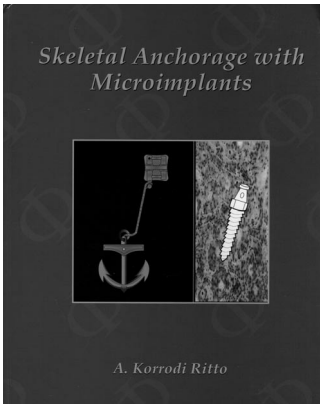
Book
reviews

Skeletal Anchorage with Microimplants



A. Korrodi Ritto
Publisher: Facies
(www.ritto-appliance.com)
Price: Euro125
ISBN: 978 972 99576 3 5

The expressed aim of the Portuguese author of this slim English language book (76 pages of text with 5 pages of references and 283 separate images) is to provide 'a practical manual and convenient reference work, particularly for those who intend to take their first steps in this area'. The identity of the target readership is open to question, for it may be misconstrued as providing sufficient guidance for general dentists who wish to overcome their existing deficiencies in managing orthodontic anchorage.

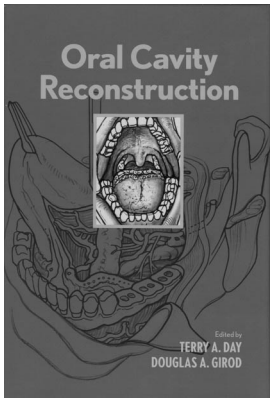
This publication provides basic descriptions, practical tips, and cautions in use of various types of microimplants, TADs, or whatever one wishes to call these screw devices. However, it assumes that the reader has adequate knowledge of the mechanical principles to be employed, such as identifying 'centres of resistance', and direction and amount of force applied for various orthodontic movements that are illustrated. This assumption is exemplified by the absence of any detail in the text and in most of the captions accompanying the illustrations (some even lacking adequate visualisation of auxiliaries used) to explain how the force devices were applied for tooth- or arch-segment movements. Also, some diagrams, particularly those relating to the use of palatal screw anchorage, ignore predictably adverse effects of various tooth-moving mechanisms that are illustrated.

The book has numerous illustrated examples where the use of microimplant anchorage is highly questionable because of low anchorage requirements. In addition, arguments of low invasiveness and low costs that are put forward, imply universal application but neglect emphasising that the essential starting point is adequate orthodontic diagnosis to determine whether or not such anchorage is needed. Thus, inexperienced clinicians 'taking their first steps' with the aid of this text are being misdirected to unnecessary use of these screws, while also being encouraged to embark on correction of complex malocclusions for which they may not be adequately equipped to 'keep out of trouble'.

Perhaps this text would be of some use in a special learning situation that links applications of the principles of orthodontic diagnosis and mechanics with the use of microimplant anchorage, also providing opportunity for 'hands-on', guided, experience.

Keith Godfrey

Oral Cavity Reconstruction



Edited by Terry A. Day and Douglas A. Girod
Publisher: Taylor and Francis Group LLC
Price: A$300.00
ISBN 10: 1-57444-892-7
ISBN: 978-1-57444-892-4

Orthodontists and orthodontic trainees occasionally have to deal with patients who have undergone surgical treatment for oral cavity tumours. This textbook, which is written in the United States, with contributions by Australian surgeons, provides an excellent overview to the care of patients who present with oral tumours, particularly the reconstructive aspects. There are excellent introductory chapters on the principles of oral cavity reconstruction, oral anatomy, function and physiology. There is a good overview of the various tumours that may affect the oral cavity, as well as some benign conditions, including osteoradionecrosis. The

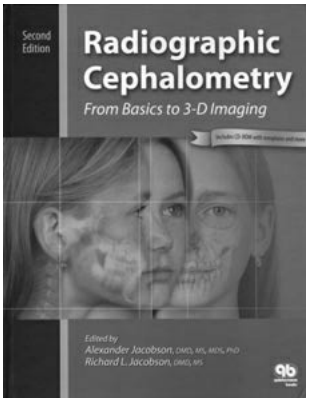
chapters on planning, diagnostic evaluation and surgical approaches to the oral cavity complement the introductory section.

The anatomical challenges in reconstruction are tackled, including the lips, the buccal mucosa, the tongue and floor of mouth, the hard and soft palates, and the mandible. Each anatomical region has excellent diagrams and clinical photographs to assist the reader in understanding the complex issues of reconstruction. For completeness there is an excellent chapter presenting an overview of cleft lip and palate reconstruction in the infant. Prosthodontic issues are briefly dealt with, including the use of osseointegrated implants to support prostheses. The concluding chapters on the rehabilitation of speech and swallowing, functional assessment tools, quality of life and new horizons for the future cap off this excellent textbook. The quality of life issues may be of special interest to orthodontists who manage patients undergoing surgical orthognathic procedures.

