



INTERNATIONAL

TROMBONE

ASSOCIATION JOURNAL

THE QUARTERLY PUBLICATION OF THE ITA

“IT’S HOW WE PLAY”

Professional Female Trombonists in the United States

Natalie Mannix
Towson University
and Delaware Symphony Orchestra

INSIDE



EVOLUTION:
The Double-Valve
Bass Trombone



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Advancement of Trombone Teaching, Performance, and Literature.



The Wide, Wide World of Trombone – Page 22

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Cover inset – Prototype Symphony Model 6 bass slide trombone (low pitch) with two
rotary valves by Frank Holton & Co., Elkhorn, Wisconsin, 1927. Ex-collection: Holton
Factory Reference Collection, Elkhorn, Wisconsin. Gift of Conn-Selmer, Inc., Elkhart,
Indiana, 2008. National Music Museum NMM 13847, The University of South Dakota,
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Contents

Features

International Trombone Week 2015	
<i>by Colleen Wheeler</i>	10
Nasal Air Leaks in Trombone Players	
<i>by Jeannette D. Hoit and Cassidy Bennett</i>	15
Paul Nowell as Paul the Trombonist	
<i>by Bruce Gunia</i>	18
The Wide, Wide World of the Trombone	
<i>by Irvin L. Wagner</i>	22
“It’s How We Play”: Professional Female Trombonists in the United States	
<i>by Vanessa Tonelli</i>	26
Evolution: The Double-Valve Bass Trombone	
<i>by Douglas Yeo</i>	34

Departments

Announcements	2
President’s Column - <i>Joe Alessi</i>	5
General News - <i>Taylor Hughey</i>	6
Literature - <i>Karl Hinterbichler</i>	52
Literature Reviews - <i>Mike Hall and David Stern</i>	54
Audio/Video Reviews - <i>Micah Everett</i>	66
Advertiser Index	76



Paul the Trombonist – Page 18

EVOLUTION

The Double-Valve Bass Trombone

by Douglas Yeo

The history of the trombone is still being written, and new discoveries are leading to greater understanding as well as the debunking of long-held mythologies. Part of this history is that of the double-valve bass trombone, an instrument with its own creation story that is in need of revision due to recent research.

Received wisdom tells us that three titans of the bass trombone worked with two different companies in the 1950s and 1960s to invent the double-valve bass trombone. The stories of how Kauko Kahila (bass trombonist, Boston Symphony, 1952–1972), Allen Ostrander (bass trombonist, New York Philharmonic, 1946–1975) and Edward Kleinhammer (bass trombonist, Chicago Symphony, 1940–1985), worked to develop the double-valve bass trombone with the Reynolds and Holton companies have been told repeatedly.

Edward Kleinhammer related his version of events on a number of occasions:

My story starts with an appointment with Mr. Vincent Bach who was in Chicago during a convention in the early '60s, when he had his factory in Mt. Vernon, New York. I explained the story about the bass trombone and its inadequacy to Mr. Bach and he understood the problem of the one-valve instrument in use for many years. But he told me point blank that it would be too expensive to tool up for the added valve. He was a very frugal person—and a very nice man, doing a great job in trombone manufacturing.

So I thought and thought about a two-valve bass trombone and discussed it with Allen Ostrander—an enterprising person, as you know. Allen got the Reynolds people interested in it and they are probably the first ones to make a permanent two-valve bass trombone.

In the meantime I went to the Holton people in Elkhorn [Wisconsin] with an idea that would not cost the manufacturer the big financial risk and the people at Holton were interested—partly because they did not have a bass trombone in their catalog! They invited me to help them design a bass trombone and they would use my idea of the [detachable] second valve accessory pictured in *The Art of Trombone Playing* . . . At any rate, Allen and I awakened the instrument manufacturer to a long needed instrument.¹

...

