

August 21, 1964

Dr. Harding Bliss
Chemical Engineering Dept.
Yale University
New Haven, Conn.

Re: ms # 6593--Nucleate Boiling etc

Dear Dr. Bliss:

With regard to the two points in your letter of the 19th, my views are as follows:

1. Small number of data: As I have said many times before, the main contribution of the ms lies in the methodology of log log paper and there can be no dispute about the fact that this paper has been used incorrectly. It is my contention that, even if there were no data selected and plotted, the value of the ms would hardly be impaired. If you will refer to Costello's review, he recognized this point. However, to really answer the question, I have said many times that there is essentially no data in the literature--only log log graphs from which it is impossible to determine the coordinates with any reasonable accuracy. Berenson and Bonilla were two exceptions to the seeming rule that nothing which even approaches the data can be published. No one is better able to answer to the truth of this contention than yourself as one of the editors who has no requirements about experimenters making their data available. If I were an editor, I should make it a FIRM requirement that the raw data for any experimental ms must at least be sent to the ADI. What fraction of your publications contain the statement that the raw data is available from the ADI? Or from anywhere else??? It is my guess that most people in the field do not even know what ADI stands for.

It is also germane to this discussion that I asked Dick Gaertner to select the data which he felt demonstrated the power relationship. He politely declined. I made the same offer to Rohsenow. He did not even reply to my request, except unwittingly when he used the same data I did to conclude that the exponent was 4 for Berenson's results. Everyone talks about the exponent being 3 or 4, but no one ever refers to any specific experiments or data to

back up this contention. To put an end to this game, I make you the following offer:

If you can get Hsu to pick out the data which he feels demonstrates the accuracy of an exponent of 3 or 4, I shall be happy to rewrite the ms around the data he picks and I shall enter an acknowledgment to him for his help in doing so.

The only thing I stipulate is that the data he picks must be available in the literature in digital form and must be dated prior to the preparation date of the ms.

If my offer does not put an end to subject criticism, then it must be because you would rather go on debating than to find the real answer. "Supposing is good. Finding out is better." Let us put an end to supposing.

2. My mistake in labeling some points free convection: I submit that neither Berenson or Bonilla had the means to visually detect the presence of bubbles in their experiments and thus it was not possible for them to determine when boiling was actually taking place, except by conjecture. When it comes to conjecture, I reject theirs and use my own. However, in this respect, their own conjecture was by no means complete--I suggest you refer to Berenson's report in the Int Jour and try to determine whether he distinguishes between those points which were boiling and those which were not.

To end this particular debate, I observe that a real analysis of the data to determine the exponent does not require that one distinguish between the boiling and the non-boiling points. I prefer not to elaborate on this point until I am given a chance to rebut the rebuttal.

The above are my views--I have nothing to hide. I have the right answer and the truth can only serve to prove it. I will say that you have me confused. From your earlier letter, I sensed that you had no interest in the truth, and now I don't know.

Sincerely yours,