

## letters

fuel reprocessing plants, worldwide  $K^{85}$ , worldwide  $H^3$  (from nuclear power) and nondefense AEC facilities, the nuclear-power contribution becomes substantially higher, although by the year 2000 it is still an order of magnitude less than the dose from fallout. Estimated doses in 2000 from  $K^{85}$  and  $H^3$ , if they continue to be released to the environment, are 12 and 8400 man-rems, respectively, with approximately one-half of the tritium coming from the nuclear-power industry. Release from fuel reprocessing plants in 2000 is estimated to be 65 000 man-rems. Those values are taken from the most recent draft of "Estimates of Ionization Radiation Doses in the United States, 1960-2000," prepared under the direction of the Office of Radiation Programs of the Environmental Protection Agency.

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## Sexagesimal reciprocals

I was fascinated by the recent letters that tried to represent the fine structure constant by a product of the form

$$2^{i/3} 5^{j/5} \pi^l$$

where  $i$ ,  $j$ ,  $k$  and  $l$  are low-order integer fractions, because of the similarity to a totally different problem. Whenever possible, the Babylonians reduced division to multiplication by means of reciprocal tables. In the sexagesimal system, numbers of the form

$$2^{i/3} 5^{j/5}$$

all have "regular" (that is, terminating) reciprocals when  $i$ ,  $j$  and  $k$  are integers. Several years ago, when I set out to calculate all the 11-digit regular sexagesimal reciprocals (as an aid to the cuneiformists) I had to estimate how many there would be. I found the number (3338) by essentially the same geometrical scheme that Asher Peres used in your November issue (page 9) to estimate the number of solutions for the fine structure constant. The results of my calculations are found in the *Transactions of the American Philosophical Society*, 55, part 8 (1965).

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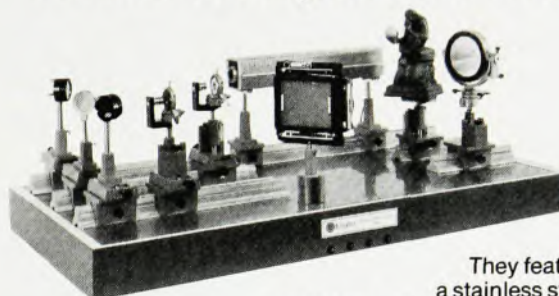
## Unemployment understated?

I am astonished at the extent to which the employment problem in physics has been understated among even the pessimists in your letters column.

continued on page 56

## Ealing isolates vibrations three ways.

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