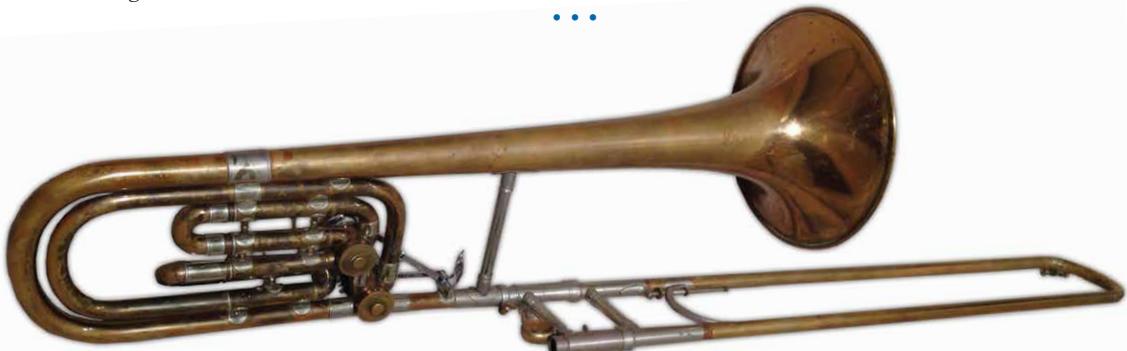


Figure 1. F and E Bass Model (later named Super B-flat/F/E/Model and Model S-23) dependent double-valve bass trombone (B-flat/F/E) by F. E. Olds Co., c1940. Collection of Jon Moyer; photo by Jon Moyer.

Allen Ostrander and I had communicated this problem together. I first talked to Mr. Bach; his factory was at that time in Mt. Vernon, New York. Mr. Bach heard my story but declined to work on it for financial reasons. So, I went to Holton and Company and offered my idea as an accessory to the bass Posaune. They accepted and the picture of my design is on page 54 of *The Art of Trombone Playing*. This was the beginning of the complete bass trombone! Now there is one in every attic.²

Kauko Kahila frequently offered his own version of events:

The double valve came about when we were playing the Bartók *Concerto for Orchestra* which, as you know, was commissioned by [Serge] Koussevitsky and premiered by the Boston Symphony.³ I figured that there must be a way to get the low B, and if I added another length of tubing I could do it. I made the plans for it and submitted it to the Reynolds Company and they said, "Sure, we'll do it." So it worked . . . Anyway, Reynolds gave me one of the horns since I had the idea and then they commercially marketed it—Ostrander used one in the Philharmonic, too.⁴

• • •

After awhile, one gets tired of faking a low B (Bartók *Concerto for Orchestra*, for example); this put my mind to work, how to add tubing to be able to play the low B. Then, the idea of adding another valve to engage the extra tubing when needed, this worked out very well. I drew the plans and the Reynolds Co. agreed to make it. Since then my original idea has been improved on by other companies, but someone had to have the idea first. In this case it happened to be me. So—that's how the double-valve bass trombone was born.⁵

Allen Ostrander also weighed in with his recollection of the double-valve bass trombone's origin in an interview with Bruce Tracey:

Bruce Tracey: Were you the first one to have them make a double valve?

Allen Ostrander: Oh no! Kleinhammer was the leader of the parade. As I remember he experimented with a repairman in Chicago. Concerning the double valve, "You name it, he's tried it!" . . .

Bruce Tracey: Now getting into instrument

construction again. You said Mr. Kleinhammer originally adapted the double valve to his horn. You designed the Reynolds two-valve trombone, didn't you?

Allen Ostrander: Co-designed. They made three prototypes. [Kauko] Kahila of the Boston Symphony, [Louis] Counihan of the Metropolitan Opera, and I each had one. During the winter of 1957–58, when Boston came to town, we got together. The factory would do anything to the horn we wanted. Kahila had the basic design. Fortunately I kept my mouth shut. I had ideas, but Kahila's were far better. I made them change the bracing around the valves and

Counihan insisted on the rollers on the levers.⁶

All of these accounts are of interest but a careful reading raises many questions. Was Kleinhammer, Ostrander, or Kahila first? Did Reynolds or Holton make the first double-valve bass trombone? Was the double-valve bass trombone of Kleinhammer's design the first bass trombone in Holton's catalog? Did Reynolds make the first two-valve bass trombone with permanently installed valves? Did all of this happen in the 1950s or 1960s?

The answer to all of these questions is: no. While, as we shall see, Kauko Kahila, Allen Ostrander, and

Edward Kleinhammer all made important contributions to the development of the double-valve bass trombone, none of them can lay claim to have invented it. The story of how the bass trombone evolved from having one to then two valves began long before they began their distinguished careers in three of America's great orchestras. This article is an attempt to correct the creation myth of double-valve bass trombone development and shed new light onto a wider cast of characters and companies that had a part in giving us the instrument we have today.

Composers have been writing for a consort of three trombones with the designations alto, tenor and bass for over 400 years, although the use of terminology drawn from vocal parts by no means meant that three different sizes of trombones were in fact used in a trombone section.⁷ Trombones developed and were used differently in various countries. Hector Berlioz, for instance, wrote most of his works for a section of three tenor trombones in B-flat—the custom of French orchestras through the nineteenth and early twentieth centuries—and first encountered the bass trombone in Germany, where he noted, "The aggressive tone of one bass trombone would be enough to upset the



Figure 2. Tenor trombone in B-flat/F/E (static valve) by Lefevre (Paris), c. 1910. Ex-collection: Joannès Rochut. Collection of Stephen Lange; photo by Stephen Lange.



