Erratum

Plate I Figures 4 and 6 should be interchanged.
Figure 5: Read 7 coloured sperms and 5 colourless.
Figure 6: Read 9 coloured sperms and 1 colourless.
Plate IV For second left-hand annotation read: Lamina visceralis of the tunicae vaginalis testis.
Plate V For third left-hand annotation read: Tunica albuginea of the testis.

Fertility Disturbances in Men and Women

A Textbook with Special Reference to Etiology, Diagnosis and Treatment

Charles A. Joël
in co-operation with renowned specialists

224 figures, 8 colour plates and 42 tables

S. KARGER • BASEL • MÜNCHEN • PARIS • NEW YORK

S. Karger AG, Arnold-Böcklin-Strasse 25, CH-4000 Basel 11 (Switzerland)

All rights, including that of translation into other languages, reserved. Photomechanic reproduction (photocopy, microcopy) of this book or parts thereof without special permission of the publishers is prohibited.

©

Copyright 1971 by S. Karger AG, Verlag für Medizin und Naturwissenschaften
Printed in Switzerland by Buchdruckerei National-Zeitung AG, Basel

Table of Contents

Foreword...............................................................................XII
Preface................................................................................XIV
Part I: Fertility Disturbances in Men
History
Joël, C. A. : Historical Survey of Research on Spermatozoa from Antiquity to the Present........................................................................................................ 3

Embryology, Anatomy and Histology
Rowley, Mavis J. and Heller, C. G. : Embryology, Anatomy and Histology of the Male Sexual Organs................................................................. 48

Physiology
Joël, C. A. : The Physiology of the Male Gonads......................................... 65

Etiology
Joël, C. A. : The Etiology of Male Fertility Disturbances............................. 71

Diagnosis of Male Fertility Disturbances
Joël, C. A. and Botella-Llusiá, J. : Principles of Modern Semen Examination and Botella-Casares Test (with 3 colour plates)........................................ 75
Joël, C. A.: Appendix to Diagnosis of Male Fertility Disturbances..............107
Joël, C. A.: The Post Coital Test..............................................................124

MacLeod, J. : The Semen Quality in Relation to Male Infertility..................127
Charny, C. W.: Testicular Biopsy..................................................................135
Mann, T. : Biochemical Appraisal of Human Semen.....................................146
Rakoff, A. E. : Hormone Determinations in Male Infertility.......................162

Chromosomal Aberrations
Overzier, C. : Chromosomal Aberrations and Fertility in Intersex Individuals . 168

Immunological Factors
Mancini, R. E. : Immunological Factors and Infertility.................................189

VI Table of Contents

Hormonal and Other Medicamentous Treatments
Joël, C. A. : Introduction to the Hormonal and Other Treatments of Various Spermiogenetic Disturbances..........................................................206
Joël, C. A. : The Spermiogenetic Rebound Phenomenon..................................207
Joël, C. A. : Treatment of Aspermia, Azoospermia and Oligozoospermia with Human Gonadotropins.................................................................217
Joël, C. A. : Combined Treatment with Pregnant Mares’ Serum (PMS) and Small Doses of Androgens..............................................................226
Greenblatt, R. B.; Jungck, E. C. and Zarate, A.: Clomiphene in Men 231

Surgical Treatments
Joël, C. A. : Etiology, Diagnosis and Treatment of Occlusive Aspermia (with 3 colour plates).............................................................236
Brody, M. L. : Roentgen Presentation of the Semen Channels........................256

Inhibition and Stimulation of Spermatogenesis
MacLeod, J. : The Inhibition and the Stimulation of Human Spermatogenesis . 265

The Role of Varicocele
MacLeod, J. : Recent Advances Concerning the Role of Varicocele in Male Infertility ..........................................................268

Male Impotence
Joël, C. A. : Pathogenesis, Symptomatology, Diagnosis and Treatment of Male Impotence..............................................................278

Extratesticular Fertility Disturbances
Doepfmer, R. : Extratesticular Fertility Disturbances with Special Reference to Disorders of the Voiding Mechanism and Pathology of the Seminal Fluid 289

Forensic Medicine and Insurance Law
Doepfmer, R. : Male Fertility from the Point of View of Forensic Medicine and Insurance Law.................................................................303

