DISCUSSION

This department has been established by the editors in order to afford*to those interested in questions relating to economic geology an opportunity for informal discussion. Contributions are cordially invited either in the form of discussion of more formal papers appearing in earlier numbers or bearing upon matters not previously treated. Letters should be directed to the Editor, Sheffield Scientific School of Yale University, New Haven, Conn. The full name of the author should be attached to all communications.

Sir: Mr. J. B. Tyrrell has opened the discussion of my paper on "Certain Natural Associations of Gold" with an interesting article in the last issue of your magazine. I venture to express a hope that others will participate in the discussion as its continuance would seem likely to prove profitable.

The \$285,000,000 which I employed for the sum of the past and the estimated future productions of the Klondike was not my own figure, as Mr. Tyrrell infers, but was taken from a publication of the Canadian Geological Survey.¹ Revising Mr. Tyrrell's original estimate to conform with this figure (not by way of criticism, but to bring it more nearly up to date), I obtained 0.019 cent saved in the Klondike placers from each ton of original rock. This result is cited on page 273 of my paper, but the citation unfortunately reads "about 2 cents" instead of "about 0.02 cent" as it should. In this connection, it is amusing to note that a misplaced decimal point has crept into Mr. Tyrrell's own article, causing him to misquote my "0.019 c." as "0.19 c."

Turning to the broader aspect of the discussion, I cannot agree with Mr. Tyrrell that the fiftieth of a cent obtained in this manner can be legitimately used as the basis of even a rough approximation of the original gold content of the Klondike schists. This figure does not even represent the total gold in the Klondike gravels, but only that which has been, and probably will be, extracted. It should be corrected for alluvial gold lost in

¹ G. A. Young, Geological Survey of Canada, Report 1085 (1909), p. 129.

working placers, for alluvial gold in placers too low grade to work and for non-alluvial gold in the placers. But when suitable corrections have been made, one is little, if any, better off, as far as the present computation is concerned, since no reliable data are available for calculating the loss of gold during erosion. Mr. Tyrrell assumes that $66\frac{2}{3}$ per cent. would be a high loss, but I can see no reason why it may not have been very much greater.

Since the chemical effects of weathering are slight in the Klondike, it would seem that only an inappreciable amount of the fine gold which probably made up by far the greater part of the original gold content of the Klondike schists can have found its way into the placers. If this is the case, the above computation, corrected for lost and unworked placer gold, might very properly be used as the basis for a rough approximation of the amount of coarse gold in the original rock, but of the total quantity of gold originally in the rock one could only say with safety that it must have been greatly in excess of this amount.

FRANCIS CHURCH LINCOLN.