─────NEW JOURNALS─────

Use of the common denominator

Joel E. Cohen

IMA Journal of Mathematics Applied in Medicine and Biology. Editor R. W. Hiorns. *Oxford University Press. 4/yr. UK £54, North America $138, elsewhere £69.*
Communications in Statistics — Stochastic Models. Editor Marcel F. Neuts. *Dekker. 3/yr. $110 (institutional), $55 (individual).*

THE EARLY numbers of the *IMA Journal of Mathematics Applied in Medicine and Biology* have papers (all handsomely printed and illustrated) on human genetics and population genetics, neurobiology, demography, ecology, exploitation of living stocks, epidemiology, parasitology, morphology, chemotherapy, radiotherapy, chemotaxis and human physiology.

What brings these articles together is their common use of mathematical language, just as the common use of English brings a wondrous pot-pourri of scientific topics together under the covers of *Nature.* The mathematical language is as diverse as the subject matter. The first issue alone uses diffusion equations, maximum likelihood, partial differential equations of continuum mechanics, stability theory of non-linear difference equations, computer simulations based on generating functions and matrix theory.

The declared statement of purpose of the new *IMA Journal* is to seek "to stimulate research in which mathematicians are seen to be tackling problems which those in the medical and biological fraternities would like addressed". In its aims and its achievements, it joins a sibship of journals that present mathematical analysis of biological and medical problems. Among these are the *Journal of Theoretical Biology, Bulletin of Mathematical Biology, Journal of Mathematical Biology, Biophysical Journal, Ecological Modeling, Mathematical Biosciences, Theoretical Population Biology, Journal of Mathematical Population Studies, Computers in Biology and Medicine* and many with a more statistical slant, such as *Biometrics, Biometrika, Biometrische Zeitschrift* and *Statistics in Medicine.*

A question suitable for discussion in the corridors of scientific meetings is how much these journals influence biology and medicine. It is at least a plausible conjecture that most researchers in biology and medicine are reached and influenced primarily by the mainline journals of their fields. If this is so, then mathematicians who study biological and medical problems will find the new *IMA Journal,* and its siblings, useful for communicating with one another and for developing their wares to a point where they command the attention and space of the mainline biological and medical journals.

Reproduced photographically from the authors' final typescripts, *Communications in Statistics – Stochastic Models* offers a visual diversity as great as the substantive diversity of the new *IMA Journal.* The emphasis is entirely on the theoretical analysis of models. Articles in early issues deal extensively with queuing theory. Scattered papers discuss reliability theory, self-similar processes, flows in networks with random capacities and parallel processors. A lone stochastic model of cancer metastases represents the only overlap with the *IMA Journal.* No data of any kind appear and numerical illustrations of results are rare.

The mathematical level of the exposition is advanced and sophisticated, as if the authors aspired to *Annals of Probability, Zeitschrift für Wahrscheinlichkeit-stheorie und Verwandte Gebiete,* or the Russian journal *Theory of Probability and Its Applications.* The editor's preface emphasizes "the stimulating new problems generated by the modelling of computer and telecommunication systems, of inventories, queues and biological popu-

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lations". If papers in future issues reflect a wider range of these problems, *Stochastic Models* will move away from its purer brethren, mentioned above, towards such journals as *Advances in Applied Probability, Stochastics, Journal of Applied Probability* and *Stochastic Processes and Their Applications.* □

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Picture progress

Andrew Dearing

The Visual Computer: International Journal of Computer Graphics. Editor-in-chief Tosiyasu L. Kurii. *Springer-International. 6/yr. DM 337.50.*

The Visual Computer is the official journal of the Computer Graphics Society, and is intended to cover rather a wide field, ranging from computer input and perception of visual information, through hardware, software and mathematical tools, to the generation, animation and application of visual images. In common with many societies' journals, it includes useful sections giving "news and views" and an up-to-date calendar of forthcoming events. These, however, are short, and the core of the journal consists of some 6–8 refereed original or technical papers.

Four issues appeared in 1985 and six are planned for 1986. The average length of

The Visual Computer 2/85
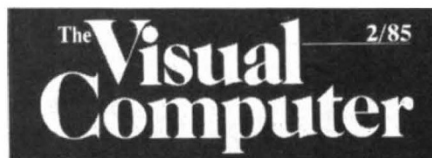
an article is about ten pages, allowing authors the chance to write in some depth, and the editors have maintained order and focus by using thematic titles for three out of the four issues in Vol. 1. These covered animation, constructive geometry and the graphics interface, and grouped related articles into single issues in a sensible way without too great a loss of general interest.

During the first year, many of the journal's intended topics were covered by one or more papers, although there was a stronger emphasis on image generation and output than on input and recognition techniques. A danger in producing a journal whose subject matter includes topics related to the use of visual information is that substance can vanish behind the self-evident quality of the images or the method — shades of the Emperor's New Clothes. *The Visual Computer* suffered from this disease somewhat in one or two contributions that covered particular applications of computer graphics, and the papers in question might well not be acceptable to journals specializing in their own application area.

Otherwise, the journal has a reasonably balanced editorial style, and divides well between application and theory, algorithms, discussion and (yes!) pictures. It contains papers from quite a wide geographical and technical spread of authors, although there is the expected slight bias towards North America.

This is very much a journal to keep readers aware that the discipline has a reasonable breadth, without losing them in undue detail. Most of the papers might find a home in more specialized publications without requiring much modification, but this in itself is not a criticism since *The Visual Computer's* aim is to establish a new nucleus around the whole field of visual information. Does it achieve its intentions? Generally it does, and in a consistently well-presented manner which is attractive and easy to read. But the editors will need to work hard to make the journal cover all aspects of their intended field. □

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