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GATES AND CRELLIN LABORATORIES OF CHEMISTRY

February 8, 1943

**CONFIDENTIAL**

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Professor Melvin Calvin  
Department of Chemistry  
University of California  
Berkeley, California

Dear Professor Calvin:

I am enclosing the report for January.

I wish you would have someone check over the procedures outlined for preparing the samples of diamines and triamines and see if they think it likely that in every case I was actually photographing the form desired.

I have not gone far enough with the pseudomorphs from the red hydrate to be certain as yet and therefore do not wish to be held finally for the following results. But it seems probable that the 3-ethoxy peroxide is monoclinic with  $a_0 = 7.6 \text{ \AA}$ ,  $b_0 = 11.9 \text{ \AA}$ ,  $c_0 = 23.9 \text{ \AA}$ , and  $\beta = 115^\circ$ . There would then be four molecules per cell and the density would be 1.45 g/cc. If your apparatus is still set up it would be nice to get an experimental check on this density. The axial lengths are taken from layer line measurements on the fuzzy pseudomorph pictures and even if correct as to order of magnitude they may have a considerable percentage error in them. But if they are good enough to complete the indexing of the powder pictures as well as they seem to be doing, good values can be gotten from the powder pictures when indexed. Whether or not an approximate structure can be gotten out of the powder and pseudomorph pictures remains to be seen. If you have any better crystals of the yellow hydrate and any at all of the pyridinate I would like to have them.

One disturbing fact is that a faint ring which appears only on the powder picture of the peroxide from red hydrate and which I have attributed to an impurity is also appearing as a spot on the pseudomorph pictures. It vanishes on deoxygenation. This makes it all the more desirable to have a yellow hydrate single crystal to play with.

Will there be some sort of a report out eventually on the Cambridge conference?

Best wishes to all in the laboratory and to yourself and Mrs. Calvin.

Sincerely,

*Edward W. Hughes*

Edward W. Hughes

Enc. Report

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