average physical properties:

density	— 56	lbs/ft³
specific heat	— 0.47	Btu/lb°F
thermal conductivity	— 0.07	Btu/hr ft°F
viscosity	— 4.0	cps

Find the length of pipe required for the exchanger.

4. You are a tired and puzzled student in ChE 305 (the real you?). The professor puts the following crazy question on the final exam. (Don't panic this is a relatively easy problem, just read carefully.)

The circulation of blood in the finger maintains a temperature of 98.6°F at a short distance, say 1/8 inch, below the surface of the skin. The nerve endings, which are temperature indicators, are 1/16 inch below the surface of the skin, your distress is considered to be noticeable when the nerve endings attain a temperature of 110°F. Using these criteria, find the maximum temperature of water in which you could hold your finger. Assume the system is adequately modeled as a flat plate.

Thermal conductivity of flesh and blood	— 0.35	Btu/hr ft°F
Convective coefficient for finger dipped in water	— 100	Btu/hr ft²°F

1 ft³ contains 7.48 gallons
1 H.P. = 550 ft-lb$_f$/sec
1 bbl = 42 gallons

ChE books received

"Advances in Cryogenic Engineering" Vol 3. Edited by K. D. Timmerhaus, Plenum Press, New York. pp 747, 1978. $49.50

This is the proceedings of the 1977 Cryogenic Engineering Conference held at the University of Colorado, Boulder, CO. Papers include superconductivity applications, heat transfer, mass transfer, cryogenic techniques and applications, and LNG design and properties.

"Applied Cost Engineering" by F. D. Clark and A. B. Lorenzoni. Marcel Dekker, Inc., New York. pp 297, 1978. $24.50

This is the first in a series of reference books and textbooks on cost engineering. It is concerned with cost estimation and cost control and does not discuss engineering economics, the third area of cost engineering. The authors include few specific data but give the reader basic philosophy and ideas for developing his own data, estimating method or cost control system.

"A Programmed Review of Engineering Fundamentals" by A. J. Baldwin and K. M. Hess. Van Nostrand Reinhold, New York. pp 287, 1978. $18.95

This programmed text is for anyone preparing for the National Engineering Fundamentals Examination. The text includes review material in mathematics and science and engineering fundamentals.

ChE letters

CITATIONS CORRECTION

Dear Sir:

In the Fall issue of *CEE* Professors Carbonell and Whitaker identified the origin of the method of volume averaging as a pair of independent papers by Slattery (1967) and Whitaker (1967). That citation unfortunately overlooked the work of Anderson and Jackson (1967) who also derived the spatial averaging theorem independently and used the result to analyze motion in a fluidized bed.

Anderson, T. B. and R. Jackson, "A Fluid Mechanical Description of Fluidized Beds", I.E.C. Fund *6*, 527 (1967)

Slattery, J. C., "Flow of Viscoelastic Fluids Through Porous Media", AIChE *13*, 1066 (1967)

Whitaker, S., "Diffusion and Dispersion in Porous Media," AIChE Journal *13*, 420 (1967)

Stephen Whitaker
Visiting Professor
University of Houston

CONFERENCE ON CASE STUDIES

Editor:
Please publish the following announcement:

"National Conference on Case Studies in Engineering Education" sponsored by the ASEE Engineering Case Committee, March 28-30, 1979, Columbia, South Carolina. Topics: Preparation, writing, and use of case studies; application of cases to instruction in specific engineering disciplines; case use in legal, political, ethical, and economic aspects of engineering. Papers dealing with these topics will be published in a Proceedings which will be available at the conference. For information, contact the Office of Continuing Engineering Education, University of South Carolina, Columbia, South Carolina 29208; telephone 803-777-6693

Tim A. Jur
Conference Chairman

CALL FOR PAPERS

Dear Sirs:
The Irish Branch of the Institution of Chemical Engineers is organizing an International Conference on Solids Separation Processes to be held in Dublin in April 1980 in association with the Annual General Meeting of the Institution.

The Conference Organizing Committee is inviting papers for the conference and would be pleased if you could give some prominence to the "Call for Papers" in your journal.

Abstracts should be sent, as soon as possible, but not later than April 1, 1979, to

Dr. John J. Kelly, Chairman, Tech. Com.
Intern. Conf. on Solid's Sep. Processes
BeMRA
Tramway House, Dartry Road
Dublin 6, Ireland

D. J. Menzies
Conference Secretary