Dec. 20, 1952

Dear Joshua & Esther -

This emblem of pagan superstition is a very inappropriate carrier of Christmas wishes, but it was the only esthetically tolerable card I could find on a frantic last-minute hunt.

No scientific news to speak of. The purple bacteria turn out to be stinkers from the standpoint of growth studies under defined conditions, and so far the only interesting leads are biochemical ones. I think Rhodopseudomonas spheroides may be better than the rest for genetic and physiological studies, as it's much more oxygen-tolerant. But very odd things go on when the bugs shift from light to dark metabolism or vice versa, which I don't understand yet, and so far we haven't got very good growth in a defined medium. Will notify you when the outlook improves.

C

How right you were about the tetrazolium granules! Weibull has shown conclusively that the "mitochondria" demonstrated with tetrazolium are pure artifacts: continuous observation reveals that formazan starts to appear as many very small granules, which suddenly coalesce to give the single-granule picture; furthermore, if he Rappaports stained cells and spins out the formazan, nearly all the reductive power stays behind in the supernatant. If bacterial mitochondria there be, they are probably submicroscopic, like the chromatophores in purples. Nuts to Mudd & De Lamater. Salton is also active here cytologically, doing very pretty work on his cell walls.

Mike is well and very happily married — also doing more research than he has for years, hard in pursuit of that will-o-the-wisp, "permeability".

Hope to see you both this summer. Regards to Quin.

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As ever,
Roger

P.S. How did you fall down so badly on McCarthy.