmatic, cliché.

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Conversions

Apropos the editorial on "Metric versus English units" [*Science* **131**, 195 (22 Jan. 1960)] with its implications regarding conversions, I should like to call your attention to the reports on the Tiros [*Science* **131**, 1031 (8 Apr. 1960)] and U.S.S.R. "space ship" [*Science* **131**, 1510 (20 May 1960)] satellite launchings.

Apogee and perigee of the Tiros are given as 407.2 and 378.7 nautical miles, respectively. According to my conversion tables, 1 nautical mile equals 1.1516 statute miles. The corresponding apogee and perigee should be 468.9 and 436.1 statute miles. In the article they are given as 468.28 and 435.5 statute miles, corresponding to a conversion factor of 1.1500 statute miles per nautical mile.

Similarly, the announced weight of the Russian "space ship" was 4 tons, 540 kg. In the *Science* article this is given as 9988 pounds, corresponding to a conversion factor of 2.2000 lb/kg. In fact, the conversion is 2.2046; the weight in English units is apparently 10,009 lb.

For the purposes of the articles in *Science*, accuracy in these details is probably not important. Nevertheless, there is a lesson to be learned about the simplicity of conversions within the metric system and about the retention of significant figures during and after conversions.

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