

# LANCER

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Perspective

## The Unseen Threat

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Despite tremendous technologic improvements in orthodontic treatment, a new challenge has appeared for the clinician—controlling the spread of infectious diseases. Infectious diseases are on the increase due to life style changes, drug-resistant pathogens, emerging (or mutating) diseases, worldwide travel, and increase annually in asymptomatic carriers.

Common sense tells us that barriers represent the most effective way of dealing with this unseen threat.

(1) **Surface disinfection** of the clinical setting. Iodophore spray is still the material of choice since it builds in "layers" during the workday. Of main concern are the unit, chair, and any countertops adjacent to the chair.

(2) **Instrument sterilization.** This requires heat sterilization of all instruments except plastics or rubber (e.g. mouthprops). For bulk sterilization, the Chemclave affords the most effective storage means. Plastic or rubber instruments/accessories require a 10 hour soak in an approved glutaraldehyde.

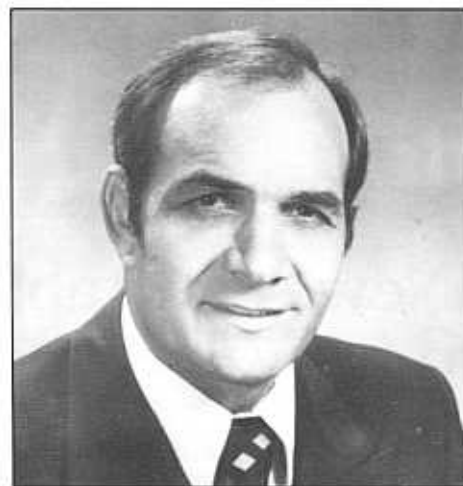
(3) **Personnel barriers.** Masks, gloves and protective eyewear for all patients, since there is no way to identify prodromal infectious patients. Wash hands with antiseptic soaps and cold water: Use lots of hand cream during the day. All clinical personnel should be immunized against Hepatitis B either with the Serum Vaccine (Heptavax) or the recombinant vaccine (antigen manufactured synthetically), and tested to see that a protective antibody titer exists.

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## Exploring the Versatility of Counter Force "M" Arches

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There is no doubt about the Counter Force "M" Arch's ability to provide a favorable moment-to-force ratio during incisor retraction.



One of the original intentions for Titanal/Counter Force "M" Arches ("M" for Dr. Margolis who popularized the idea with stainless steel several decades ago) was to give the orthodontic clinician an archwire that would permit a favorable moment-to-force ratio capable of allowing bodily retraction of the incisors during space closure. Burstone<sup>1)</sup> has suggested a 10:1 moment-to-force ratio as ideal for the closure of space without subsequent "dumping" of the incisors.

There are several ways of achieving this type of moment-to-force ratio, but most techniques call for comparatively complicated and sophisticated archwires. The Titanal/Counter Force "M" Arch circumvents these complications by relying on a simple curved arch design and the use of sliding mechanics with C1 I elastics (Fig. 1). Sliding mechanics aren't always the most efficient way of closing spaces because of bracket friction, bending of the wire, etc., but there is no doubt about the Counter Force "M" Arch's ability to provide a favorable moment-to-force ratio during incisor retraction.

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Dr. White received his B.S. from the University of New Mexico and his D.D.S. and M.S.D. from Baylor Dental College. He practices in Hobbs and has satellite offices in New Mexico and Texas. He has published extensively and is currently Associate Editor of the Journal of Clinical Orthodontics and Editor of the Rocky Mountain Society of Orthodontists Newsletter. He is past president of the Rocky Mountain Society of Orthodontists, the New Mexico Orthodontists Society and the Texas Tweed Orthodontic Study Group.

# "M" Arch

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The Counter Force "M" Arch is also a simple approach to negate the oral forces that naturally produce a Curve of Spee. By intruding molars and incisors while simultaneously extruding bicuspids and cuspids, favorable changes occur in the anterior vertical dimension that permit a subsequent reduction in anterior overjet with retraction mechanics. Without incisor intrusion, it is often impossible to control the horizontal position of the dentition. But when the incisors are properly intruded, more effective horizontal overjet is created that permits distalization of the upper arch or more anterior displacement of the lower arch and teeth (Fig. 2).

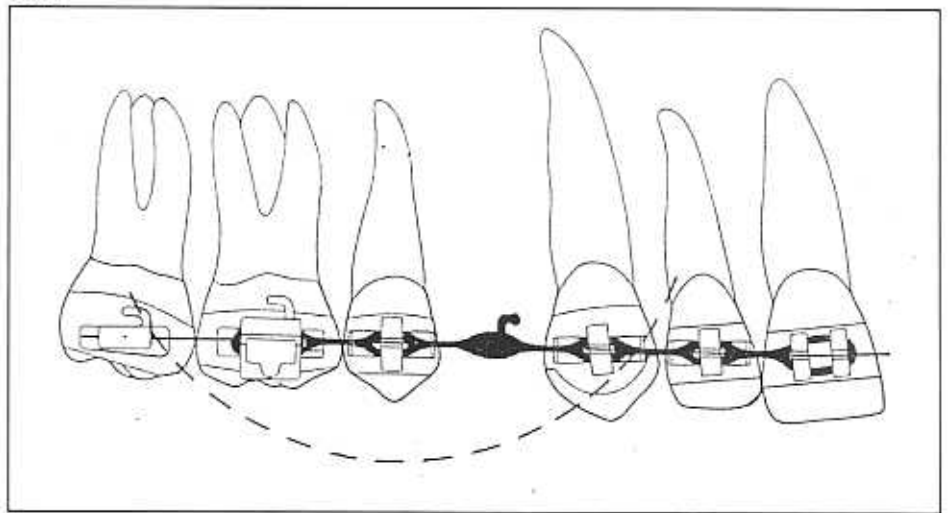
## The Counter Force "M" Arch is also a simple approach to negate the oral forces that naturally produce a Curve of Spee.

When a deep anterior overbite remains untreated, the clinician very quickly reaches the full potential for horizontal improvement in Class II malocclusions because the lower dentition becomes an effective barrier to further distalization of the upper arch. And the extruded upper incisors make further anterior positioning of the mandible or the lower incisors impossible.

Distalization of the upper arch is difficult enough under the most favorable conditions. While a child is growing the maxilla and the maxillary teeth are growing downward and forward, so even with distalizing forces such as headgears, Class II elastics or Class II functional forces, the upper molars will still manage to move forward. Extruded incisors need to be intruded early in Class II treatment in order to prepare the mouth for the eventual correction of the posterior malocclusion.

Orthodontists have known this for many years and have used reversed curve arches or archwires with intruding incisal steps to diminish incisor overbite. The big problem

Fig. 1



with ordinary stainless steel wire is that it is easily bent by occlusal forces and may quickly lose its intended intrusive effect. The new curved Titanal archwires overcome this deficiency by providing archwires that don't lose their memory or resiliency and continue to function in the intended manner indefinitely.

Ordinarily deep overbites can be adequately opened within 2-4 months with Titanal/Counter Force "M" Arches, whereas stainless steel wires take at least twice that long.

Some clinicians may be fearful of facially

flaring the incisors with the round Counter Force "M" Arches, but as Mulligan has shown, flaring of the incisors will not occur with round arches if they are tied back securely.<sup>(2)</sup> Tie backs can be accurately placed on either round or edgewise Counter Force "M" Arches with crimpable hooks and these hooks are easily adjustable for arch length or for the position and condition of the gingiva.

Intrusion of the upper incisors with stainless steel wire has been particularly time consuming, difficult and uncertain. By contrast, lower incisors intrude comparatively

## Single Archwire Orthodontic Therapy Using Titanal/Counter Force Archwires

In approximately 40% of the cases that are presented in my office we use the .017 x .025 Titanal/Counter Force as sole archwire in our therapy. These cases may either be extraction or non-extraction. We have yet to find contra-indications for the use of this archwire.

