August 25, 1964

Dr. Harding Bliss, Editor
AIChE Journal
Yale University
225 Prospect Street
New Haven, Connecticut 06520

Subject: Number 6593 Nucleate Boiling, The Relationship Between Heat Flux and Thermal Driving Force, by E. F. Adiutori

Dear Dr. Bliss:

Thank you very much for your letter of August 19 and for the opportunity of reappraising the subject paper.

The point which most of the reviewers make is that the relationship between heat transfer and thermal driving force has not been fully established by the author. This cannot be denied, and I believe was part of my review as well. Since I am in the hospital for a period of time, I have no access to my previous review but believe this was the case. I believe Professor Westwater has summarized my feelings best. That is, since the relationship between heat transfer and thermal driving force has not yet been fully established, the author is at liberty to state his opinion. Moreover, it cannot be stated that in the limited amount of data that the author has shown he has established his premise concerning the relationship between heat transfer and thermal driving force.

In my opinion, the most significant point of the paper is on page 8 under "Log-Log Graph Paper". The point that the author makes here is true and he performs a valuable service in pointing out a logical error that has been perpetuated by frequent use.

The AICHE Journal is such an excellent magazine that perhaps this one point does not justify a full article in such a journal. So perhaps I went overboard a bit in my enthusiasm for the author's contention that the use of log-log paper was a culprit in the heat transfer act. One of my graduate students made an excellent suggestion in that a note would be quite appropriate to point out the rather small bit of technical information contained on page 8. This may be an excellent way out for you in that you are in an excellent position to suggest to Adiutori that he should revise his paper to form a communication for the Journal. The burden would then be upon him; and if he choses to ignore your recommendation, you would be at liberty to dismiss the paper.

Having reread the paper and all of the reviews you sent me, I believe this is the only conclusion I can reach. The author's point is well taken, but he has perhaps built a mountain from a mole hill.

In my original review, I suggested that the author pose a reason for the linearity of the heat transfer-thermal driving force relationship. The material that he has added beginning on page 10 is virtually worthless. Here I refer to the material under "Theoretical Discussion".

The statement on page 12 to the effect that Perkins and Westwater found the bubble frequency and diameter independent of heat flux is a gross oversimplification. Moreover, I personally can vouch for the fact that contrary to the statement at the end of page 12, the bubble population is not linearly related to the temperature difference throughout the boiling regime. The portion that the author has added is quite worthless and in my opinion, mitigates against the paper.

Dr. Hsu's point may be correct. I did not check this, but his statement only reenforces my oft voiced contention that the relationship between heat transfer and thermal driving force which the author has attempted to establish has not yet been fully proven. Dr. Hsu's point therefore adds nothing new but merely substantiates what has been pointed out by the other authors.

In short, conclusion 3 is the only one in the paper which has been proven, and perhaps this is too small a point to justify a full paper. Suggesting that the author prepare a communication from his paper would assist in saving everyone's feelings and in perhaps putting the paper in its proper perspective. Naturally, the decision is yours, but this seems such a logical choice to me that I wish to voice it to you.

Points made by the reviewers as you have forwarded them to me are all well taken. What I believe is that they have missed the one essential point of the article, namely that embodied in conclusion 3 of the paper.

I'm sorry if my review was overly enthusiastic, but "I call them the way I see them". I wish you best of luck in this matter and also the wisdom of Solomon. I guess you wouldn't have the job you do if you didn't have quite a portion of that already.

Very truly yours