further simplified. At least they are familiar to the eye and the hand of the average student, and may be written as well as read.

2. *Ease of Reproduction by Hand.* A vector equation, represented on the printed page by boldface characters, when transcribed to a paper or blackboard, has to be replaced by other symbols. Some teachers use an italic with an arrow on top. The writer was taught in graduate school to use a letter, one line of which is doubled, and has found in subsequent years that this is an excellent method of representing vectors. It is suggested that there should be developed a simple set of capital and lower case italics of exactly the same shape as those suggested in (1), but with distinctive doubling of one line of each letter. Such characters could be written on paper or the blackboard exactly as they appear on the printed page. Examples of a few such letters are given in Figure 3. These can be written quickly and easily.

3. *Equality of Size.* The common Greek italics used nowadays for mathematical symbols are all smaller than the corresponding English letters. Sometimes they are so small that they look like subscripts. Conversely, some script capitals, in addition to being awkward and Gothic, are much larger than italic capitals. In designing new sets of letters expressly to be used as mathematical symbols, it would be a simple matter to have all capitals the same size and all lower case characters the same size.

With about twenty simple script capitals, and, say, another twenty doubled letters, both capital and lower case, in addition to the usual English and Greek italics, many of the problems of an author would be solved. But still better, many of the headaches of the classroom teacher and of his students would be alleviated. These symbols, however (or other better symbols suggested by an expert), will never be prepared unless an organization, such as the American Institute of Physics, takes the lead. One cannot expect a publisher to undertake such a program, for he does not understand the problem and merely provides what the printer has on hand. The printer, in turn, buys his symbols from the monotype company, which is also uninterested in, and unaware of, the needs of the physics teacher. Physicists and physics teachers, through the agency of the American Institute of Physics, must take the first step.

**Mark W. Zemansky**

ig. 3

# NOTES AND COMMENTS

### Stalin Prize

On March 16 last the New York Times, in a dispatch from their Moscow correspondent, reported on the award of a group of "Stalin Prizes" to a number of Soviet scientists and engineers. According to the article, "an important award" went to Boris G. Lazarev for "a new method of enrichment of helium with light isotopes".

The technical paper, reporting the above discovery, appears to have been submitted by B. G. Lazarev and his assistant, B. N. Eselson, to the Journal of the Academy of Sciences, U.S.S.R., on February 14, 1950 and published therein the same year.[1] The method used by these authors to separate the light isotope $He^3$ from $He^4$ consisted essentially in using the "thermomechanical" effect in superfluid liquid helium.

On December 16, 1947 the undersigned in conjunction with H. A. Fairbank at Yale and A. O. C. Nier and L. T. Aldrich at Minnesota submitted a paper to the Physical Review, which, in all essentials, is identically the same method as the above.[2, 3] Naturally, no mention of these papers is made in the Eselson-Lazarev work.

Of course it is impossible to state with certainty that the Russians were aware of this long prior work, but the probability that they were seems close to unity. For instance they refer to an article, on an allied matter, which in turn carries a reference to our 1949 paper.[4] Again, several references[5, 6] to our "heat flush" technique appeared in British and Dutch reviews prior to 1950.

At the time we devised the heat flush method we thought the thing interesting but not, certainly, sensational. None of us guessed it worth a Stalin Prize.

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[1] B. N. Eselson and B. G. Lazarev, *Doklady Akad. Nauk S.S.S.R.* **72**, 265 (1950).
[2] Lane, Fairbank, Aldrich, and Nier, *Phys. Rev.* **73**, 256 (1948).
[3] Reynolds, Fairbank, Lane, McInteer, and Nier, *Phys. Rev.* **76**, 64 (1949).
[4] Reference (10) in their paper.
[5] K. Mendelssohn, Reports on Progress in *Physics* **12**, 270 (1949).
[6] C. J. Gorter and J. H. Mellink, *Physica* **14**, 285 (1948–49).