Figure 3. Bass trombone in B-flat/F/E-flat (static valve) by Kruspe, no date. Boston Symphony Orchestra collection; photo by James Markey.



Figure 4. Inline double-valve contrabass trombone after Ernst Dehmel in F/E-flat/B-flat/A-flat by an unknown maker, c. 1930. Edinburgh University Collection of Historic Musical Instruments No. 3208. Courtesy of Arnold Myers.

balance of the three trombone parts as written by composers nowadays.⁸ Trombonists in England continued using B-flat tenor trombones and bass trombones in G—all of which had narrow bores—into the 1950s.⁹ In 1839, Christian Friedrich Sattler of Leipzig added a valve and tubing to a B-flat trombone that lowered the pitch of the instrument to F; this became known as the *Quartventil* or F-attachment and had the effect over time of relegating the bass trombone in F, which had been used in some areas of Europe, to obscurity.¹⁰ The F-attachment extended the trombone's range downward to CC but the lack of a low B-natural (BB) left the trombone without fully chromatic functionality.

By the dawn of the 20th century, makers sought to address the missing BB by adding a second valve to the F-attachment along with an additional length of tubing that, by turning the valve by hand, made F-attachment an attachment in E or E-flat. This “static valve” or *Stellventil* was employed by Lefevre (Paris) c. 1910 on a tenor trombone used by Joannés Rochut when he was principal trombonist of the Boston Symphony Orchestra from 1925–30 (Figure 2, second valve in E) and later on bass trombones by the German maker Kruspe (Figure 3, second valve in E-flat).

When Richard Wagner called for contrabass trombone in his operatic tetralogy, *Das Ring der Nibelungen*, the instrument first used by trombonist Eduard Grosse in performances at the Bayreuth Festival in 1876 was a double-slide contrabass trombone in BB-flat made by C. A. Moritz of Berlin. This instrument was a modified (larger bore) version of a double-slide contrabass trombone built by Halary (Paris) in 1830. Cumbersome in the extreme, the desire for a more playable instrument led to a completely new design, a contrabass trombone in F (really a large bass trombone in F) designed by Ernst Dehmel in 1921¹¹ and first used in Bayreuth in 1924 (Figure 4).¹² Dehmel's design was particularly inventive in

that he added two rotary valves inline. Not only did each valve have its own length of tubing, but each had its own linkage that could be operated independently or in tandem, giving the instrument a tuning scheme of trombone in F, first valve in E-flat, second valve in B-flat, and both valves together in A-flat. Dehmel's design called for the valves to be activated by pushing up on paddles rather than pulling down on “triggers” as we do today (Figure 5).



Figure 5. Detail, inline double-valve contrabass after Ernst Dehmel in F/E-flat/B-flat/A-flat by an unknown maker, c. 1930. Edinburgh University Collection of Historic Musical Instruments No. 3208. Courtesy of Arnold Myers; photo by Raymond Parks.

Dehmel's inline double-valve contrabass trombone could have been the end of the story of bass trombone double-valve evolution. Had makers immediately adapted his inline valve design to the bass trombone, trombonists would have had the modern bass trombone in their hands over 90 years ago. But Dehmel's design appears to have gone unnoticed outside of Germany and American makers began introducing bass trombones with a second, static valve, unaware not only that a more practical solution had already been invented but also was in use across the Atlantic Ocean.

In the United States, C. G. Conn introduced the 70H “Duo-Bore Large Bore Bass Trombone” in B-flat/F/E with a static valve (Figure 6) in their General Catalog “D”; a price list in the catalog is dated February 1, 1926. The Conn 70H

Duo-Bore Bass Large Bore

MODEL	PITCH	KEY	WEIGHT	LENGTH	STANDARD BELL DIAMETERS	FACTORY NUMBER	CODE WORD*
New Symphony—Medium Bore...	Low	B ₁	3 $\frac{3}{4}$ lbs.	46"	8'-8 $\frac{1}{2}$ "-8 $\frac{3}{4}$ "	80-H	*hoist
Duo-Bore Bass—Medium Bore...	Low	B ₁ , F, E	3 $\frac{1}{2}$ lbs.	46 $\frac{1}{2}$ "	8 $\frac{1}{2}$ "	14-H	*husky
Duo-Bore Bass—Large Bore...	Low	B ₁ , F, E	4 $\frac{3}{4}$ lbs.	46"	9 $\frac{1}{2}$ "	70-H	*hoard
Symphony—Large Bore...	Low	B ₁	2 $\frac{3}{4}$ lbs.	47"	8'-8 $\frac{1}{2}$ "	8-H	*hatch
Symphony—Large Bore...	High	B ₁	2 $\frac{3}{4}$ lbs.	44 $\frac{1}{2}$ "	8'-8 $\frac{1}{2}$ "	9-H	*hurry

Where more than one standard bell diameter is given, code word must be followed by word for desired diameter as given on Page 5. Code words requiring such additional word are indicated by ().

THE New Symphony, medium bore, gives a broader tone than models illustrated on preceding pages, but does not give quite the deep, sonorous quality of the bass. The same may be said of the Symphony, large bore, which is like the 6-H Symphony, medium bore, except for larger bore and consequently larger tone.

The Bass Trombones are built in B₁ with changes to F and E, medium bore having a rotary valve to F and a slide to E, the large bore having rotary valves to both F and E. The new Duo-Bore feature has brought these two basses into great favor.

Lever action for the valves is standard on all three models but string action (shown on 14-H) can be supplied on request.

Figure 6. Advertisement, C. G. Conn Co. 70H “Duo-Bore Large Bore Bass Trombone” in B-flat/F/E (static valve). C. G. Conn General Catalog “D” (February 1, 1926), p. 24. Courtesy of the National Music Museum Conn Archives, The University of South Dakota, Vermillion, South Dakota.



Figure 7. Symphony Model 6 bass trombone in B-flat/F/E (static valve) by F. E. Holton, 1927. Collection of Brendan Ward; photo by Brendan Ward.



Figure 9. F and E Bass Model (later named Super B-flat/F/E/Model and Model S-23) by F. E. Olds and Son, dependent double-valve bass trombone (B-flat/F/E), c. 1940. Collection of Jon Moyer; photo by Jon Moyer.

With Extra Register Valves

TO many symphony trombone players the extra register rotary valve is indispensable. The use of the F valve makes possible playing tones in the first and second positions that would ordinarily be played in sixth and seventh positions. With the F valve it is also possible to play all tones between low E and pedal B \flat below.

IN B \flat , F AND E

Model 68 (illustrated at left). Symphony bore built in B \flat with conveniently arranged rotary valve to F. Diameter of bell, 8 $\frac{1}{2}$ inches; weight, about 4 pounds.

IN B \flat , F AND E

Model 69 (not illustrated). Symphony bore built in B \flat with rotary change to F, and additional rotary valve to E. Diameter of bell, 8 $\frac{1}{2}$ inches; weight, about 4 $\frac{1}{4}$ pounds.

Figure 8. Advertisement, “With Extra Register Valves,” from Frank Holton Co. catalog, 1935, p. 13. Courtesy of the National Music Museum Archives, The University of South Dakota, Vermillion, South Dakota.

OLDS BASS TROMBONES

TENOR MODEL—Built in B \flat with rotary change to F. 8 $\frac{1}{2}$ -inch bell, large medium bore, suitable for regular trombone passages extending up into the higher register, but with pedal tones of good intonation and volume.

BASS MODEL—B \flat with rotary change to F. 9-inch bell. Large bore with extra large symphonic taper of throat. Ideal for largest symphonic work and especially fine in the lower register.

F AND E BASS MODEL—Same as Bass Model, but has additional rotary valve to E and a double trigger operating both valves, so that the full chromatic pedal register is instantly available.

See pages 14 to 16 for detailed descriptions of constructional features, bores, finishes, cases and other equipment.

SINGLE TRIGGER MODELS IN B \flat AND F:

Finish 1—Polished brass, clear lacquered	\$235
Finish 2—Silver-plated, gold bell	260
Finish 3—Gold-plated, engraved and burnished	400

DOUBLE TRIGGER MODELS B \flat , F AND E:

Finish 1—Polished brass, clear lacquered	\$285
Finish 2—Silver-plated, gold bell	310
Finish 3—Gold-plated, engraved and burnished	450

Prices include cases

17

Figure 10. Advertisement, “Olds Bass Trombones” from F. E. Olds and Son catalog, 1939, p. 7. Courtesy of Alan Rouse.

appears to have been the earliest bass trombone with two valves to have been manufactured by an American company and it had an unusually large bore for its time with a dual bore slide of .547/.562. The following year, 1927, F. E. Holton introduced the Symphony Model 6 bass trombone in B-flat/F/E (Cover insert and Figure 7) that also had a static valve in E. Unlike Conn, who had moved toward a larger bore instrument, Holton’s bass trombone had a .530 bore, consistent with the size of the German style trombones his company had been making for many years that were copies of instruments by Heckel.

A Holton price list dated June 1, 1929, lists the “Holton Revelation Slide Trombone with F Trill and E-flat Valves,” a complex and somewhat confusing nomenclature that makes this instrument difficult to identify. The Holton Symphony Model 6 had a second valve in E, not E-Flat, and in 1932, Holton marketed a new two-valve bass trombone, Model 69 in B-flat/F/E (Figure 8); the catalog’s wording is unclear as to whether the E valve was a *Stellventil* (which seems likely) or if it had its own linkage.¹³ No photograph or example of the Model 69 bass trombone has yet been located. The Model 69 disappeared from the Holton catalog after Frank Holton’s death in 1938; there was no two-valve bass trombone in the Holton catalog from 1938 to 1962.

While a trombone with a *Stellventil* was not, in the truest sense of the words, a double-valve bass trombone as we know it today because the second valve did not have its own

independent linkage and thumb trigger paddle, it was clear that makers in the United States were coming to grips with the need to provide the bass trombone with a fully chromatic downward range. A more convenient alternative to the hand-turned *Stellventil* was on the way.

In 1938, the F. E. Olds Company of Los Angeles developed a dependent double-valve bass trombone in B-flat/F/E, what was the first true double-valve bass trombone, the Olds F and E Bass Model (Figures 1 and 9). Olds’ design called for the two thumb trigger paddles to be stacked, one in front of the other. After World War II, this instrument was referred to as the Super B-flat/F/E Model and later as Model S-23; it remained in the Olds catalog into the 1970s (Figure 10).

John Lowe has proposed an interesting theory as to why Olds may have developed a double-valve bass trombone at such an early date. Franz Waxman’s (1906–1967) score for the 1935 movie, *The Bride of Frankenstein*,¹⁴ contained a long fortissimo low BB in the bass trombone part (Figure 11). Bass trombone players in the Los Angeles movie recording studios may have turned to Olds—a local company—to provide them with an instrument that would enable them to play the low B-naturals that Waxman and other composers were writing with increasing frequency.¹⁵ The F-attachment on Olds single-valve bass trombones of that time did not have a tuning slide long enough to pull out to get a BB; the tuning slide could be moved only 1.75” before falling out. While a player



Figure 11. Excerpt (Posaune 3), Franz Waxman (orchestrated by Clifford Vaughan), *The Bride of Frankenstein*, “Creation Sequence,” 1935. Courtesy of Franz Waxman Papers (Box OS17D.1), Special Collections Research Center, Syracuse University Libraries.

could easily lip down a softly played CC to a BB, playing a BB at a loud dynamic simply was not possible on the early Olds single-valve trombones. While the Olds double-valve bass trombone did not prove to be popular with symphonic players, owing, perhaps, to its undersized valves, .530/.550 hand slide dual bore, narrow bore through the valve sections, tight bell throat, and the fact that the early versions of the instrument would not accept a large shank mouthpiece, its small size may have made it ideally suited to Los Angeles studio players, many of whom were tenor trombonists doubling on bass trombone. Further research is needed but the theory is plausible enough, an example of a practical need leading to development of a practical solution.¹⁶

It was around 1950 that Edward Kleinhammer had his conversation with Vincent Bach that proved to be unsuccessful in persuading him to develop a double-valve bass trombone.¹⁷ Yet the 1950s became a decade of exploration for bass trombonists. By 1952, Kleinhammer turned to T. M. Koeder, a repairman in Naperville, Illinois—the craftsman Allen Ostrander must have been referring to when he said “As I remember [Kleinhammer] experimented with a repairman in Chicago” (endnote 6)—to convert a bass trombone to have two valves. Gene Isaeff, bass trombonist of the Minneapolis Symphony from 1952–1956, also had Koeder make a double-valve bass trombone from a single-valve Conn 70H. It is not known how often Kleinhammer actually used his Koeder-converted bass trombone; no photographs survive of him with this instrument and he was not known to have spoken of it widely. Still, the fact that Kleinhammer and Isaeff had double-valve bass trombones made for them at this time shows that orchestral players were working to find an acceptable instrument that would help them solve the problem of the illusive low B natural.

In 1956, Lawrence Weinman succeeded Gene Isaeff as bass trombonist of the Minneapolis Symphony.¹⁸ Weinman told the story of how he approached Vincent Bach to make a double-valve bass trombone for him immediately following his audition for the orchestra:

Antal Dorati was the music director of the Minneapolis Symphony. He was also a composer and had studied composition with Béla Bartók and he

was somewhat frustrated by the shortened glissando that most bass trombonists were giving him in the *Bartók Concerto for Orchestra*.