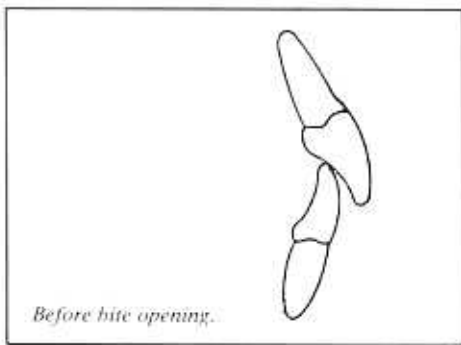
The shape and flexibility of this archwire allow its versatility. Its unique heavily curved shape allows you to intrude both molars and incisors and extrude bicuspids to level both arches (or you can turn the arch over and rapidly close an open bite).

Our initial banding and bonding appointment and placement of the archwire are facilitated by using the elasticity of clear O's to pick up as much rotation and leveling as possible. During the second appointment, we generally tie the archwire in and allow the balance of the leveling and unraveling to occur. On either an extraction or non-extraction case, if we are concerned about anchorage, we use an Asher face bow or Kloehn face bow. This prevents too much flaring of the anteriors during the unraveling on a non-extraction case and facilitates retraction of the anteriors on an extraction case. The upper and lower anteriors may be laced together underneath the archwire and Kobayashi or Ball hooks off of the brackets may be used for Class II or Class III elastic.

Space closure in extraction cases is accomplished using either Class I elastics, power chain, power thread, or any combination of the three. This can be utilized in conjunction with Asher or Kloehn face bow therapy for maximum retraction of the anteriors.

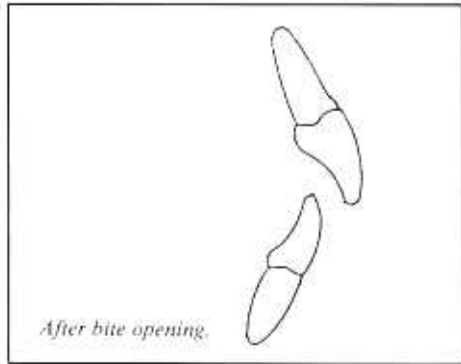
We have found that our imagination is the only limitation in the utilization of this archwire in therapy in our office. It has allowed us to space out appointments and treat more patients with less difficulty. ■

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Before bite opening.

Fig. 2



After bite opening.

easy. So orthodontists usually elect to open the bite by intruding the lower incisors. This arbitrary intrusion of the lower incisors often leaves the upper incisors and gingiva unesthetically exposed.

Counter Force "M" Arches make upper incisor intrusion far easier and much more predictable, so when a Visualized Treatment Objective (VTO), popularized by Holdaway and Ricketts,<sup>4</sup> or template, popularized by Johnston,<sup>5</sup> indicates the upper incisors need intrusion, the clinician can implement the treatment plan with much more confidence and avoid the more tempting but less satisfying lower incisor intrusion.

Counter Force "M" Arches are also effective in closing anterior open bites. By

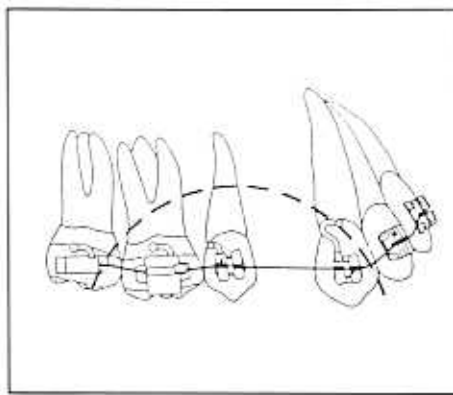


Fig. 3

reversing the curved archwires, the incisors can be extruded and a more acceptable overbite can be achieved for patients who start with an anterior open bite or who develop one during treatment (Fig. 3).

