Pride and Preservation – Part II
Bugles. Just bugles.
by Gary Dickelman

In 2004 it remains difficult to hear yourself think above the din of outraged protest stemming from the decision by DCI to introduce Bb and F brass to the drum corps activity a few years ago. Even with the 2003 DCA World Champion Hawthorne Caballeros making the switch for 2004, there remains a visceral reaction to the notion of losing the long standing discriminator between bands and drum corps. The most vocal among the protesters are, of course, the active and inactive drum corps alumni of the pre and early DCI eras. The fears of many were ultimately realized circa 2001 following an era of growing suspicion and frustration as G-D bugles gave way to G-F bugles, then to vertical piston G-F horns, to 3-valves and ultimately to Bb and F brass. It strikes me as amazing what a few inches difference in tubing can make. Or is that all there is to the controversy?

In the 1980s I watched on TV as a die-hard Coca Cola loyalist took the blindfold test to identify his beloved Coke versus Pepsi. This followed a rather lengthy pseudo-scientific diatribe underscoring the chemical superiority of and unmistakably distinctive characteristics of Coke. Like a seasoned wine taster he sipped one sample, expertly swishing the liquid around in his mouth to allow the taste buds and sense of smell to participate in the detection of the finer flavors of the syrupy nectar. After all, experts are keenly aware that different parts of the tongue are specialized for sweet, sour, bitter, and saltiness, thus all must participate for the full affect. And like a Sushi aficionado, he neutralized his taste buds between samples with a thin slice of ginger. Repeating the sampling a few times, he unequivocally identified the Coca Cola. And the referee revealed that he had chosen the Pepsi.

My suspicion is that a similar test of blindfolded listeners tasked with distinguishing between brass instruments in Bb versus G of comparable size and quality and played by musicians of comparable abilities and experience would have the same ambiguous results. I say this not based on scientific authority necessarily, but on ad hoc observations at drum corps shows, for example, where I observed a particularly vocal alumnus complaining bitterly about the Bb "band" instruments being played by the Royal Airs alumni, and how they were not projecting properly, how the sound was "darker" etc. He was actually listening to a standard set of G horns and had been mislead regarding the origins of the instruments. My list of similar anecdotes is large, albeit not of a sample size that is statistically significant. But no matter – you get the point.

As for the scientific basis for discrimination, we find that the pistons of brass instruments like G bugles and their Bb, F, C, Eb (etc.) counterparts are actually pressure controlled gas flow valves. It turns out that when only a single degree of freedom is allowed for valve motion, four configurations are possible, depending upon the effect upon the valve opening of static overpressures applied at either inlet or outlet ports in the presence of the flow. Depending on the valve configuration, there exist particular ranges of acoustic impedance for the inlet and outlet ducts to the valve within which self-sustained valve oscillation is possible. The results are particularly simple when the lengths of these ducts are less than one-quarter of a wavelength at the resonant frequency of the valve, in which circumstance oscillation takes place close to that resonance frequency. More must be said to distinguish small amplitude from large amplitude, but you, of course, get the idea, right?

Further, we find that while playing a brass instrument the force between the mouthpiece and

horn increases with increasing loudness and higher pitch but that there is no significant correlation between mouthpiece force and proficiency or style. The maximum force that players tolerate seems to be greater for high proficiency players than for novices. All this said, it would appear that there are no significant physical differences between the keys of the instruments.

On the other hand, if we look carefully at the literature from the Greeks to Galileo to the present, we find totally conclusive scientific explanations around theory of oscillations and general harmonic analysis based on elementary notions of force and energy. Such foundations clearly explain why, for example, a violin, a viola, and a piano produce notes of exactly the same frequency but sound distinct. The same reasoning would support the notion that a brass instrument having one length of tubing versus another with shorter but otherwise identical tubing and projecting the same frequency would sound different. Perhaps this provides the answer to the age-old question among orchestra musicians, *"What is the difference between a violin and a viola?"* – which I shall address subsequently.

So is there a difference between Bb (etc.) and G brass? The answer is *yes* and *no*. The most significant underpinnings of the "yes" are deeply rooted in experience and evolution. Put another way, the social and cognitive sciences have much more to do with the differences than do the physical sciences. Let me explain.