When I auditioned for the Minneapolis Symphony in 1956 there were two double-valve bass trombones in use in USA orchestras. My predecessor Gene Isaeff had one and Ed Kleinhammer had the other. These were stock bass trombones that had a valve added to them by a repairman in Naperville, Illinois by the name of T.M. Koeder. At my audition we were all asked to play the glissando from the *Bartók Concerto for Orchestra* and everyone there played the abridged version. Dorati asked if I could get the proper instrument and I assured him that I could. I just assumed that I would get Koeder to install another valve and everything would be fine but I was not aware that Koeder had suffered a massive heart attack and was no longer working.

At this point I began to panic because the opening program had the *Bartók Concerto for Orchestra* on it. There was one commercially made double-valve bass trombone being manufactured by Olds at that time [Model S-23] but I thought it was a terrible horn, certainly not one that you would use in a major symphony orchestra. I was playing a Bach 50B at that time and had worked at the [Bach] factory in Mount Vernon as a grunt one summer so Vincent Bach knew who I was. He agreed to build the horn but did not have any idea how to link the double trigger mechanism.

At that time there was a trombonist in the New York area by the name of Vincent Clarke¹⁹ who owned the Olds double trigger bass trombone. I got him to bring the horn to the Bach factory; Bach inspected it and came up with a similar trigger mechanism. There was a sort of touch and go involved particularly with the length of the second valve tubing and we had to cut it a couple of times in order to have the right length for a low B natural.²⁰ The final product was a Bach with 50B stamped on the bell but with two valves. The horn was not completed until the night before I had to leave for Minneapolis.²¹

SLIDE SERIAL NO. 5067	SLIDE MODEL 50B	MOUTHPIECE 10" Solid Bell
SLIDE BORE .562	SLIDE WIDTH 3/4	TIGHTNESS Very tight
MATERIAL OUTER TUBE E.Q. Br.	INNER TUBE 18% N.S.	PLATING Chrome
BELL MODEL NO. 50B	BELL MANDREL 453	TUNING SLIDE BOW NO. 453
NECKPIECE TUBE 453		
DATE COMPLETED	FINISH OF INSTRUMENT 1 1/2	
DATE SOLD 10/18/56	CUSTOMER Lawrence Weinman	

Two valve trombone

Figure 12. Vincent Bach shop card for Bach 50B two-valve bass trombone sold to Lawrence Weinman on October 18, 1956, serial number 5067. Reprinted with permission of Tedd Waggoner, Conn-Selmer, Inc.

Weinman's account is corroborated by the shop card for Bach 50B single-valve bass trombone serial number 5067, a bass trombone modified by Vincent Bach in 1956 to have two valves (Figure 12).²² If Edward Kleinhammer was the first to suggest that Bach make a double-valve bass trombone, it was Lawrence Weinman that finally persuaded him to do so and by 1961, the Bach 50B2 dependent double-valve bass trombone in B-flat/F/E appeared in the final catalog Bach published before he sold his company to Selmer (Figure 13). What seems to have been the first dependent double-valve bass trombone made by Bach with the designation 50B2 stamped on the bell (serial number 6114) was sold to Edwin Anderson (bass trombonist of the Buffalo Philharmonic 1958–1964 and of Cleveland Orchestra 1964–1985) on October 10, 1961. While made under Vincent Bach's watch, it was sold to Anderson just two weeks after Selmer had purchased Bach's company.²³ Of interest is the fact that Vincent Bach used the fourth trombone part of Reinhold Glière's *Third Symphony*, "Ilya Murometz" (composed in 1911)—a part that contained number of low BBs—as a selling point for his new double-valve bass trombone; there is no mention of Bartók's *Concerto for Orchestra* and its famous gliss from BB to F. Today, Glière's *Symphony* is virtually unknown and rarely played.

In 1957–58, Kauko Kahila (Figure 14), Allen Ostrander, and Louis Counihan began working with the F. A. Reynolds Company to design a double-valve bass trombone (Figure 15). This instrument, known as the "Stereophonic" Model Contempora 78-X and pitched in B-flat with dependent valves



Figure 14. Kauko Kahila with Reynolds "Stereophonic" Contempora Model 78-X dependent-valve bass trombone, c. 1960. Photo courtesy of Boston Symphony Orchestra Archives.

MODEL 50B2 BASS TROMBONE WITH TWO VALVES

Identical bore and tone quality as the Model 50B but equipped with two valves—one with an F slide, the second valve with a half tone slide E, both used simultaneously. For performing the Bartok "Piano Concerto" or R. Gliere's "Ilya Murometz", a two-valve bass trombone, Model 50B2 is a "MUST". Made only on confirmed, prepaid order. Write for particulars.

