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## Communicating sequential processes

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*Communicating Sequential Processes* by  
C A R Hoare. Published by Prentice-  
Hall, 256pp. £27.95.

When one of the gurus of the concurrent programming community produces his first book, and it shares the title of one of the classic papers on the subject, it is well worth attention. That said, it will probably not find its way automatically onto the shelves of mainstream DP professionals. Professor Hoare has produced a book on a subject in which he is acknowledged as one of the foremost theoretical thinkers; the resulting text is quite likely to become a classic in the field but it is without doubt a work for theoreticians.

Concurrent programming is a discipline that is notorious for its complexity and shortage of hard theory; various practical techniques have been developed to aid the struggling programmer, of which ADA and OCCAM are currently the best known. This book attempts to stand back from the implementations and deve-

lop a coherent mathematical theory that permits a soundly based study of concurrency and its problems in all its manifestations. The result is a work that is quite mathematically intense but certainly a success. Derived from material used in teaching (at late graduate/Master's level), it will probably be very popular as a teaching text, although any reader seriously interested in the topic would not regret parting with the (high) cover price.

The book opens with two introductory chapters that give a flavour of what is to follow. Since it is a book of mathematical theory, this material may seem unpalatable to some until the notation is mastered. The author acknowledges that this may be a stumbling block, but goes on to remark that having mastered the language, its power and elegance in expressing problems, solutions and proofs more than repay the effort. The following three independent chapters explore, using the theory

established, non-determinism, communication and the theory of sequential processes. There follows the most practically orientated chapter which derives a design for a simple operating system, and the book concludes with a chapter describing critically all the other best known techniques in the field, and attempts to give some insight into the derivation of the book's own theory.

Throughout, the text is dotted with examples. Indeed, it is thick with them, some very simple indeed, and they are of considerable use in illustrating the ideas being presented although in several places there is the feeling that one more example would certainly be one too many. Coupled with Hoare's very readable style, and the good level of reproduction, the book makes surprisingly easy reading. It includes a short, but adequate, bibliography and a good index.

ROGER BOYLE  
University of Leeds

21st October 1985

Professor C.A.R Hoare  
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*Jenkins/Jenkins*

Dear Tony,

I enclose the Q NIAL Reference Manual and a disk, to go with the printed tutorial that I left with you on Friday. The disk runs on an IBM PC - I haven't tried it myself.

Prentice-Hall in the USA sounds very interested in this language. I should be grateful for your opinion.

I will collect this material from you when I come to see you on 22nd November.

Also enclosed is a review of COMMUNICATING SEQUENTIAL PROCESSES, from Data Processing journal.

Yours sincerely,

*Sorry omitted  
from this letter.  
LJC*

Giles Wright  
Senior Editor

GW/lpw

Encs: