The story of Munce Discovery Burs

By C. John Munce, DDS, FICD

From the time I completed my residency in 1988, and even into the early 2000s, no long/stiff/narrow-shafted troughing bur existed. To meet this ongoing need for a troughing bur, in 2003 I began modifying the shafts of existing latch-type, slow-speed round carbide burs by necking them down at the chairside as needed for a specific clinical case (Figs. 1, 2).

At the pre-session meeting of the 2005 AAE Annual Session in Dallas, I demonstrated in clinical videos how these unique long/stiff/narrow-shafted round troughing burs were made at the chairside using both high- and slow-speed handpieces operating simultaneously to "hand-mill" the shaft to a 1 mm diameter, and I suggested that colleagues should do the same.

To ensure interested colleagues would be able to see and test these fledgling troughing burs, and then make the burs themselves as demonstrated, I had 1,000 of them manufactured and handed to attendees as they exited the hall.

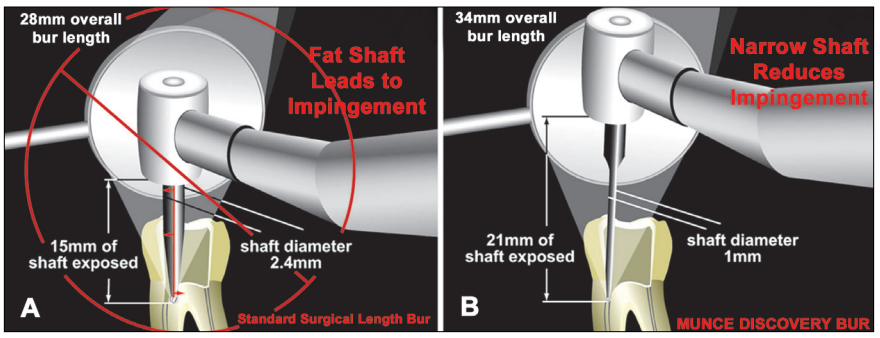
To that point, it had never been my intent to venture into the bur design and manufacturing arena, but during the next year I was told by colleagues who had been at the Dallas AAE that they still had that sample bur, and sometimes they would pull it from a pocket to prove it. They explained how they jealously guarded the bur from clinical staff members for fear that it could be misplaced, leaving them seriously handicapped. They begged me to manufacture these burs for them, as they confessed they were never going to make them at the chairside as I had demonstrated.

I already had a small clinical products company, CJM Engineering, and so in early 2006, after trying to literally "give" the troughing bur idea to several bur manufacturing companies without success — in one instance, the new products committee of a large dental bur company concluded there was simply no market for such a bur — I decided to begin manufacturing and distributing these burs myself through CJM Engineering (Fig. 3), still the manufacturer and exclusive worldwide distributor of Munce Discovery Burs today.

Here's a timeline of the introduction of significant features of the Munce Discovery Bur line since its inception. Each of the modifications was born of my own experience in applying these burs in diverse clinical circumstances combined with the freely offered suggestions and requests for modifications from colleagues around the globe.

Figs. 1, 2: The lack of a long/stiff/narrow-shafted troughing bur led to chairside fabrication to meet the need. Photos/Provided by Dr. C. John Munce

Fig. 3: The first ad announcing release of Munce Discovery Burs.



Figs. 4a, b: The view corridor opened up by the long shaft offers visual and physical access to deep target areas, while the narrow shaft greatly reduces shaft impingement on access cavity walls.

Fig. 5: Stiffness of Munce Bur shaft v. noodling of Mueller Bur.

Fig. 6: Features of the Munce Discovery Bur.

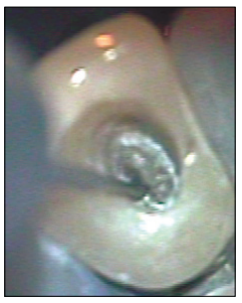


Fig. 7: Shaft-parallel cement-line dissection of a stainless-steel post with a Munce Discovery Bur.

2006

• A friend in the dental instrument manufacturing business, Lonnie Graybill of Integra-Miltex, suggested the name, Munce Discovery Burs, and it stuck.

• The Munce Discovery Bur line started with 34-mm-long burs only, and in only four head sizes: #1/2, #1, #2 and #4 (Fig. 3).

• At that time, we produced only the 1-mm-diameter shaft on all four head sizes.

2007

• We added the 31-mm-long Shallow Troughers to the line.

• To distinguish the two different lengths, we began referring to the burs as Munce Discovery Bur Deep and Shallow Troughers.

• We added our tiniest head size, #1/4 — with a head diameter equal to the tip of a #50 K-file — and a #3 head size, to both Deeps and Shallows.

• We added 3 mm "sounding" rings on the Deeps.

• We introduced the 31-mm-long #6 Endodontic Cariesectomy Bur.

• Although "troughing" as an endo-specific operation associated with ultrasonic tips was already developing its own vocabulary within the endodontic community, the specific vernacular for troughing when using burs was different and was yet to be developed. Terms we introduced or refined to apply to troughing when using Munce Discovery Burs included:

View corridor — the view beyond the handpiece head to the target area, which is much improved with 31- and 34-mm-long, narrow-shafted burs because the extra length draws the handpiece head away from the target area, and the decreased diameter of the shaft puts much less visual "noise" into the view corridor (Figs. 4a, b).

Shaft impingement — occurs on access cavity walls with 2.35-mm-diameter shafts of standard slow-speed burs. This problem is greatly reduced with the narrow shafts of Munce Discovery Burs (Figs. 4a, b).

Target area — that place where the head of the bur is to perform its work, and the target area becomes much more visible because of the longer/narrower shaft as mentioned above.

Shaft stiffness — a necessary feature of the positive control provided by these burs. Other long-shafted burs have shafts that are too narrow, sacrificing control and leading to "noodling" under troughing and other operations (Fig. 5).

Noodling — not a feature of the Munce Discovery Burs. This undesirable feature was specifically designed out of the Munce Discovery Bur shafts (Fig 5).

Heatless and virtually non-breakable — important features that distinguish these burs from ultrasonic tips.

2010

• For ease of head-size identification, we added color bands on the shafts (Fig. 6).

2011

• We reduced the shaft-diameter to 0.7 mm on the last 10 mm of the three smallest head sizes in both Deeps and Shallows (Fig 6) to facilitate deeper exploration and shaft-parallel cement-line dissection (Fig 7). Although 0.7 mm is very narrow, the specific geometry maintains the trademark stiffness of the shaft and facilitates cement-line dissection around posts and silver points while the shaft of the bur is virtually parallel to the long axis of the post or silver point. Shaft-parallel cement-line dissection is completely impossible with 2.35-mm-diameter shafts of standard slow speed burs.

2015

• A cotton plier insertion ledge (Fig. 6) was added at the transition from the 2.35-mm-diameter portion of the shaft to the 1-mm-diameter portion to facilitate ease of insertion of the bur into the spinning handpiece while protecting the color band from abrading under slippage of the cotton plier, which would otherwise occur.

• We modified the head geometry (Fig. 6) to prevent catching on the outstroke when planing dentin walls, reducing the risk of ledging and perforation.

2017

• We continue to resist the suggestion by some to downgrade this unique specialized bur from a carbide-tipped bur to a stainless-steel bur in order to reduce costs on the expectation of perhaps increasing sales volume. Our view is that this would be a shortsighted strategy that would lead to an inefficient instrument, subsequently substandard clinical results and dissatisfied clinicians and patients.

From necessity, to idea, to sketch-on-a-napkin, then invention, technical drawing, prototyping, bench-testing, collegial input, tweaking, manufacturing, marketing and worldwide distribution, CJM Engineering has always listened to the needs of clinicians in our specialized discipline and endeavored to be the best that we can be in the multi-faceted process of not just being a pass-through for somebody else's products but rather a company that delivers previously nonexistent, high-quality products invented by an endodontist for endodontists and endo-savvy dentists worldwide.

Although it may seem to be a simple product at first glance, in reality, a truly complex instrument such as this doesn't just roll off of a bur company's production line. It requires ongoing, open-to-improvement, experiential clinical knowledge to develop a high-quality instrument that will stand the test of time in the hands of some of the world's most talented — and critical — clinicians.

CJM Engineering is not a bur company; we're a "help clinicians save people's natural dentition" company — full stop.

So now you know the drill even better than before.

C. JOHN MUNCE, DDS, FICD is a diplomate of the American Board of Endodontics and a professor of graduate endodontics at both Loma Linda University and the University of Southern California. He is a fellow of the International College of Dentists and past president of the California State Association of Endodontists. Munce received both his training in endodontics and his dental degree from Loma Linda University. He is a frequent international lecturer and the primary author of the chapter "Preparation for Endodontic Treatment" in the celebratory 50th anniversary seventh edition of Ingle's Endodontics.