I was nine years old in early 1962 when I wandered into a rehearsal of the *Twin Light Lancers* in Middletown, NJ, near the Jersey Shore home that my parents had just bought and to where we had recently moved from the Newark area. I had never seen the strange instrument placed in my hands, a Getzen bass baratone [SIC] bugle. My older brother had been privileged and was by then an accomplished trombonist. So I was familiar with his beautiful and expensive Conn bass trombone, replete with rotary-valved F-attachment and its rich pedal tones. The strange tarnished and dented single-valved "bugle" with its peculiar slide ring looked and sounded something like the trombone, so I gave it a try. I dutifully stood at attention and feigned playing as I mimicked the other members as they completed their ensemble of "Evening Song," "Sentimental Journey," "Walkin' My Baby Back Home," "Red Sails in the Sunset" and other songs that I had never heard before. I took the horn home, was briefly instructed by my brother on how to buzz my lips, and fiddled with the valve over the following week. When I showed up at the next rehearsal one week later I played every one of the songs from the previous week's ensemble from memory – to the astonishment of several of the older members and leaders.

In the span of a week I had not only become somewhat of a musician and young celebrity, but I had overcome the financial hardship that had befallen my family since my brother's good fortune, that had prevented me from pursuing a musical instrument and private lessons. It had also saved me from drifting further into the world of recent acquaintances whose modus operandi were theft, vandalism, smoking, alcohol consumption and generally being up to no-good.

My story is far from unique. Drum corps is replete with tales of young hoodlums taken under the wings of post commanders, scoutmasters, priests and ministers who built tremendous character one note, one pivot, one flam, one parade and one championship at a time. At the heart of the movement that rocked every neighborhood from Portland, Oregon to Portland, Maine and from Miami to San Diego was the G bugle. The sounds of simple harmonies played on these instruments with all the heart and soul of an internationally famous symphony, echoing off city buildings and tree lines on warm summer

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nights, mixing with the aromas of cut grass and summer breezes while punctuated with the heartbeat that is rudimental percussion are etched into the psyches of thousands of former young would-be criminals. It is stronger perhaps than the primordial instincts of survival. That, in my opinion, is why G bugles are the preferred instrument – or, more accurately, *ordnance*.

To me and scores of other corpsmen the 3-valved Bb trumpet represents class, privilege, education and accomplishment just as my brother's Conn bass trombone was something admirable but clearly inaccessible. On the few occasions that I picked up the trombone or a schoolmate's trumpet it was clear that these were complex instruments that confounded intuition. I could not play "Sentimental Journey" on that trombone no matter how hard I tried. Its F rotary valve did not produce the same effect as the bugle piston, and the notion of slide positions was a total mystery. Nor could I play any of the familiar tunes on the trumpet, saxophone, clarinet or the many other instruments that my more fortunate classmates carried around on band days. But in the span of a few weeks I was wailing away in parades and competitions. It was simply the most exciting time of my life.

In August of 1963 my little drum corps traveled by bus for over an hour to Roosevelt Stadium to see the cream of the crop in both junior and senior drum and bugle corps. It was astonishing. We sat among the 20,000 or so fans and listened to Hy Dreitzer's NY Skyliners play "Down By the Station," "I'll Walk With God," "Miserlou," and simulate a traffic jam in sight and sound. Tommy Swan soared to amazing heights on his single-valved soprano. I saw Jim Costello's Hawthorne Caballeros with Latin instruments playing the characteristic "rumps" and the Spanish/Latin brass genre so amazingly well. A soprano screeched and lipped the glissandos of "Cherry Pink and Apple Blossom White" (or was it "Johnny One Note?"). Jimmy Day's Blessed Sacrament Golden Knights horn line was near perfect that day. The big, military sound of National Emblem March was contrasted with a jazz concert of "Let's Face the Music and Dance, "Witchcraft" and the powerful "Mutiny on the Bounty." I recall vividly the goose-bumps produced by the sound of the French Horn bugles, so unique and resounding.

The huge contrabasses on the shoulders of the big guys (and girls of Audubon) were like nothing I had ever seen. St. Kevin's Emerald Knights' sopranos were playing notes so high that I gasped with delight. From the off-the-line fanfares that swept through the stadium from the left end-zone, to the surprising power and volume characteristic of full corps pivoting from a backfield hush to a majestic presentation of colors, to the closing fanfares following the sweetness of the exit numbers, the experience was nothing short of profound and overwhelming.

To me and to countless others, there was – and is - nothing like it in the world. And it was not something for us to simply witness in awe. We did it, too - in our neighborhood VFW posts and schoolyards and churches. We broke from the simple two and three part harmonies to make sophisticated music. We played Broadway tunes, movie scores from the huge productions such as Quo Vadis, Ben Hur, King of Kings and El Cid. We learned a characteristic style that was a unique form of musicality. We blew our brains out in the out-of-doors. Our instruments were derived from that which sounded the charge, announced an army's arrival and honored the recently fallen. It had an enormous bore that was designed to be played outside. And it was pitched in a key that make it easy to learn and memorize songs. It was something accessible to the masses and that touched the soul of humanity around the notions of patriotism, war, heroism,

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and majesty. And most of all, it was something recognizable and accessible to the everyman.

