

fronted almost every exponent—say no more. Although a scientific committee was set up to investigate, it seems that its report did not cover all aspects, essentially leaving the issue open. Sure, we all have more immediate things to do. Yet that is no licence for hostility. In the last chapters, Hooper describes the dangers of not facing up to difficult scientific and medical questions, from whatever quarter. With the mad cow debacle, to name but one example, there is some easy ammunition around. As Hooper has made a huge effort to document his thesis, it would be fitting if it had a sanguine hearing. If the suggestion is incorrect, then surely someone out there can dismiss it without too much fuss, with clear argu-

ments supported by a modicum of data and references.

Hooper has upped the ante by a log. The search for the origins of HIV will not go away. The OPV hypothesis is formally testable, something which cuts both ways—Hooper could end up with 1,000 pages of egg on his face. But if reaction to *The River* is dismissive, or derogatory, then we shall see how hard it is for scientists, medics and institutions to address extremely difficult, sometimes painful, questions. Again.

In the words of Oliver Cromwell on the decision of the English Parliament to behead King Charles the First: "I beseech you in the bowels of Christ, think it possible you may be mistaken."

Tissue Engineering of Vascular Prosthetic Grafts

Edited by Peter Zilla & Howard P. Greisler

R G Landes Co., \$190.00, 604pp

ISBN: 1570595496, 1999

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Vascular grafts are used in coronary bypass surgery and aortic aneurysm correction, and involve either synthetic vascular prostheses or autologous blood vessel grafts. Despite a large amount of research devoted to the development of long-lasting, well-tolerated synthetic vascular prostheses, these grafts are not tolerated by the host as well as autologous human grafts. The book *Tissue Engineering of Vascular Prosthetic Grafts*, edited by Peter Zilla and Howard Greisler, explores the basic biology, clinical background and pathology of synthetic vascular graft failure, and discusses new approaches that have occurred in vascular tissue engineering over the last few decades.

As stated in Chapter 1, "the emergence of basic biological tools and engineering technologies in the recent past—promising the development of implants which may eventually heal 'ad integrum'—does not build on a comprehensive knowledge regarding the shortcomings of previous concepts." As the book also states, "a multitude of poorly defined variants...make it

extremely difficult today to extract significant information from decades of prosthetic graft research." With this in mind, the co-editors and the authors have assembled a 56-chapter, exhaustive compendium of what has happened in the last 25–30 years in the field of vascular graft development.

Part I deals with "Bio-Inert Prostheses: Insufficient Healing," and provides excellent background information. In Chapter 1, dacron and expanded polytetrafluoroethylene, the two basic graft types that have dominated the field of synthetic vascular prostheses for the past decades, are discussed to retrospectively identify criteria which may have influenced the healing response of synthetic grafts. The second chapter in Part I, "Noncompliance: The Silent Acceptance of a Villian," focuses on graft compliance. It is gratifying to see the importance of the mechanical properties of a graft emphasized so early in this extensive review. It is disappointing, however, that the authors did not present more information on the biological consequences of graft non-compliance.

Part II, entitled "Biolized Prostheses: Surface Healing," includes a useful review of endothelial cell seeding, and two chapters focusing on the important advances made in surface precoating during the 1980s and 1990s. A large part of part II also focuses on microvascular endothelial cell transplantation.

Part III, "Biointeractive Prostheses: Complete Healing," covers both biological and engineering components. Much of the section is devoted to adverse responses to grafts, and discusses the mechanisms of inflammation and hyperplasia, and the

facilitation of healing. They 'biological components' section covers relevant topics as chemotaxis, angiogenesis, the extracellular matrix, cell entrapment, and transdifferentiation, whereas the section on 'engineering components' discusses scaffolds, matrices and cell engineering.

Although I enjoyed reading this book, some things could have been improved. For example, if fewer authors had been used there might have been greater consistency between different chapters. The book also suffers from not having one introduction, which would have improved the overall organization of the book. In addition, it is remiss to have only a single chapter devoted to cell engineering, which has recently become one of the most exciting areas of vascular bioengineering. Furthermore, there is an imbalance in the information provided on endothelial cells compared with smooth muscle cells.

Finally, if there is a real shortcoming of this book, it is that the wide variety of tissue engineering approaches now under development has not been incorporated. These include approaches based on the use of collagen gel technology, cell-seeded scaffolds, acellular approaches, and the work in the laboratory of Francois Auger in Quebec, Canada, which he calls cell self-assembly. Although bioengineering of vascular prosthetic grafts is one of the many multi-disciplinary areas of research, the book concentrates on the biological aspects of the field. For example, the book includes a fine review of the recent advances made in the areas of tissue engineering.

This book is a must for researchers in this field, who will find a large amount of useful information in the book, and will also be able to learn from the experiences of those who have been working for decades on the development of prosthetic vascular grafts. The editors have made significant contributions to the development of vascular prosthetic grafts, and in fact the chapters written by each of these two are some of the best in the book. No book can serve the needs of everyone, and because of its intense and expanded look at the historical perspectives of this dynamic field, this book provides a richness from which everyone, regardless of the aspect of biomedical engineering they study, can benefit.