It is important that these magnificent instruments be played with a special Bach Bass Trombone Mouthpiece #1 1/2 G or #2 G having a deep cup, large throat and mentioned mouthpieces have the large bass trombone shank to fit the instruments, which have a large-sized mouthpiece receiver opening: 13.87 mm (.546").

Figure 13. Advertisement, "Model 50B2 Bass Trombone With Two Valves" from Vincent Bach Co. catalog, 1961, p. 29. Reprinted with permission of Tedd Waggoner, Conn-Selmer, Inc.

in F and E, was first marketed in 1958. Unlike Holton and Olds, who put all of the F and E-valve attachment tubing in the bell section between the main brace and the top bow of bell, the Reynolds Contempora Model 78-X had the F-attachment tubing travel down the bell toward the bell flare. This was a radical change from the tightly packed Olds design and an early example of what we now call "open wrap." The valve triggers were side by side, an ergonomic improvement over the stacked paddles that Olds had used, and the rollers on each paddle that Counihan had suggested also came to be employed by Vincent Bach in his design of the Model 50B2.

In Germany around this same time, Hans Kunitz was working on an improved design of Ernst Dehmel's double-valve inline contrabass trombone. In patents filed in Germany, England, and France in 1959 and 1961,²⁴ Kunitz proposed a new design for the trigger paddles (Figure 16); he was the first person to move the second valve paddle so it could be more conveniently operated by the third finger of the left hand. This design was a significant improvement over the stacked and side-by-side paddles of Olds and Bach and later became the standard position for second valve trigger paddles of all manufacturers.

In an undated brochure authored by Edward Kleinhammer and published by Holton, Kleinhammer wrote, "Early in the 1950s a few of us bass trombonists began to realize the inadequacies of the conventional bass trombone and a two valve instrument evolved."²⁵ Kleinhammer and Ostrander—and perhaps others—appear to have been in conversation about how to best get two valves on a bass

BASS TROMBONES:
 78-X "Stereophonic" — Bore .564 • Bell 10"
 72-X "Philharmonic" — .524 • Bell either 10" or 9 1/2"
 built-in slide to E
 72 "Symphony" — Bore .564 • Bell diameter 10" or 9 1/2"

BASS TROMBONES

"More carrying power, best for tonal quality, fast response, finest intonation" . . . are the enthusiastic comments of noted symphony players such as Allen Ostrander, Louis Counihan and Kauko Kahila about their new Contempora Bass Trombones. Model 78-X with double valve. A Bass Trombone played and enthusiastically endorsed by symphony players in this and foreign countries. Model 72-X with 9 1/2" or 10-inch bronze bell, with the built-in slide to E. Model 72, the "Symphony" model Contempora with bronze bell in 9 1/2" and 10-inch diameter.

Model 78-X "Stereophonic" model Contempora, 10" bronze bell, double valve, F and E rotary, case C-780X . . .	\$495.00
Model 72-X "Philharmonic" model Contempora, 9 1/2" or 10" bronze bell, built-in slide to E, case C-720X . . .	395.00
Model 72 "Symphony" model Contempora 9 1/2" or 10" bell, case C-720 . . .	360.00
Model 72-G "Symphony" model Contempora in Gladstone case, C-720G . . .	380.00

Figure 15. Advertisement, "Bass Trombones" from Reynolds Co. catalog, 1959, p.10. Courtesy of ElShaddai Edwards.

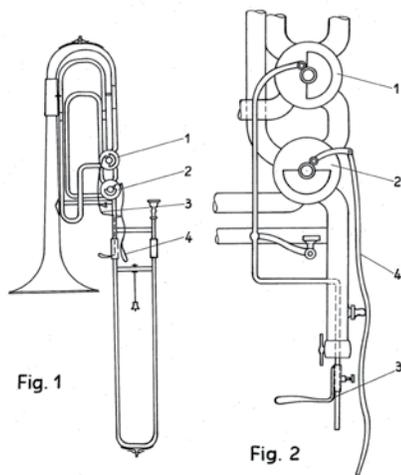


Figure 16. Hans Kunitz patent for inline double-valve contrabass trombone in F/E-flat/B-flat/A-flat, 1959. German patent 1 225 033, p. 4.



