NOTES AND NEWS

SOME NOTES ON THE POINT COUNTER

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Several readers have written for further information about the point counter described in the January-February issue of this journal. I believe this information is sufficiently general to be worth publishing and I also wish to correct an error in the original article.

An exponent has been omitted from the right side of equation (1), page 5, which should read:

$$s_d^2 = \frac{1}{n} \sum_{i=1}^{n} (X_i - \mu)^2$$

The commonest query so far received concerns the possibility of buying the complete instrument; at the present writing this is not possible. A suitable mechanical stage may be purchased either from the American Optical Company (Catalogue No. 495), or from Bausch and Lomb (Catalogue No. 31–59–54). A five-cell counting block is provided by the Clay-Adams Company, New York, New York, and a six-unit block is offered by the Denominator Corporation, also of New York. Additional single cell counters may be obtained from the Veeder-Root Corporation, Hartford, Connecticut; three or four of these may be mounted on either of the multiple cell units.

Any reputable instrument shop can install click wheels on the mechanical stage. Macinco, Box 296, Kensington, Maryland, is prepared to make this installation on standard mechanical stages. On the projected Macinco model it will be possible to disengage the blades of the click wheels by a simple adjustment, so that the instrument can be used as an ordinary mechanical stage when not needed for quantitative work.

Unless the slide is firmly held in its clamp and the thrust collars and thread nut of the stage are well adjusted, the instrument does not come to rest properly at each click. At high speed this is usually not noticeable, but for fine-grained constituents which must be counted slowly it is bothersome. The thrust collars and slide clamp are easily adjusted by the operator, but adjustment of the thread nut is best left to a machinist. The original description was submitted for publication several months ago and the instrument has been in steady use since that time. To date more than 600 analyses have been run with it. Except for two settings of the thrust collars and the insertion of a shim in the thread nut, no adjustments have been necessary. Most of the counting has been done with a Clay-Adams 5-cell block on which two single-cell Veeder counters were

mounted; this block is a pre-war model borrowed from the College Park Station of the Bureau of Mines, where it had been extensively used by myself and others. Except for a minor adjustment of the clearing bar, it has required no attention.

It is stated on page 1 of the original description that true Rosiwal analyses have not been made since introduction of the Shand micrometer in 1916, but this error is corrected in a hastily inserted footnote. The use of traverses so spaced that a single grain may be cut more than once does in fact violate a major condition specified by Rosiwal and places the procedure beyond the pale as far as the excellent study of Lincoln and Reitz (*Econ. Geol.*, 1913) is concerned. But this modification was suggested first by Wentworth, not by Shand. The use of evenly spaced traverses is now so ingrained that it has hardly been mentioned since it was first suggested by Wentworth in 1923, and in reviewing my typescript even such a meticulous critic as Dr. Shand himself failed to notice the error.

A NOTE ON THE CONVERSION OF AMORPHOUS SILICA TO QUARTZ

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In an earlier paper (1) it was pointed out that quartz or amorphous silica can be converted to cristobalite when heated for ten to thirty minutes with alkali fluxes at temperatures in the vicinity of 1150° C. A further investigation of several commercially prepared, finely divided amorphous silicas disclosed that crystallization of these substances could be brought about during ignition at temperatures between 1070° C. and 1100° C., provided CaO or $CaCO_3$ were present in amounts of five to ten per cent by weight. Before an opportunity to present the results had been realized, a paper on the crystallization of silicic acid by Schulman, *et al.* (2), appeared in a recent issue of the *American Mineralogist*. The authors show that quartz and cristobalite can form from silicic acid heated at 1150° C. for three hours in the presence of calcium, added as $CaCO_3$ or $CaSiO_3$. The present writer finds his results to be consistent with the observations of Schulman and his co-workers. Additional points revealed in the writer's investigation but not covered by Schulman's paper are discussed below.

In the experiments dealing with the conversion of silica to cristobalite (1), one sample in the series was a commercially prepared, finely divided amorphous silica. Following ignition of this sample at temperatures between 1070° C. and 1100° C., it was noted that over one-half of the substance was converted to quartz. The original material consisted of fine aggregates and sub-microscopic particles, and contained approximately