This book is recommended as background reading for orthodontists and orthodontic trainees who may have an interest in surgical oral cavity reconstruction. It is ideally suited to oral and maxillofacial, otolaryngology head and neck, and reconstructive plastic surgical trainees at the beginning of their training, to acquaint them with the range and spread of issues and options available in oral cavity reconstruction.

David Wiesenfeld

Radiographic Cephalometry: From Basics to 3-D Imaging. Second edition



Alexander Jacobson and Richard L. Jacobson
Publisher: Quintessence Publishing Company, Inc.
Price: US$110.00
ISBN: 0-86715-461-0

Radiographic Cephalometry: From Basics to 3-D Imaging is an updated American book, which is published worldwide. This textbook sets the standard for application of cephalometrics in orthodontics. The book is divided into chapters that first describe the role of cephalometrics, the history and techniques of cephalometrics followed by the more frequently utilised cephalometric analyses applied to contemporary orthodontic diagnosis. The latter chapters introduce the use of digital imaging and three-dimensional cephalometry.

The contributors include many eminent orthodontic and radiographic imaging experts, including Coenraad Moorrees, Richard Weems, Page Caufield, Scott McClure, André Ferreira, James Vaden, Herb Klontz, Lionel Sadowsky, Joseph Ghafari, Lysle Johnston, Shane Langley, Christos Viachos, David Sarver, Mark Johnston, William Harrell, David Hatcher and James Mah. This impressive list of contributors supports the excellence of the knowledge base compiled for the second edition of the textbook. Even with the numerous contributors to the textbook the authors have maintained a similar format and level of complexity within each area under discussion.

The early chapters focus on the basic principles of utilisation of cephalometrics in diagnosis and treatment planning, and a brief history of the background leading up to, and the foundations of, the use of cephalometrics in orthodontics. The technical aspects and general principles of the cephalometer and obtaining an accurate radiograph are outlined. The basics of tracing techniques and landmark identification are clearly and concisely summarised. Each contemporary cephalometric analysis is summed up with a detailed description and good illustrations, along with applications of the analysis. Keeping pace with advances in 3-D cephalometric imaging the textbook illustrates the advantages and applications of the new technology to contemporary orthodontics. The final chapter is a critical discussion of the reliability of cephalometrics. The reality of the limitations of cephalometrics is discussed.

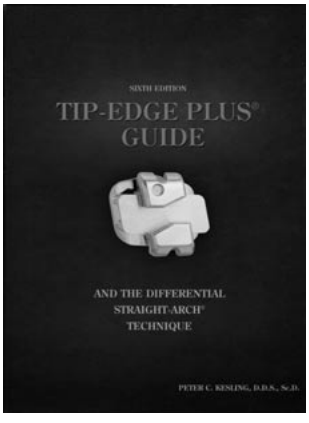
The textbook is co-authored by Alex and Richard Jacobson, and as in their previous textbooks the illustrations are clear and easily interpreted. The authors and the publisher have arrived at a balance of colour and contrast that allows excellent representation of images. Where necessary, contrasting colours are utilised to clearly outline a diagram or make a point. The computer images are presented with outstanding clarity and definition. The sharpness of the images is carried over into the digital imaging and 3-D imaging chapters of the textbook.

The textbook includes an extremely useful CD-ROM. Manual and digital tracing templates are available on the CD-ROM. These templates are valuable training tools and provide practical interpretation of cephalometric analysis. Also on the CD-ROM are video clips that illustrate the unique capabilities and functions of 3-D imaging. The video clips demonstrate 3-D imaging technology that would otherwise be difficult, if not impossible, to display within the pages of a textbook.

Radiographic Cephalometry: From Basics to 3-D Imaging is a highly recommended and useful resource textbook for all medical and dental libraries, dental and postgraduate students and orthodontists and oral and maxillofacial surgeons.

Mike Razza

Tip-Edge Plus Guide. 6th Edition



Peter Kesling
Publisher: TP Orthodontics, Inc
(www.tportho.com)
Price: US$109.15

The *Tip-Edge Plus Guide and The Differential Straight-Arch Technique* (Sixth Edition) by Peter Kesling continues in hard cover form what essentially started out as a technique manual for the newly developed Tip-Edge appliance in the 1980s.

