Aug 28, 1963

Dr. Harold Davis
Associate Editor
Nucleonics Magazine
McGraw Hill Building
New York City
Dear Sir,

On August 27, I spoke to Jerry Luntz about my writing a series of short articles for your magazine. He indicated that you might be interested and that I should correspond with you.

The series of articles I propose to send you will discuss stability in two phase systems - i.e.: (1) the flow oscillations which are often observed in natural convection systems; (2) the power oscillations that are observed in boiling water reactors. Much of the recent work in this area is based on the premise that the oscillations are the result of hydrodynamic instability. However, this work has resulted in rather minimal success. The series of articles I propose to send you will:

(1) Describe <u>thermal</u> stability

(2) Derive the criterion for thermal stability

(3) Indicate how thermal instability leads to flow and power oscillations

(4) Demonstrate that certain two-phase systems described in the literature were thermally unstable

(5) Indicate that thermal instability could explain many qualitative observations in the literature with respect to the effect of system parameters on stability

(6) Indicate how thermal stability may be tested for what tests should be performed in a given experimental facility in order to determine whether it is thermally stable

(7) Indicate how thermal stability may be improved

Of course I cannot guarantee that all instabilities which have been reported in the literature were thermally induced. However, what I can do is: (a) prove that some two phase systems were thermally unstable; (b) point out that thermal instability results in flow oscillations similar to what has been observed; (c) suggest that all the instabilities described in the literature act more or less the same and that they may all be thermally induced.

The series of articles would consist of three or four articles of 3 to 6 pages each. I feel I should

explain my selfish interest in making a series of articles. I am presently writing a book on "Boiling" and the subject series would be excerpted from the book. It is my impression that this fact would be pointed out in conjunction with each article.

It is my feeling that thermal instability has been neglected to date and that this could be the reason why instability is still largely unsolved. For this reason, I feel there is ~~an urgent need for the subject series and that you hope that~~ you could expedite their publication. that the subject series will be a significant contribution to the literature and would hope you could expedite their publication. However, before sending you the first article in the series, we would have to agree on the following:

(1). In the event you decide to publish the articles, there must be no techical rewriting. ~~of the articles.~~ Any rewriting must be restricted to a literary nature.

~~(2). I must be the sole author~~

(2) The series of articles will foster a number of related conclusions about two phase systems which I intend to discuss in my book. Therefore,

there must be no additions to the articles and I must appear as the sole author.

I hope your editorial policy will allow you to comply with the above requests.

¶ At the present time, I am on leave of absence from the General Electric Co in order to devote full time to ~~m~~ writing ~~&~~ my book. While ~~at~~ with General Electric, I have worked on naval reactors and boiling liquid metal systems. As for references, Dr. Carlos Bonilla is familiar with ~~a small part~~ some aspects of my work.

Sincerely yours,

Eugene [illegible]

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