Four thousand years ago, a number of Babylonian legal decisions were compiled in what came to be known as the Code of Hammurabi. The one referencing the construction of dwellings and the responsibility for their safety begins; if a builder engineers a house for a man and does not make it firm, and the structure collapses and causes the death of the owner, the builder shall be put to death.

We are all builders or engineers of sorts; we calculate the path of our arms and legs with the computer of our brain and we catch baseballs and footballs with greater dependability than the most advanced weapons system intercepts missiles. In our professional lives however, in contradistinction to the paradigm of evidence-based dentistry, our efforts as builders often rely solely upon personal experience, intuitive cognition and anecdotal accounts of successful strategies.

Vigilant interaction
The challenges posed by implant-driven treatment planning mandate vigilance of the interaction between those involved in research and development, manufacturing and distribution and the leaders of ideologically diverse disciplines. Temporal shifts and trends in the service mix are part of the evolution of the art and science of dentistry; to some degree, the implant-driven vector has captured the heart and minds of those who seek to nullify preservation of natural tooth structure in the oral ecosystem and deify orthobiologic replacement. The corporate entities from which we derive our tools too often fail to distinguish the point where science ends and policy begins.

Is it responsible therapeutics or irresponsible expediency that justifies the removal and restoration of such teeth from the outset with an implant-supported restoration? Can one ethically argue that extraction is warranted as the financial cost of orthodontic extrusion/soft tissue surgery, endodontic retreatment and post/core/crown fabrication is greater than extraction with an implant-buttressed restoration, and in all likelihood, more predictable?2

Jokstad et al3 identified over 220 implant brands in the dental marketplace. With variability in surface, shape, length, width and form, there are potentially more than 2000 implants for any given treatment situation. A systematic review by Berglundh et al5 assessed the reporting of biologic

Back to the Egg; Part I
Kenneth Serota continues his look at the Endodontic Implant Algorithm

Fig 2a. The use of dyes, colouring agents and micro-etching is invaluable in visualizing a suspected crack in tooth structure. Cohen et al found that when premolars were used as bridge abutments, a surprising number of these abutments sustained a VRF. [J Am Dent Assoc 2003; 134(4)434-441].
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and technical complications in prospective implant studies.

Their findings indicated that while implant survival and loss were reported in all studies, biological difficulties such as sensory disturbance, soft tissue complications, peri-implantitis/mucositis and crestal bone loss were considered in only 40 to 60 per cent of studies. Technical complications such as component/con- nection and superstructure failure were addressed in only 60 to 80 per cent of the studies. Are we as a profession standing idly by and watching market- ing pressures force treatment decisions to be made empiri- cally, with untested materials and techniques? There is an un- settling similarity between these events and the early days of implant development 36.

Favouring endodontics

The endodontic pundits argue that major studies published
to date suggest there is no dif- ference in long-term prognosis between single-tooth implants and restored root-canal-treated that in the comprehensive care decision making process.

Salvaging teeth

Whenever possible, the treat- ment choice should be an at- tempt to salvage a tooth us- ing a multidisciplinary team approach, putting aside pre- conceived notions and biases. Finances should not dictate the advice proffered. Further- more, it is advisable to forego being clinically ‘conservative’. Treatment should not be initi- ated in the absence of a critical evaluation of the potential for all contributing factors to equate with a positive outcome.

When needed, care must be taken to carry out every diag- nostic procedure available, even those of a more invasive nature (see Fig 1). Before arriving at a definitive diagnosis and treat- ment plan, the clinician should obtain consent from the patient to remove any restoration in order to analyse the residual tooth structure and assess the potential to carry out reliably predictable treatment. The pa- tient must understand in detail, the feasibility of and margin for success of each treatment option presented 16.

There are few studies in the endodontic literature analy- sing the reasons for extraction of endodontically treated teeth. Root-filled teeth are invariably prone to extraction due to non- restorable carious destruction and fracture of unprotected cusps. Tamse et al found that mandibular first molars were greatest frequency than maxillary first molars; the most significant causal dif- ference was the incidence of vertical root fracture (VRF – 1.8 per cent maxillary molar, 9.8 per cent mandibular molar) 16.

Teeth not crowned after obtura- tion are lost with six times the frequency of those restored with full coverage restorations 46.

Procedural failure, iatro- genic perforation or stripping, idiopathic resorption, trauma, and periodontal disease all contribute to a lesser degree. The major biologic factor in- fluencing endodontic treatment outcome failure with the possi- bility of extraction appears to be the extent of microbi- ological insult to the pulp and periapical tissue, as reflected by the periapical diagnosis and the magnitude of periapical patho- sis 56. (See Table I and Fig 2a, 2b and 2c).

‘Whenever possible, the treatment choice should be an attempt to salvage a tooth using a multidisciplinary team approach, putting aside preconceived notions and biases.’

References