Part II: Fertility Disturbances in Women
History
Guttmacher, A. F : Past Attitudes Especially towards Female Infertility 317

Embryology, Anatomy and Histology
Narbaitz, R. : Embryology, Anatomy and Histology of the Female Genital Organs 328

Physiology
Joël, C. A. : The Physiology of Fertilization..........................................................342

Greenblatt, R. B. and McDonough, P. G. : Decidualization of the Endometrium 362

Etiology
Antoine, T. : Etiology of Female Fertility Disturbances........................................366

TBC in Genital Organs
Halbrecht, I. : Tuberculosis of the Female Genital Organs. Clinical Forms, Diagnostic Methods and Results of Treatment..............................381

Table of Contents VII

Diagnosis of Female Fertility Disturbances
Joël, C. A. : Anamnesis and General Examination........................................395

Noyes, R. W. : Endometrial Biopsy..........................................................399

Dalsace, J.: Utero-Tubal Insufflation (UTI) and Hystero-Salpingography (HSG) 413

Palmer, R. : Coelioscopy in Infertility Problems........................................426

Rakoff, A. E. : The Hormonal Evaluation of the Infertile Female......................442

Wenner, R.; Obolensky, W. and Lazary, S. : Exfoliative Cytology in Normal Menstrual Cycle and Fertility Disturbances (with 2 colour plates)..........449

Husslein, H. : Methods for Detection of Ovulation........................................454

Disturbances of Potentia Gestandi
Toaff, R. : Disturbances of Gestational Potency........................................478

Joël, C. A. and Chayen, R. : Pathological Semen as a Factor in Abortion and Infertility ........................................................................496

Therapy
The Treatment of Fertility Disturbances with Special Reference to the Use of Human Gonadotropins
Greenblatt, R. B. and Dalla Pria, S. : Clomiphene in Women
Käs er, O. and Iklé, F. A. : Operations for Relief of Tubal Sterility
Joël, C. A.: Therapeutic Insemination
Doepfmer, R. : Adoption
Epilogue
Subject Index
Authors Index

Dedicated to my wife Annette
whose encouragement has so greatly facilitated this work

Contributing Authors

Prof. Dr. T. Antoine, formerly I. Universitäts-Frauenklinik, Wien; presently Wickenburggasse 26, 1080 Wien VIII (Austria).
Prof. Dr. J. Botella-Llusiá, Department for the Study of Human Reproduction, Madrid (Spain).
Dr. M. L. Brodny, Strauss Surgical Group, 4640 Marine Drive, Chicago, IL 60640 (USA).
Dr. Ch. W. Charny, 2039 Delancey Street, Philadelphia, PA (USA).
Prof. Dr. R. Chayen, Medical Center, Research Laboratory, Ichilow Hospital, Tel Aviv (Israel).
Dr. J. Dalsace, 31, rue St.-Guillaume VII, 75 Paris (France).
Prof. Dr. R. Doepfmer +, Universitätsklinik für Hautkrankheiten, 53 Bonn (Germany).
Prof. Dr. R. B. Greenblatt, Department of Endocrinology, Medical School of Georgia, Augusta, GA 30902 (USA).
Prof. Dr. A. F. Guttmacher, Planned Parenthood World Population, 515 Madison Avenue, New York, NY 10022 (USA).
Prof. I. Halbrecht, Haschoron Hospital, Petah Tiqua (Israel).
Prof. Dr. C. G. Heller, Pacific Northwest Research Foundation, Division of Reproductive Physiology, Seattle, WA 98104 (USA).
Dr. R. S. Hotchkiss, New York University Medical Center, 566 First Avenue Suite 2 E, New York, NY 10016 (USA).
Prof. Dr. H. Husslein, II. Universitäts-Frauenklinik, Spitalgasse 23, 1090 Wien IX (Austria).
Dr. F. A. Iklé, St. Leonhardstrasse 7, 9000 St. Gallen (Switzerland).
Dr. V. Insler, Tel Hashomer Government Hospital, Department of Obstetrics and Gynecology, Tel Hashomer (Israel).
Prof. Dr. C. A. Joël, I. Elisha Street, Ramat-Chen (Israel). Present address : Inzlingerstrasse 98, 4125 Riehen (Switzerland).
Dr. E. C. Jungck, Department of Endocrinology, Eugen Talmadge Memorial Hospital,
To the well nourished and fear-free man and woman, perhaps the most precious personal endowment is a thoroughly normal, dependably functioning sexual system. It is fair to say in their maturity that almost all of them include, within their treasured sexuality, integrity of all the tissues and organs specifically designed and organized for procreation. Hence it is
to these that Professor Joël lavishly gives his scholarly attention from a worldwide perspective, yet in minute detail. Himself an internationally renowned specialist in male reproductive physiology, he nevertheless responds to recognition of its social futility without the complementary faultless functioning of the female. He therefore includes, in his clearly expository text, all the details of her reproductive system as well. His comprehensive survey and presentation of authoritative findings of both research and clinical scientists in this field throughout the world, render most valuable his timely revelation of what we must know if desirous men and women are to be assured satisfaction of their wholesome intent to fulfill their evolutionary responsibility.