The manual has evolved through its six editions and many revisions, but retains a core base of fundamental information which is unchanged. The book retains the look and feel of a specific technique/appliance oriented manual. As such it is a valuable reference for protagonists of light-wire treatment and especially Tip-Edge operators. New students of Tip-Edge will find it particularly instructive when starting out and it is best combined with 'a well organised course given by qualified instructors who have years of experience and can demonstrate excellent results' *(Tip-Edge Plus Guide)*.

The Sixth Edition contains comprehensive guidance on the use of the newest evolution of the appliance, the Plus bracket, which utilises a flexible auxiliary round wire through deep tunnels in each bracket to achieve final root positioning (including torque, in conjunction with full size rectangular wires in the bracket slot).

The opening pages of 'The Guide' outline the evolution of the Tip-Edge and Tip-Edge Plus appliance. Mention is made of the philosophy behind the differential straight-arch technique with specific reference to the individual components of the technique and so-called differential mechanics. This outline is also supported at the end of the text by a précis of the concept of attritional occlusion, cited as central to the philosophy of the technique. Contemporary students of orthodontics may take exception to the application of the concept in a modern context, but as is often the case, offhand dismissal would leave a void in their knowledge and understanding. This is particularly so as much of current orthodontics embraces, knowingly and unknowingly, tenets of light-wire treatment.

The section on diagnosis and treatment planning may be seen by some as simplistic and lacking sophistication. However the information put forward in this part is still useful and applicable in many situations and, it must be remembered, is not the primary focus of 'The Guide' which is the appliance and technique. The appliance in question and its application in standard and common treatment situations are well-detailed in the body of the text.

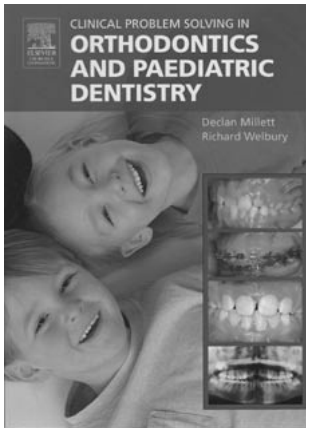
The latter part of 'The Guide' sets out in succinct form the records of 28 cases treated with Tip-Edge Plus, followed by 16 pages of a question and answer series taken from the *Tip-Edge Today* newsletters. Following on are several selected articles from these newsletters. While such an archive can never 'cover all bases' an examination of this part is almost sure to reveal to, or remind the reader of, some useful tips or gems of information.

'The Guide' is completed by a good glossary and index. The overall text is supported by an extensive bibliography which may be seen nevertheless as not broad or comprehensive.

The Tip Edge Plus Guide (Sixth Edition) would be a useful addition to any orthodontic library, bearing in mind its genesis and understandable bias.

Stephen Langford

Clinical Problem Solving in Orthodontics and Paediatric Dentistry



Declan Millett and Richard Welbury
Publisher: Elsevier (www.elsevier.com.au)
Price: A$98.00
ISBN: 0443072655

As outlined by the authors in the preface, this book has been written for dental students and dentists in their early years of practice. There are 37 chapters covering topics such as 'absent upper lateral incisors', 'anterior open bite', 'mottled teeth', 'oral ulceration' and 'palatal canines'.

The format of the book is based upon a series of clinical scenarios representative of a range of problems encountered in paediatric dentistry and orthodontics. The scenarios are used as a basis for discussing the aetiology, diagnosis and treatment of the various problems which are addressed.

The authors have set out each chapter in a very methodical fashion. The patient history is outlined, followed by the examination process which involves the various diagnostic tests and investigations needed to establish a problem list. Clinical photographs, radiographs, diagrams and tables are used effectively throughout the text.

At the end of each chapter, a highlighted 'key point' is noted. These key points create a very good overview of the subject and are designed to trigger information recall.

When more than one treatment option is appropriate, these have been outlined with pros and cons of each option. For example, in chapter 6, the topic is 'infra-occluded primary molars'. In the scenario given, both mandibular deciduous second molars are ankylosed. Treatment options are presented when the mandibular second premolars are present and when they are missing. Options of extracting the ankylosed deciduous molars and closing the space orthodondically are given as well as holding on to the retained deciduous molars and eventually replacing them with a prosthesis. The merits and consequences of each option are discussed.