In 2003 I spoke with Drum Corps Hall of Famer Sal Ferrero, who was the program director of the Cavaliers from 1953 to 1972, on the occasion of planning Truman Crawford's Reunion banquet. We had a delightful conversation about the 1950s and 1960s and how things had changed. In my mind, Sal Ferrero arranged the most emotionally satisfying music that I've ever heard in pieces like the Cavaliers' "Somewhere," "Land of 1,000 Dances," "Hold That Tiger," "One Hand, One Heart," "It Ain't Necessarily So," and the crème-de-la-crème of drum corps, "Bully." As a Blessed Sacrament guy with my own deep-rooted preferences, pride, and traditions, the *Cavaliers still take home the big prize for me.* Ferrero related to me in that conversation how the brass ring to catch in the early-to-late 1950s was Blessed Sacrament. Brass instructor/arranger Bill Hayes had evolved his buglers to a uniquely melodic and tuned line. Listen to the 1958 BSGK recordings, he urged, and you will hear what it was that he strove for during the next decade as his Cavaliers refined and perfected the art form.

For the most part, the arrangers and instructors of drum corps were not professional musicians. Many, like Jimmy Day and Dick Burns of Blessed Sacrament, took courses in music theory and composition to round out their skills. But like the players, the instructors were amateurs who learned the craft through experience and under the tutelage of those who had come before them. Ferrero, Crawford, Burns, and a plethora of arrangers/instructors of the elite corps of the era worked on Wall Street, were career military personnel and had other professions outside of the arts. What they had in common was profound understanding of and love for the craft. The instruments themselves evolved through special needs. In 1969, for example, Burns traveled to Germany where he visited a failing home-town brass instrument maker and helped them to design a version of the G-F bugle for US drum corps that ultimately revived the company and contributed significantly to the evolution of the instruments. These were the last set of horns owned by the Blessed Sacrament junior corps and many others in the drum corps world of the day.

The history of drum corps is replete with stories of regular guys and gals growing and shining in performance, composition, choreography, showmanship, and management. Almost none were professionals or formally educated in any related musical field. Yet we collectively produced an era of profound, exciting and emotionally pleasing activities. We did it by *lifting ourselves by our bootstraps using non-conventional, "illegitimate" instruments and by our own rules, far outside the mainstream of the recognized professions.* In many ways, drum corps evolved the way all great things come about: Without reference to the formality of rules and customs (because they do not yet exist); in the absence of any significant financial backing; borne of blood, sweat, and tears; and representing a great deal of heart and soul.

Contrast the last few paragraphs with the notion of a "drum and bugle corps" that is comprised of legitimate Bb, F (etc.) band and orchestra instruments, played by those who have had private lessons for years, are music majors or, at least, have the opportunity to participate in formal band and orchestra programs sponsored by their schools and civic organizations, and whose families can afford large sums for auditioning, touring and performing. The arrangers and instructors of these units are, by and large, professional musicians or formally educated in the craft. The standards, styles, and requirements at all levels of organization and competition have been cleansed of amateurism –

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in musical arrangement, talent, tradition and even business organization. They have evolved, but in the process have left behind a substantial part of the heart, soul, and spirit from whence they came.

So when the alumni listen to Bb brass they not only hear the subtle nuances of identical frequencies emanating as distinct tube-length resonance and back-pressures due to smaller bore sizes, but they are hearing cries of thousands of underprivileged youngsters who will never have the chance to blow into the plumbing, push the single piston or experience the joys of becoming special – even great – through the magic of traditional drum corps. When the alumni corps or those rooted deeply in tradition, like the Casper Trooper, insist on G bugles for their brass lines, they are paying tribute to something much larger and more profound than the simple differences between tubing lengths. It is the human spirit at its most fundamental level that they strive to preserve.

So what of the age old question of distinction between violin and viola? They are both string instruments, made of wood. They have almost identical resonance chambers. They produce precisely the same frequencies through harmonics, force, and energy. At a distance you can't tell the difference between the two. As musicians, violists and violinists are characteristic "gang players" and they sit in close proximity to one another in the orchestra. But as we get a bit closer and listen very carefully, we are struck with a timbre that can be described as more soothing, more comforting. It is somehow more familiar with respect to the human condition. We find that there is a subtle contrast in terms of ease in learning. But most strikingly – when set ablaze, the viola burns much brighter and for far longer.

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