



## Letters to the Editors

### Comments on a recent review of Incropera and DeWitt's texts

I appreciate and respect the normally high standard of this Journal, so I was disturbed by your decision to publish, unedited (it would appear), Professor Spalding's review [1] of the new Incropera and DeWitt texts [2,3]. I believe the review contains little of worth to the heat and mass transfer community. The texts are examined in a limited and superficial manner, data are distorted or preferentially selected or neglected, and the style of the review is clumsy and often unclear. Indeed, on the basis of normal refereeing processes the review would probably have been rejected.

Spalding has presented many of his views in the form of innuendo. Good and effective writing, for example that of Incropera and DeWitt's text, clearly conveys what is in the author's mind. Much is implied in Spalding's review, yet leaps of logic beyond that acceptable for scientific thinking are required to understand meanings behind some of his comments. I am unable to interpret some his indirectly expressed views. I cannot, for example, decide from his review whether Spalding approves or disapproves of a patronising tone, although I think he intends to convey one of these views. In the spirit of supporting the broad field of heat and mass transfer, I wish to respond to what I understand Spalding's views to be. For the reasons given, I may have misunderstood some of the points behind his comments.

Over half of Spalding's review consists of his considerations of a word in the second sentence of the preface and of the last sentence of the last appendix. This precludes the possibility of a balanced evaluation of the main material which, by definition, lies between the preface and the appendices.

Several of Spalding's points amount to a preference for British rather than American word and style choices. The points are, on the whole, too trivial to warrant individual response. Nevertheless, it must be noted that American English is by definition appropriate for an American text designed primarily for American students. Insofar as the text is gaining a

more international readership, American English remains appropriate since it is emerging as the main international technical language.

In his first such point, on the authors' use of the word "maturation", Spalding has selected a different dictionary meaning to that intended by the authors, and then concluded that the authors chose the wrong word. The technical equivalent of this is drawing incorrect conclusions from invalid data while neglecting valid data. Moreover, he appears to be unaware of the well-recognised differences in spoken and written languages.

Spalding has highlighted two semi-technical aspects of the text. Although trivial, they also deserve a response. Firstly, as a matter of simple semantics, the question "Does the problem involve flow over a flat plate, a sphere, or a cylinder?" does not preclude consideration of other geometries. Secondly, Spalding has implied, perhaps unwittingly, that the incorrectly spelt "Reynold's number" appears frequently in the text. It appears once, in the index.

With regard to Spalding's criticism of the text's grammar, my understanding is that Incropera and DeWitt's use of gerunds does not constitute flawed English. To compound matters, Spalding has here misquoted the text ("substituting from equations 2.8 and 2.9" instead of "substituting equations 2.8 and 2.9"). In view of his criticisms, he could well have been more careful with his own grammar. Solely to demonstrate the point, in the first paragraph (to adopt Spalding's approach): "attractively-printed" should not be hyphenated, the first "of" in the fourth line should be removed, the phrase "of their own handiwork" is superfluous and adds confusion to an already cumbersome sentence; and the last semicolon should be a comma.

And are the quotes of Ogden Nash and Keats really relevant to a review of the text, or just examples of spurious data?

Spalding has expressed the view that the authors may have less justification than the publishers for pride in their work. Notwithstanding some minor valid criticisms given by Spalding, reasons for such a view are not presented.

I have had access to only one of the volumes

(*Introduction to Heat Transfer*), and have not examined it in sufficient detail to do it justice in the form of a book review. Nevertheless, the following points could be made in a review of this volume.

This text is intended as a first course in heat transfer. It is presented in a form that is particularly helpful for those who like a structured teaching approach that includes student self-assessment. A particularly welcome aspect is the promotion of the view that technical problems do not have a unique solution and instead may have several equally acceptable solutions. This is not always recognised at the student level. The presentation style is clear and easy to follow. As befits a first text, many of the topics are presented without great depth (for example, the analogy between heat and mass transfer) or are not particularly state-of-the-art (for example, the section on boiling heat transfer). However, greater depth and/or more cutting-edge information could detract from the first-text approach.

As a minor point, the absence of an origin in the heat transfer coefficient graph of figure 10.9 could be confusing and could lead a reader to an incorrect understanding of boiling heat transfer trends. On the same general topic, I would prefer that the recommended nucleate boiling correlation, that of Rohsenow [4], be replaced by that of Labuntsov [5]. Unlike many alternatives, both are simple and non-dimensional, and so both imply generality. However, the dependence of Rohsenow's proportionality "constant" and Prandtl number exponent on fluid-surface combination indicates non-generality, and suggests that Rohsenow's dimensionless groups do not truly reflect the physical processes that occur during boiling. And Labuntsov's correlation, while being of a comparable age, is based on a wider range of data. Moving on to the next stage of the boiling curve, I cannot agree with the text view that transition boiling is of little practical interest. It is important, for example, in transient quenching. Nor is it only attainable by controlling the surface heater temperature. The text here could include a simple but reasonable prediction method such as a straight line connection on log-log paper between the critical heat flux and minimum heat

flux points. Such modifications would remain compatible with the author's first-text approach.

Although the text is intended primarily as a first course, I personally find it a useful general reference, notwithstanding minor quibbles of the type given above.

Perhaps the Editors accepted Spalding's contribution, as offered, as a means of honouring his undoubtedly deserved reputation as an expert in this field and also on the basis of his being a Founding Editor of this Journal. In my opinion, they would have better served his reputation by not accepting his review in the form offered. It does not usefully serve the heat and mass transfer community, and it reflects badly on both the Journal and Professor Spalding.

#### Acknowledgement

I acknowledge and appreciate helpful discussions with Ms Jeane Balcombe, ANSTO Communications, concerning matters of English style.

#### References

- [1] B. Spalding, Book review, *International Journal of Heat and Mass Transfer* 41 (1998) 3689–3690.
- [2] F.P. Incropera, D.P. DeWitt, *Fundamentals of Heat and Mass Transfer*, 4th ed., John Wiley, New York, 1996.
- [3] F.P. Incropera, D.P. DeWitt, *Introduction to Heat Transfer*, 3rd ed., John Wiley, New York, 1996.
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- [5] D.A. Labuntsov, Heat transfer problems with nucleate boiling of liquids, *Thermal Engineering* 19 (9) (1972) 21–28.

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#### Response to Brian Spalding's review [1] of Incropera and DeWitt's texts, *Fundamentals of Heat and Mass Transfer*, 4th ed. [2], and *Introduction to Heat Transfer*, 3rd ed. [3]

Brian Spalding's review of Incropera and DeWitt's popular textbooks fails to provide a careful consider-

ation of their content and approach. By questioning the value of these books without providing reasoned scientific grounds for doing so, this review fails to live up to the standards of the scientific community for fairness and impartiality.

First, the review places the majority of its emphasis on language issues. This focus is inappropriate, if not