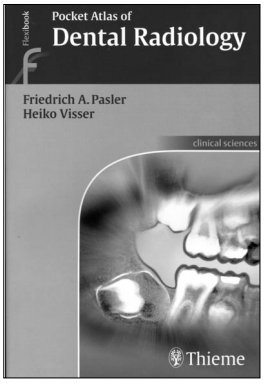
Some of the treatment approaches reflect the authors' preferences and other alternatives are not always given. For example, in chapter 7, twin block therapy is described as 'a means of growth modification with a functional appliance'. Other types of functional appliance therapy are not mentioned. Removable appliance treatment is also used in many cases where fixed orthodontic mechanics would be more efficient. This either reflects the authors preferences in mechanotherapy or removable appliance treatment is deemed more appropriate for dental students and general practitioners for whom the book is written.

In summarising a particular topic the authors use a type of flow chart called 'Mind maps'. Like the 'Key point' concept, these would be useful for students during the revision process.

I would recommend this text to dental students, general practitioners and dental educators wishing to demonstrate the concept of developing a logical approach to problem solving.

Chris Theodosi

Pocket Atlas of Dental Radiology



Friedrich A. Pasler and Heiko Visser
Publisher: Thieme
Price: US$44.95
ISBN: 9781588903358/9783131398017

This pocket book is an English translation of a 2003 German text which was designed to assist undergraduate and postgraduate students, and practicing clinicians with aspects of dental radiology. The title of the book undersells its scope, since half of the text is devoted to radiographic pathology and half to radiographic technique, radiographic anatomy and image processing.

The book follows an unusual format which is relatively information dense, with the left page containing text and the right page containing illustrations and images, with some 798 radiographs included. The tab is also colour-coded to allow ready reference to the various chapters. This somewhat unusual format proves very effective in being able to find information rapidly.

The first half of the book begins with panoramic radiography and then moves on to intra-oral radiographs and then to skull films. Some coverage is provided of computed tomography and magnetic resonance imaging, although these sections of the book could certainly benefit from being expanded, given the increasing use of computed tomography in various aspects of contemporary dental practice.

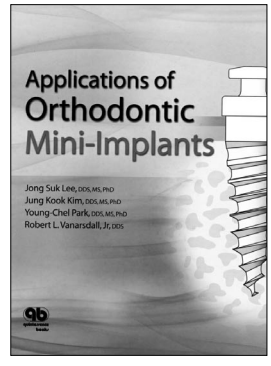
A specific section is devoted to determining the location of malpositioned teeth and this would be of considerable interest and relevance to practitioners with a strong orthodontic component in their practice. There is a short, but very up-to-date, discussion of radiographic film and conventional film processing and a good coverage of processing and film positioning errors. The text has a good coverage of digital systems and includes up-to-date information of both phosphor-plate and sensor systems with a useful discussion of both CMOS and CCD digital sensors. This section is followed by a short, but useful, discussion of radiation exposures with some useful reference tables.

The remaining half of the book is devoted to diagnostic radiology, ranging from dental caries, periodontal and endodontic pathology, through to lesions of the jaws, maxillary sinsuses and temporomandibular joints. The useful section is included, devoted specifically to traumatology and an excellent section is included on the identification of foreign bodies. The quality of the images provided is routinely very high and the line illustrations are particularly well drawn. Numerous photographs of radiographic technique are included, which are up-to-date and which address issues such as infection control. Numerous radiographs have detailed codes to identify particular aspects of radiographic anatomy and users at all levels of experience will find these particular useful.

Overall, I found this a very well put together book, which has not suffered in any way from the process of translation. It is information dense, but in a way which is useful, providing within a small number of pages, an intense coverage of a particular topic. Unlike a number of radiographic texts which are used in dentistry at the moment, the technical coverage of aspects of digital imaging is of very high quality and is remarkably up-to-date. The illustrations and diagrams are a particular strength of the book and clearly much effort has been expended to make these both very simple and also very realistic. This book will be of value to clinicians at all levels of experience and, while not designed to be an oral pathology text, provide a very useful coverage of all common and less common lesions that are likely to be encountered. I can see it getting intensive use by undergraduates and postgraduates, as well as being a ready reference to have on the shelf in clinical practice.