The edgewise Counter Force "M" Arch also permits the expansion of contracted arches while they are simultaneously intruding or extruding incisors. If the edgewise Counter Force "M" Arch is placed backward in the molar tube and each tooth is sequentially tied to this backward arch, a great deal of expansion can be achieved (Fig. 4). Using the Counter Force "M" Arch in this manner often obviates a palatal divider, Arnold expander or quad-helix. ■

- 1) Smith, R.J. and Burstone, C.J.; Mechanics of tooth movement. Am. J. Orthod., 85: 294-307, 1984.
- 2) Mulligan, T.F.; Common sense mechanics. JCO, 13: 676-683, 1979.
- 3) Holdaway, R.A.; A soft tissue cephalometric analysis and its use in orthodontic treatment planning, Part 1, Am. J. Orthod., 84: 1-28, 1983.
- 4) Ricketts, R.M.; *Bioprogressive Therapy*, Rocky Mtn. Orthodontic Co., 1979, Chpt. 3.
- 5) Johnston, L.E.; *Introduction to Radiographic Cephalometry*, Philadelphia, Lea and Febiger, 1985, Chpt. 10.

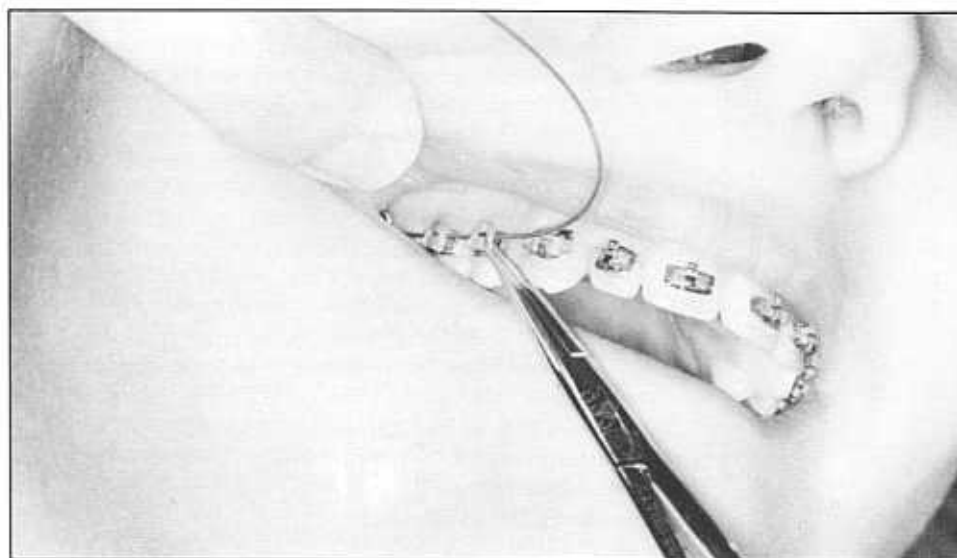


Fig. 4

## The Counter Force "M" Arch: Patience, Brothers and Sisters, Patience!

Having had the opportunity to read Larry White's complete background and future predictions for the "M" Arch, there are a few observations apropos from another user.

The potential of effective utilization is tremendous. The counter-forces built into these unique little jewels are really greater than meets the eye on casual perusal.

Three points are important to the user of the "M" Arches. As I use .018 torqued Edgewise, I speak of that combination of factors.

1) .018 round "M" Arches are very effective for leveling in the young patient. We use continuous chains, anneal arch ends, and snug back every three weeks to close any existing spaces.

2) Allow *any* arch to work out its full potential. For instance, rotations should be virtually completed *before* going to a rectangular "M" Arch. Here a real point of contention rears its ugly head! As we say in West Texas, don't send a boy out to do a man's job. By this I mean do not use ring modules and expect to seat the arch fully on rotated teeth. All modules, from any manufacturer, fatigue about 40% the first forty-eight hours; this according to a study revealed at the European Society meeting last year in Madrid. Further, only about 40% of the remaining force is there after one week. So tie the rotations and use modules for holding.

3) Rectangular "M" Arches, .017 x .025, are most effective in our young patients. Once again, they must be tied back using crimpable hooks or annealed and cinched back on a two to four week interval. Heaven help the patient who isn't tied back or hasn't some sort of restraint and disappears for six months.

Now we come to patience. *Let the arch work.* Young patients often will require seven to ten weeks to effectively torque and level. Used on three adult, iron jaw types, two finally after four months worked to the full potential—one never did!

These are not miracle workers, but allowed to act, they are a kind and gentle adjunct to treatment.

Patience Brothers! ■

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