



R. H. F. Hunter

# The Fallopian Tubes

Their Role in Fertility  
and Infertility

With 55 Figures, 2 in Colour

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## Preface

This monograph has been written in the hope that it will prove of value to medical students and clinicians, to Honours undergraduates in appropriate branches of the natural sciences, and to reproductive biologists in general. It would be pleasing if the text also caught the attention of veterinary undergraduates, since there is much information bearing on reproduction in domestic animals. First and foremost, however, the intended audience is a medical one, for scientific studies of human reproduction have been catalyzed by the intense interest in procedures of fertilization in vitro. Some would judge that this very activity has narrowed our view of physiological events occurring within the Fallopian tubes. The present work may therefore serve as a useful counterbalance to the overwhelming series of publications on procedures of in vitro fertilization, and offer opportunities to those in the clinical field for extending their knowledge of the scientific background to much of the current work.

The writing did not commence with such a purpose. Since his first years as a research student, the author has been especially interested in the process of fertilization and the beginning of embryonic development. These interests expanded with a series of surgical and pharmacological interventions used to modify the function of the Fallopian tubes in experimental animals. By the early 1970s, such studies were attracting the attention of medical audiences and by the mid 1970s, invitations to lecture at home and abroad were a pleasingly frequent occurrence. On the basis of this activity, the author published a detailed review in the *European Journal of Obstetrics, Gynaecology and Reproductive Biology* (1977) entitled *Function and malfunction of the Fallopian tubes in relation to gametes, embryos and hormones*. This was well received, although it remains uncertain whether the text or the coloured photographs proved the greater attraction! An up-dated version of the review was written in 1980 (but not published until 1982), under the title of *Anatomy and physiology of the Fallopian tube*. In part, therefore, the origins of the present volume must lie in these earlier attempts. The writings of others have clearly inspired

the author, and a much-prized possession is a copy of *The Mammalian Oviduct* edited by Hafez and Blandau (1969). Other sources of inspiration are mentioned in Chapter I.

A monograph is, of course, one man's view in which he can indulge at least some of his own prejudices. Readers will all too readily appreciate the limitations to this situation, but one of the advantages is that – even in 1987 – an author can still express his own thoughts in his own words rather than accepting the uniform vocabulary imposed by most scientific editors. Within this welcome freedom, the chapters have been written to stand individually, although with a reasonable amount of cross-reference. This approach has involved some overlap of specific points or themes, but nowhere is this extensive. As to a policy on references, the intention has been to be selective rather than exhaustive; it is nonetheless hoped that the citations to key works and reviews will provide access to the wider body of literature.

If the present work leads to an appreciation of the subtle and dynamic interactions occurring locally between the embryo, the Fallopian tube and the neighbouring ovary, and perhaps prompts further experiments, then its purpose will have been well served. The fact of a physiological conversation between the newly-fertilized egg, the enveloping duct system, and the adjacent gonad should not cause surprise in well-read audiences of the 1980s. However, the nuances of that conversation will undoubtedly keep us entertained for many years to come, and indeed the precocity of the zygote may well take some unawares.

Edinburgh, June 1987

R. H. F. HUNTER

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## Abbreviations, Units and Adjectives

EPF	Early pregnancy factor
FSH	Follicle stimulating hormone
GIFT	Gamete intra-Fallopian transfer
GnRH	Gonadotrophin releasing hormone
HCG	Human chorionic gonadotrophin
HMG	Human menopausal gonadotrophin
IVF	In vitro fertilization
LH	Luteinizing hormone
PAS	Periodic acid-Schiff
PGF <sub>2α</sub>	Prostaglandin F <sub>2α</sub>
PMSG	Pregnant mares' serum gonadotrophin
mg	milligram ( $10^{-3}$ g)
μg	microgram ( $10^{-6}$ g)
ng	nanogram ( $10^{-9}$ g)
pg	pikogram ( $10^{-12}$ g)
i.u.	international units
mOsmols	milliosmols
M <sub>r</sub>	relative molecular mobility (molecular weight)
Distal	uterine end of Fallopian tube (i.e. isthmus)
Proximal	ovarian end of Fallopian tube (i.e. ampulla)