Laurence Walsh

Applications of Orthodontic Mini-Implants



Jong-Suk Lee, Jung Kook Kim, Young-Choi Park and Robert L. Vanarsdall
Publisher: Quintessence Publishing 2007
Price: US$168.00
ISBN: 978-0-86715-465-8

This book is mandatory reading for all periodontists, surgeons and orthodontists who use or want to use the new technology called orthodontic miniscrew implants, also known as temporary anchorage devices or TADs. This technology is full of promise, but has often delivered disappointment. Many remedies are given in this book, which contains a complete knowledgebase up to 2007 on orthodontic mini-implants. It is a knowledgebase that began about seven years ago. Many of the studies cited are still pending publication in mainstream journals. Consequently, this book contains much new research and knowledge in the field of mini-implants.

Its Korean authors are all orthodontic university professors, and are the scientists behind many of the studies cited. Their studies have refined the design theory and the protocols for use of TADs. The devices

are very specialised and differ from implants designed for dental prosthetics. The initial chapters impart a complete education in the complex concepts involved in mini-implants, including, the principles of metal engineering, the histological and biological responses to the devices and protocols for the use of mini-implants. Previously unpublished anatomical considerations are illustrated using cadaver and 3D dental CT imaging research. Serious consideration of force vector relationships is fundamental to success when planning orthodontic mini-implants, and this topic is extremely well-covered. After reading only a few pages, I realised the folly of using any implants before fully digesting the whole text, and then I realised that these devices have many more applications than I previously thought. The book is very instructive in mechanotherapy generally.

Many problems in clinical orthodontics are now problems 'we used to have' because mini-implants have relegated them to the past. The paradigm shift is huge! Chapter 1 covers the evolution of non-integrating mini-implants for temporary anchorage. This concept is totally different from the osseointegrated implants used for tooth prosthetics. There are 67 references at the end of this chapter. Chapter 2 deals with the biological principles, including: healing at the implant-tissue interface, differences in bone trauma and healing with pre-drilled and self-drilling implants and factors lessening survival of healthy tissue at the implant interface (127 references). Chapter 3 covers the mechanical design and operator handling of a mini-implant from its tip to its top, and how these factors bear on the success or failure of a mini-implant. For instance, why is there a difference in success between the right and left sides? This chapter has 63 references. Chapter 4 covers treatment planning, and is illustrated with cadaver cross-sections. There are many, clear illustrations showing in great detail: suitable and unsuitable bones for mini-implants, the extent of the attached and free mucosa influencing the choice of site, the thickness of the mucosa and the many other hazards. We are led to conclusions about the proper choice of implant length, thickness, taper, transmucosal height and angulation. All possible sites of placement are very thoroughly discussed (32 references).

Chapter 5 on 'Surgical procedures' explains the keys to obtaining a stable implant: implant handling, importance of proper hand tools, direct and indirect approaches, covered placement, length, diameter, angle, vibration, speed, cooling and loading. Also discussed are: pre-operative planning, appointment scheduling, grip of tools, posture, marking, pre-drilling, direct and indirect approaches, guiding, forces used, post-operative care and patient instruction, removal, loosening, fracture, periodontal injury, damage to teeth and soft tissues, pain, covering over, infection and choice of an inappropriate site (19 references).

Chapter 6 on 'Mechanics' covers: the three-dimensional movement of the dentition, how to avoid what used to be unwanted extrusive effects in conventional mechanics, how to effect what was previously difficult intrusion, effecting extrusion, implant positioning for proper force vectors, indirect use of anchors, force thresholds, possible orthopaedic effects, the advantage of using 'force-driven' mechanics over 'shape-driven' mechanics, how TADs extend Graber's classical envelopes of tooth movement, non-surgical correction of vertical excess, whole arch distalisation to avoid extractions for moderate crowding and en masse arch movement to correct dental midline discrepancies. There are many case illustrations in this chapter (28 references).

Chapter 7 reveals a novel paradigm that totally changes some orthodontic concepts. In 1900, Angle's paradigm was of a static occlusion; in the 1980s and 1990s Proffit's was of a soft and hard tissue environment limited by 'envelopes' of tooth movement. Now TADs stretch all limits of previous envelopes of treatment. 'Loss of anchorage' is no longer a limit; it does not exist. Molar intrusion by braces is easy, so that non-surgical treatment of severe open bite and gummy smiles is routine. Tooth displays (within the lip lines) can now be elevated or depressed, protracted, canted or retracted, and moved transversely or unilaterally without surgery. Our guides are now aesthetic, face-driven treatment goals in non-growing patients, and are no longer bound by the limitations that existed prior to skeletal anchorage. Occlusal planes can be tipped according to the aesthetic goals of treatment. Levelling can be planned for occlusion, A-P and transverse occlusal plane, for gingival margins and for healthy alveolar bone heights. Our VTO is now a much more detailed calculation, since we have better control of more variables. The chapter contains an excellent review of these principles and of smile aesthetics with many case illustrations (60 references).

