

acids chemistry would normally have been spread over 10 volumes of the journal *Nucleic Acids Research*, so we are provided with a distillation of major topics and literature references. The book is a celebration of the quantity and quality of Japanese academic research in this important field (more than 90% of the contributions are from academic institutions). My overall impression is one of admiration and respect and, speaking as a British scientist, not a little envy.

Papers in this volume span a very wide range of interests, from the chemical synthesis of potential antiviral agents to advances in the preparation of DNA oligonucleotides. There are also papers on molecular cloning and suggested models for prebiotic synthesis of nucleic acids. Physical techniques such as NMR, Raman Spectroscopy, Circular Dichroism and Differential Scanning Calorimetry also feature. It must be emphasized that this is a collected volume of research publications a number of which would not be acceptable in the more standard scientific journals, as is inevitably the case for symposium reports.

The book provides a window into what is happening in nucleic acids research in Japan and as a researcher in the field I consider the book to be well worth reading. The price is too high, particularly considering the quality of the reproduction, the paperback cover and the small format. Despite these drawbacks I would have to recommend its purchase by any library already taking nucleic acids research.

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In vitro Fertilisation – Past, Present and Future. Edited by S. FISHEL and E. M. SYMMONDS. IRL Press Ltd. 1986. 276 pages. £17.50 US \$32.00 (soft), £27.50 US \$50.00 (hard). ISBN 0 947946 50 0 (soft), 0 947946 95 0 (hard).

Arthur Koestler has made the point in his 'Act of Creation', that very rarely if ever do scientific discoveries and innovations arise *de novo*. They almost always have their origins in earlier work. This is also true of *in vitro* fertilization (IVF) as Fishel clearly shows in his fascinating historical introduction to this book which represents the edited views of an international group of medical scientists, philosophers, theologians, ethicists and lawyers. It was only in 1978 that the work of Edwards and Steptoe led to the birth of the first baby conceived *in vitro*, yet within seven years no less than 117 IVF clinics had been established throughout the world. This is understandable since it provided a valuable method for overcoming the infertility experienced by many couples.

IVF is here considered from various points of view: the evaluation of infertile couples, techniques of oocyte recovery using laparoscopy and more recently

ultrasound, embryo replacement, and the results of IVF. The laboratory techniques involved are discussed in detail including the growth of the early conceptus *in vitro*. The importance of careful and sensitive counselling of couples undergoing IVF is emphasized. The current status of the Warnock report and various ethical and legal matters are given consideration. Finally, Leo Abse discusses the political issues raised by IVF and similar works.

Though IVF is now a well established and widely used technique, it becomes clear in reading this text that many fundamental problems still need to be resolved. There is ignorance regarding the optimal conditions for normal growth of the early conceptus *in vitro*. The best stage of development at which to replace a human embryo is unknown. For various reasons it has proved difficult to evaluate the number and quality of pregnancies following IVF. And though it seems likely that the incidence of malformed children born after IVF is no greater than in the general population, this has yet to be clearly established. There is therefore much scope for research in this field.

Apart from the treatment of infertility, IVF offers a new approach to studying the causes of some forms of infertility and, rather paradoxically, might lead to the development of novel methods of contraception. Furthermore, the study of cultured embryos could not only throw more light on early human development but might also lead to a better understanding of how certain congenital malformations arise. But such studies, and some would add IVF itself, raise many ethical problems. For example, is it right to discard or experiment on fertilized eggs that exceed those required for replacement? Might such studies one day be unacceptably extended beyond the 'pre-embryo' stage (at about 16 days after fertilization), and how can such work be effectively regulated? Leo Abse argues from his many years as an experienced parliamentarian, that decisions should not be made hastily. That we need first to be educated and well informed about the facts and then given time to explore our fears and anxieties. Only in this way can we avoid making precipitate and ill-conceived judgements. This well-edited and well-written book will help to provide the facts about this important subject.

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Cold Spring Harbor Symposia on Quantitative Biology. Volume L. Molecular Biology of Development. Cold Spring Harbor Laboratory. 1986. 920 pages. Cloth \$140. ISBN 0 87969 050 X. Paper \$70. ISBN 0 87969 051 8.

The devotion of the 50th CSH Symposium to Developmental Biology is very appropriate for a field