

Better, Faster, Easier

The past hundred years have witnessed the coming of age of dentistry. The full scope and magnitude of the advances would take many volumes to document, but they can be reflected in a series of images documenting the rapid advance of the technologies and materials available to the dental profession during this century. These extraordinary developments are catalogued below in 10 areas of specific interest to patients and practitioners.



2011



1991



1978

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 Oral Health's editorial board member for dental materials and technology



1911



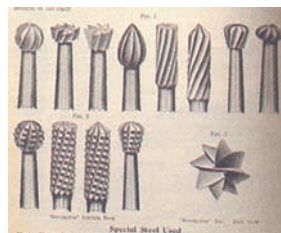
1961



2011

1. LOCAL ANESTHETICS were used rarely or not at all in 1911. The "fortunate" few suffered a very large gauge needle injection without topical, and ran grave risks of cross infection from reusable syringes and contaminated containers. Fifty years ago, both the

carpule and the needle were conveniently disposable, but the process was still painful and frightening to many patients. Today, topicals, automated injection rate control, and totally disposable components make dental anesthesia safe, fast, and comfortable.



1911



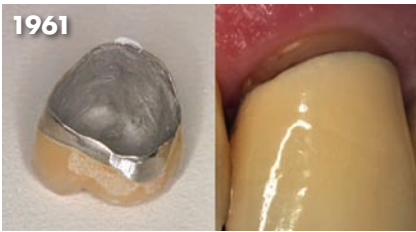
1961



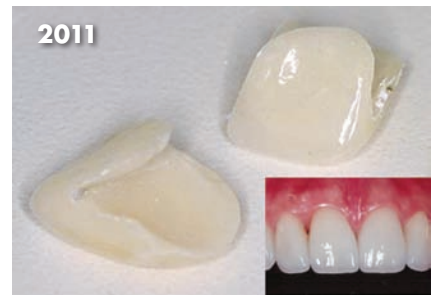
2011

2. BURS were already highly developed a century ago, by-products of small gauge industrial tooling. Some incremental advances, stainless steel to carbide to diamond to tungsten-carbide, were introduced over the years to accommodate high speed

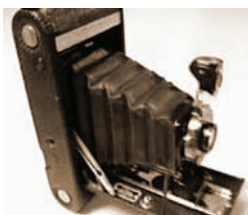
handpieces and newer, faster, and more precise preparation techniques. The recent introduction of polymer burs that selectively eliminate carious tissues while preserving healthy ones represents the next evolutionary step of cutting instruments.



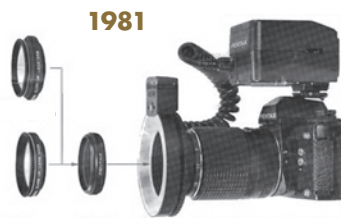
3. CROWNS have been part of the dental armamentarium for millennia. In the early 1900s, lost-wax cast metal techniques were capable of delivering accurately fitting and functioning restorations. By the mid 20th century, acrylic and ceramic coverage offered an esthetic component to long-term dental treatment. The introduction of bondable ceramic and adhesive resin cement in the 2000s allow the practitioner to deliver true-to-life restorations that are often esthetically superior to natural dentition.



6. HANDPIECES make possible the modern practice of dentistry. Most clinical procedures depend on the ability to focus rotational forces at the tooth surface. In Oral Health's inaugural year, many dental drills were foot-powered, slow and cumbersome. A half century later, electrically-powered, cable driven drills delivered more power with less physical effort on the dentist's part. The high speed handpiece revolutionized dentistry, making restorative treatment clinically and financially practical. Ultrafast, fiberoptic, air and water spray, pushbutton high speed handpieces are today's clinical standard.



1911



1981



2011

4. DENTAL PHOTOGRAPHY was very primitive a hundred years ago: no close-up lenses, no skin-safe flashes, and unpredictable film and print quality. By the 1980s, the first dedicated dental photographic systems had been introduced. The lens, flash, and

camera were coupled to provide good results most of the time, with confirmation after development within a week or so. In 2011, dental digital photo systems are virtually foolproof and offer instant image gratification. These cameras are an integral part of most dental practices.



1911



1991



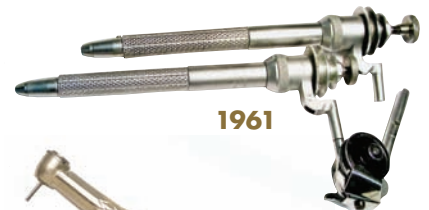
2011

5. DIAGNOSTIC TOOLS were more prized for their elegance than their accuracy in 1911. The explorer and mirror (along with the practitioner's eyes, hands, and experience) remained the singular analytic devices available until

recently. Just 20 years ago, the first fluorescence measuring devices were introduced to assist in diagnosing decay. Today, measuring the variances in tooth conductivity can assess the level of decay and pinpoint its exact location.



1911



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1991



2001



2011

7. LASERS were not even a twinkle in dentists' eyes 100 ago. When first introduced in 1991, the units were large, limited in scope, and expensive, but extremely popular with patients. Laser therapy expanded rapidly to hard as well as soft tissues, but in 2001, lasers

were still beyond the financial reach of most practices. Innovative design and manufacturing has expanded the utility of diode lasers while simultaneously reducing the unit costs to that of a handpiece. This permits practices to place a diode laser in every operatory.



1911



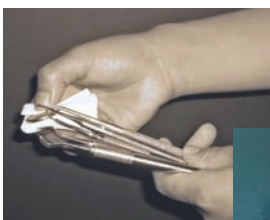
1961



2011

8. MAGNIFICATION was of minimal concern to the profession until recently. Jewelers' loupes fit the bill in the early 1900s. By the 1960s, optically challenged and ageing dentists had jury-rigged devices attached to their glasses. Recent clinical procedures and increased patient

awareness demand much greater attention to detail, and magnification today is a part of dental school training. The addition of ultra light illumination to the magnifying loupes, and more recently, a confocal video camera, literally change the practitioner's perspective.



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1961



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9. STERILIZATION in 1911, in retrospect, was quite primitive. Instruments were wiped with alcohol in between patients (in the more progressive practices). By 1961, ultrasonic cleaning was in common use and sterilizers were beginning to appear, but gloves were rarely

used. In 2011, every non-disposable instrument is washed, dried, and autoclaved, preferably with an integrated sterilization system, according to very strict protocols. Autoclaves are continuously monitored for contamination. Gloves for the dentist and the staff are standard.

10. X-RAYS were brand new to dentistry in 1911, having been discovered a scant 15 years earlier. For the most part, they were still experimental. By 1961, manufacturers had addressed many safety and quality issues in the equipment. Radiography required a darkroom and manual processing of films, with highly variable clinical results. Digital radiography eliminated the messy chemistry and reduced patient exposure by 80% or more. In 2011, highly accurate technology provides radiographs,



1911

tomographs, and greater analytical detail, more quickly, than ever before.



2011



1961

Oral Health has heralded all these developments, and many more. It has served tens of thousands of Canadian dentists as the trusted source of education and information over the span of five generations. **OH**