Chapter 8 details the new mechanical concepts needed for orthodontic appliances working in our new A-P anchorage paradigm. These include how to control tooth tip, torque, archform distortion and bowing, control of arch level and arch canting, bodily and en masse retraction and protraction of teeth, control of transverse and vertical bowing effects, midline deviations, molar distalisations and periodontal bunching problems. There is a detailed discussion of the force vectors needed for tooth movement. These vectors dictate the proper positioning of the mini-screws and lever arms. Inexperienced clinicians need to be cautious because with secure anchorage (compared with old paradigm mechanics) the wanted and unwanted tooth movements will be larger than without a mini-screw TAD. Typical issues include over retraction and over intrusion (implants are apical to the occlusal plane), plane canting, root resorption and pushing teeth out of the alveolar trough and out of attached mucosa (24 references).

Chapter 9, 'Vertical control', demands a very detailed appreciation of the force vectors acting on teeth axes in all in three dimensions, as well as in the incisal A-P positions and occlusal planes. Archwires designed for tooth intrusion will normally extrude adjacent teeth (because much less force is needed for this), unless a mini-implant anchor is added to the system. The position of a TAD will influence the outcome. The efficiency of the mechanics varies with distance from a TAD to the target teeth. 'Force-driven' mechanics work more efficiently than 'shape-driven' mechanics, but the side-effects need to be controlled. Monitoring of the periodontium, root resorption, torque, tip, arch symmetry and facial change are important. Incisor extrusion without increasing the facial vertical dimension (formerly a difficult manoeuver) can now be achieved when implants bolster the anchor teeth. Control of incisor tipping (that accompanies intrusion - extrusion) must be planned into the mechanics. Molar intrusion is a three-dimensional exercise needing mindful control of the tilt of the occlusal plane, molar vertical position, molar tip and torque, molar axis, centre of rotation of the segment being intruded and the root areas of the teeth to be moved. All these things will be changed by intrusive forces from implants, so control needs to be planned. Single force intrusive vectors can be joined with continuous arch mechanics to help cancel side-effects from each force system. Cross-arch splinting will control movement of the upper molar roots, but it reduces efficiency. Cross-arch splinting requires palatal and buccal implants and for both first and second molars to be splinted, but it prevents unilateral intrusion which needs its own type of special planning. Positioning an implant and force system as far posteriorly as possible is a key to successful control of the second molar palatal cusp and intrusion. Lower molar intrusion is especially difficult due to dense bone and limited sites for implants. Second molars need greater intrusion, but the bone in the area is often inadequate or inaccessible. Therefore, to control the second molars, indirect anchorage must be used with torque from the buccal. For controlling A-P tipping of an occlusal plane, two implants set apart are needed. Lingual mandibular implants are possible, but very difficult. Molar extrusion requires push mechanics off the implants. If used unilaterally this can correct occlusal plane canting (32 references).

Chapter 10 discusses transverse control. Asymmetrical maxillary crossbite and scissor-bite are situations where mini-implants can assist by bolstering anchorage on the side needing expansion or contraction. Single force mechanics to individual or small groups of teeth that need uprighting are very effective (22 references). Chapter 11 covers preprosthetic orthodontic preparation. Mini-implants provide anchorage regardless of the condition of the dentition. This final chapter illustrates the usefulness of creating space for prostheses, for periodontal improvement and for alveolar bone augmentation through tooth movement. Miniscrew implants are especially useful for the precise control required of anchor teeth (12 references).

This book is an exquisitely designed and illustrated assistant to the use of the new orthodontic mini-implant technology. It is a timely arrival because the technology is new and poorly understood by many in the profession. The technology promises good things, but unfortunately it has instead delivered much frustration to its users. Thankfully, remedies to many of the problems are given in this book. The book has two basic themes. The first is the biological, mechanical theory and material design concepts, which are based on considerable scientific and engineering knowledge. The second theme is the practical and clinical application of this knowledge. There are

many high quality, detailed and annotated sketches and clinical photographs. It is also the best book on mechanotherapy I have read.

The book illustrates the design concepts embodied in the 'Orlus' implant system exclusively, in which some of the authors may have a financial interest. This fact does not detract in the slightest from the value contained in the book. Although very high failure rates are frequently reported, the authors claim very low failure rates when observing their principles and use of materials. It is a very significant contribution to the field of mini-implants.

Geoff Wexler