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A NOTE FROM THE ACTING EDITOR

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We undertook the duties of acting editor after the tragically sudden death of W. W. Moorhouse and consequently the current issue of the journal was delayed a few months. However, the delay was not entirely due to the sudden shift of editorial responsibility: it was partly due to the difficulty of arriving at a compromise between the profound lack of knowledge of scientific logic, semantics and mathematics on the part of the authors and a conceptual ideal for this journal.

Currently, we are involved in a research project consisting of computer storage and retrieval of scientific information required in modern research in the field of physical geochemistry. Less than one percent of the items (paper, books, and reports) are from mineralogical and geological sources, and nearly half of the total number of relevant items originated in the USSR. The purpose in mentioning these facts is that we have read approximately 6,800 scientific communications in the immediate past and thus are in a position to compare what is currently practiced in sciences closely related to mineralogy. In every respect (except possibly the paper on which the journal is printed) the quality of our efforts is poor by comparison. The principal defects appear to be 1) inordinate length of the papers and 2) unusable numerical data.

In regard to the length of scientific papers, the criterion is not, of course, the number of pages, but the number of concepts and/or data transmitted to the reader per word or number in the published item. As a rough estimate, the papers currently published in this journal could be condensed about 90% without losing their critical information. That is, the facts which the readers are looking for could be presented without being imbedded in essay-style reports which were acceptable a century ago. We assume, of course, that this is a scientific journal addressing itself to scientists and if so the papers contained in it should be written as if the readers were well acquainted with the necessary theory to understand the problem attacked, the methods and apparatus used, and

the meaning of the final results. In other words, if this is to be a scientific journal, then it should not be a vehicle for the general education of mineralogists, geologists, prospectors and the public at large, but should be one for recording the advances of the front of science in the relatively small but not insignificant salient of mineralogy.

We were dismayed also by the nearly complete lack of standard statistical processing of numerical data in this and prior issues. Not one of the contributions in this issue contain numerical data which are defensible on standard statistical arguments, even the simplest. Considering the fact that mathematical statistics (far more sophisticated than mineralogists normally require) were well established before the first decade of this century, every paper in this issue would have been rejected if the editor had insisted upon numerical processing methods that had been well established within the last half century. We take the position that the minimal numerical processing of data should be such that (if the author himself does not do so) the reader is provided with the necessary information for calculating the standard deviation of the measurements (*i.e.* precision of single measurements), the standard error of replicated measurements and/or the number of replications, the sense and magnitude of the systematic error (*i.e.*, bias), the standard error of the bias correction, and the proper combination of the two sets of statistics to give the final result and its standard error (*i.e.*, the accuracy). We have rarely encountered any reasonable justification for not processing numerical data in this minimal way. There are now about 50 good textbooks in elementary probability and statistics, some written for high school students, and the length of time required to learn the methods (not including the time required to locate the information) is no more than 20 minutes. The importance of standard statistical processing is that the new data can be combined with prior published data in a mathematically defensible fashion to produce a mean which is more accurate than either alone. On the contrary, if the minimal processing is not carried out, then the data are useless for this purpose. By useless, we do not mean that the data are necessarily wrong, and in fact they may be very near the true values, but there is no way of knowing or computing the probability of it.

This note is not merely to ensure that we do not act as editor in the future: it is to advise the permanent editor that all manuscripts submitted for publication should be refereed by a mineralogist who understands the minimal basic rudiments of elementary mathematical statistics, if this journal is to be classed as a scientific journal.

June 5, 1969