AMERICAN CYANAMID COMPANY

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STAMFORD, CONN.

TELEPHONE
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August 16, 1948

Dr. Joshua Lederberg
Department of Genetics
University of Wisconsin
College of Agriculture
Madison 6, Wisconsin

Dear Josh:

The sample of Phosphine which we sent you was taken from a bottle labeled GNR instead of GRN. However, I am told the two designations have been used interchangeably, whether intentionally or erroneously, I do not know. At any rate, the preparation now on hand has been found to give phage inhibition comparable to that reported by Fitzgerald.

As to high blank readings on your turbidimeter, the reading given by water, as shown by the change in galvanometer deflection when the light is turned on and off, should be less than 1 or 2% of that given by a culture at maximum growth. If it is appreciably more than this it may be that the light source is not located correctly (light not properly focused) or the test tube is not properly shielded to prevent stray light from reaching the photocells. In connection with the latter, it may be, as was the case with one of our instruments, that the upper section of the tube holder is not aligned with the lower section so that the tube rests on the upper edge of the bottom shield. In calibrating the instrument, we turn the zero adjustment of the galvanometer suspension or move the galvanometer scale to give a reading of zero with water.

Without a tube in the turbidimeter, sufficient light strikes the photocells to give an appreciable deflection. We use this reading to check the sensitivity from tube to tube in a series of readings and the reading of water versus a powdered Pyrex suspension to standardize the sensitivity from day to day. We originally standardized the Pyrex suspension against the total cell count of a bacterial suspension. However, this is somewhat time-consuming and a gradual reduction in the turbidity of the Pyrex suspension requires that it be restandardized every few months. It appears to be more

convenient to standardize the Pyrex suspensions with suspension of $BaSO_4$ prepared from standard solutions of $BaCl_2$ and $H_2SO_4$. This method (McFarland's nephelometer method) is commonly used by bacteriologists to standardize bacterial suspensions. You can probably get the details of the method from someone there in the Bacteriology Department.

I am indeed glad to hear that you have been able to stabilize a heterozygote of the bacterial mutants.

With best regards,

Sincerely,

Ray

R. R. Roepke
Chemotherapy Division

RRR:bv