I was first exposed to the world of 3-D imaging for dental applications in 1985. At that time, when patients had severely resorbed ridges, and root form implants were just becoming accepted in the US market, subperiosteal implants were a recommended treatment alternative. Conventional subperiosteal implants required two separate surgical procedures, the first for an impression of the alveolar/basal bone for the fabrication of the implant, and the second for the placement of the implant. Each surgical intervention required an invasive and extensive flap to expose the underlying bone. With the inception of CT, a scan of a patient’s jawbone created a 3-D dataset that would allow for the fabrication of a physical resin-based medical model. From this model, the subperiosteal implant could be designed and fabricated, circumventing the need for the first surgical procedure reducing patient morbidity by 50 per cent. Of course, the slice thickness and resolution did not result in a high degree of accuracy, and often the implants did not fit well. However, this original application motivated me to find improved solutions with the evolving applications of 3-D imaging modalities and related technology for dentistry.

As personal computing power improved, the subsequent development of interactive treatment planning software was able to convert the CT dataset and provide clinicians with new tools to enhance the diagnostic process, a vast improvement over conventional 2-D imaging modalities. The advent of lower-dose CBCT in-office devices provided a significant catalyst for the dental industry to allow for instant access to the technology. Three-dimensional imaging modalities have truly empowered clinicians with an increased visual acuity of individual aspects of patient anatomy for a wide variety of clinical applications. These include but may not be limited to oral surgery procedures, orthodontics, periodontology, endodontics, temporomandibular joint disorders, bone grafting, sleep apnoea, dental implant placement, and reconstruction. The utilisation of CBCT data has been further expanded and augmented with the ability to merge/superimpose cross-platform data from intra-oral and optical scanners for increased diagnostics and to create a direct link to CAD/CAM.

We have come a long way since 1985, but not far enough in my humble opinion. I truly believe that every dental school should not only have a CBCT imaging device, but also be actively integrating the technology into the undergraduate and graduate curriculum, teaching clinicians how to utilise these most powerful tools to provide our patients with the best possible care but without the guess-work.

The evolution continues within the pages of our new cone beam international magazine. We will do our best to provide our readers with useful information by presenting a variety of clinical applications and state-of-the-art concepts that showcase CBCT technology and related applications. It is time to realize that there is a real danger when we are bound by 2-D concepts, when clearly today we live in a 3-D world. And, as Sir William Osler stated, “What the brain does not know, the eye cannot see.”