In doing so, each prospective parent will keep in mind, however, that the continued welfare of Mankind is undeniably threatened by two so-called bombs. One is that of nuclear explosiveness. The other is that of Man’s proliferation. The danger from the first is universally recognized. Hence measures to prevent its detonation are already the active concern of powerful intellectual and political forces. The second, civilized Man’s innate fecundity, has been relentlessly discharging its products throughout the world for more than 100,000 years. Until about the middle of the 20th century after Christ, the resultant human population prospered by virtue of Man’s intellectual ability to absorb and selectively utilize not only the innumerable physical constituents of his material environment but, also, the almost incomprehensible psychological stimuli that seethe among all races.

Obviously in large parts of our now closely interacting world, ecology is seriously restricting Man’s material needs. Equally clear it is that crowding and rapid facile communication are endangering his intellectual ability healthfully to assimilate the incessant and demanding psychological stimuli thrusting at him from four billion human bodies and minds.

As Professor Joel’s comprehensive text lays bare the biological requisites for conception, it perforce exposes the several areas and factors that may be wilfully modified so as to prevent conception. Thus this scholarly, humane author plays the complete role of one who would safeguard the family, the bulwark of aspiring Humanity.

John Rock, Boston, Mass.

Preface
The main object of this book is to give an account of the etiology, diagnosis and treatment of fertility disturbances in men and women. In addition, I was particularly interested in showing the development of semen research throughout the ages; especially the natural philosophical concepts from ancient times to the middle ages, and the development of the subject from the discovery of the microscope to the present time.

This work deals for the first time in English with the disorders of the voiding mechanism and the pathology of the seminal fluid; also with the problem of fertility from the point of view of forensic medicine and insurance law. In the section on female infertility, an objective description is given of therapeutic insemination and adoption.

I had desired for some time to present, in collaboration with fellow workers, a comprehensive treatment of all aspects of infertility. After 35 years of endeavour in the field of the physiology and pathology of reproduction, I decided to write this work with the assistance of renowned specialists. Whether our efforts have been worthwhile, or not, must be judged by the reader.

During the preparation of this work, one of the leading seminologists, Professor R. Doepfmer, died. Before his untimely death, he had already contributed three very important chapters to this book (pp. 289-312 and pp. 595-599). The chapter entitled ‘Etiology, diagnosis and treatment of occlusive aspermia’ is dedicated to his memory. Similarly Professor Carl G. Hartman, whom I had requested to write the chapter on ‘The physiology of fertilization’, passed away before he could commence this task. During his final illness, he kindly allowed me to make use of his material, and this chapter, which I wrote in his stead, is dedicated to him.

Preface XV

It is a pleasure to acknowledge the help of everyone who has contributed to the formation of this book. In particular, I should like to thank my colleague and friend Professor Dr. Ralph Chayen for his valuable comments and for correcting the English throughout this work.

I wish to thank, also, my assistant Dr. T. Z. Homonnai, for collecting some of the material. To my publisher, Thomas Karger, I am grateful for all his efforts - he has fulfilled all my requests. My thanks are due, also, to Miss D. Greder for her thoughtful production of this book.

Charles A. Joël