

# PREFACE

With confidence I can say that this is the most comprehensive volume dealing with tissue banking presently available. There are 27 full chapter contributions from the most distinguished and experienced practitioners in the subject: surgeons, microbiologists, and tissue bankers. The volume deals with all the major facets of tissue banking and utilisation: procurement processing, and utilisation.

## **Safety of Tissues (Section II)**

Safety of allografts is now a major concern due to microbial and viral contamination of tissues even in the most sophisticated centres. Thus publication here of the International Atomic Energy Agency's Code of Practice for the Radiation Sterilisation of Tissues is an important event, as is their guidance on Standards and Public Awareness of this often misunderstood technology.

There is now convincing evidence that safety has been compromised by certain regimes used to prepare human tissues for transplantation. Drs Eastland and Strong document fully the diseases which have been transmitted through tissues, in some instances, leading to fatalities. Thereafter, Section 2 continues to provide an in-depth investigation of this problem, particularly in bone and a consideration of safe and effective methods to use such tissues. The University of Miami Tissue Bank has been a leader in methods of microbiological screening of donors, and the final tissues. Dr Martinez (Chapter 5) delivers this experience concisely to us. The potential presence of viruses poses a formidable challenge to the tissue banker, and even when introducing an end-sterilisation radiation step, the outcome is

not clear-cut. Dr Axel Pruss and colleagues (Chapter 6) have taken us forward in a giant step in their careful controlled study of this problem.

All roads seem now to lead to the desirability of adopting an end-sterilisation process if safe tissue are to be guaranteed (Chapter 7). When ionising radiation is used as part of a standardised working system of a tissue bank, then a degree of sterility assurance can be achieved. The IAEA programme has devoted considerable resources to define such procedures and the Code of Practice (Chapter 8) and Standards (Chapter 9) within which such a Code should be employed. There are limits to such use of radiation for bone, depending on the effects of radiation on mechanical strength and osteoinductivity (Chapter 10) of the final product. It is necessary to evaluate this aspect as Dr Yu and colleagues have done.

The Marburg Bone Sterilisation Process for femoral heads may not have a universal application, but its effectiveness when properly used cannot be denied, as demonstrated by Dr von Garrel and his colleagues (Chapter 11).

### **Ethical and Social Attitudes (Section III)**

The social and legal problems which arose in the UK, as a result of the unlawful procurement of tissues, have adversely affected public attitudes towards the procurement of tissues for cadaveric donors. Dr Paul L. Romain (Chapter 12) sets out in stark terms the ethical challenges which this field now poses. The justification for the practice remains the health benefits which such donation permits. In particular, the availability of such tissues in the wake of disasters such as has been experienced first in the Netherlands (Chapter 13) and then in Peru (Chapter 14) is evaluated. These contributions provide the perfect justification for having a ready supply of safe tissue grafts for immediate treatment of burns or traumatic damage.

## **Tissue Grafts in Orthopaedics (Section IV)**

The main customers of tissue banks continue to be orthopaedic surgeons. In this volume we are privileged to have an outstanding contribution from the doyen of this valuable technology — Dr Henry Mankin (Chapter 15). What a contribution he has made, and how glad we all are that he continues to be active and inspire further his one-time students, who are now distinguished exponents in their own right. This section demonstrates again the value of using both fresh and processed allografts in revision arthroplasty, and knee defects (Chapters 16 and 17). For the first time in this series we are able to learn of the long Russian experience in this field (Chapter 18 and 19).

## **Other Areas Covered (Sections V–VIII)**

Cardiovascular grafts sperm banking and controlled process for the cryopreservation of tissues (Chapters 24–27) are other subjects covered in this volume. The motivation for such a comprehensive volume came in the Congress held in Boston which drew together all the international associations of tissue banking: American, Asia Pacific, Latin American and European. The whole world has been harnessed to construct this outstanding and historic volume.

Glyn O. Phillips  
Editor-in-Chief