Figure 17. Edward Kleinhammer with Holton dependent double-valve bass trombone (B-flat/F/detachable E-valve) Model 169, c1962. Collection of Douglas Yeo.

trombone. Kleinhammer may have been unsatisfied with the conversion T. M. Koeder had done for him and he began considering other options. As he explained in *The Art of Trombone Playing*, his idea was for a detachable second valve that could slide into the tubing of the single-valve bass trombone's F-attachment (Figure 17):

An innovation in the field of bass trombones, the instrument pictured in Illustrations 31 [Holton Model 169 B-flat/F bass trombone, bell section, with optional second valve accessory] and 32 [same bass trombone, bell section, without optional second valve accessory] has the advantages of the complete bass trombone with full chromatic scale. Yet the added weight of the extra valve and tubing, which is the main objection to the two-valve bass trombones, need not be tolerated except when the player needs the optional equipment for passages with low C or B. The optional accessory can be attached to this make of instrument in one minute. It can be tuned independently from the

F-attachment, which is also tuned with its own slide. The instrument can be purchased as a conventional B-flat/F bass trombone, or as a B-flat/F/E bass trombone at the option of the buyer. The E accessory can be purchased later if desired.²⁶

There is no doubt the added weight of the second valve was significant and most of the corpus of bass trombone orchestral repertoire could be played on a single valve bass trombone.²⁷ Kleinhammer became convinced that a detachable valve in E that could be put on or removed in a minute was a useful addition to the double-valve bass trombone conversation. The Holton Model 169 bass trombone (Figure 18) was released in 1962 with Kleinhammer's detachable valve section, what Holton called the "Optional Rotary E Attachment" and it remained in the catalog (renumbered as Model TR-186 after Leblanc's acquisition of the Holton Company in 1964) until 1971.

Holton continued to make improvements on their double-valve bass trombone design, most notably with

In collaboration with one of the nation's foremost authorities **HOLTON** brings you...

The **DEFINITIVE**
BASS TROMBONE

Here is a full bore bass trombone that for boldness, breadth and beauty of tone is unmatched by any other instrument on the market today. The sound of the Model 169 is big and "fat" — yet perfectly centered, as easy to produce and as facile to control as that of the tenor. Designed to bring you the utmost in richness and sonority in the middle range and on down past pedal B₁, the Model 169 preserves an upper register of great purity and warmth — even including the normally difficult notes around high B₂. Response is incredibly easy throughout — as is intonation and all ability of the performer to modulate tone, dynamics and the Model 169's unprecedented musical resources. In keeping with its nobility of tone and commanding eloquence, dimensions of this new bass trombone are truly heroic. Here is a big 562 inch with a nine and one-half inch bell. The latter is of rose brass, contrasting handsomely with finely lacquered yellow brass and gleaming nickel silver trim — an instrument as beautiful to behold as it is satisfying to the player. A truly definitive bass trombone — a notable milestone in the history of this magnificent instrument.

Optional Rotary E Attachment — This ingenious mechanism permits production of the low trombone's full range (including low C and B₁) without recourse to cheap, aging slide adjustments or the extra weight and tactile balance of a permanently fixed rotary attachment. The mechanism only uses one change to E. With this — and all other rotary attachments — a slide tuning slide and enjoy the entire range of the slide and enjoy the reduced air-valve B₁ to F bass trombone.

HOLTON

FRANK HOLTON & CO., ELKHORN, WIS.

Figure 18. Holton advertisement for Kleinhammer "Optional Rotary E Attachment," dependent double-valve bass trombone Model 169, c. 1962. Collection of Douglas Yeo.



Figure 19. Conn 70H bass trombone conversion to inline valves (B-flat/F/G/E-flat) for Ken Adkins by George Strusel, 1967. Collection of Ken Adkins; photo courtesy of Miles Anderson and Jim Prindle.



Figure 20. Inline double-valve bass trombone (B-flat/F/D/B) with bell by Earl Williams for Edward Kleinhammer by Jerry Lesniuk (Schilke) after a design by Ruud Pfeiffer, 1974. Ex-collection: Edward Kleinhammer. Collection of Dennis Bubert; photo by Dennis Bubert.

the launch of Model TR-180 (initially called the Model 269, and then Model E-180) in B-flat/F/E in 1964 with its permanently installed dependent second valve and, while working with Lewis Van Haney, a re-launch of that model in 1971 with combined valves in D and a newly designed trigger linkage, the “Glantz Bar,” named for its inventor, Las Vegas instrument repairman Al Glantz. But while Holton and other manufacturers were marketing dependent double-valve bass trombones, craftsmen were at work converting bass trombones to inline configurations. While inline valves had been in use on contrabass trombones since Ernst Demel’s design of 1921, George Strusel of Los Angeles may have been the first to put inline valves on a bass trombone. Working with Miles Anderson, Strusel converted a Conn 70H to inline valves with a tuning of B-flat/F/G/E-flat for Ken Adkins in 1967 (Figure 19).²⁸ This instrument employed Kunitz’s design for the second valve trigger to be operated by the third finger of the left hand.

In 1973, Olds launched the first commercially made inline double-valve bass trombone, the model S-24G

in B-flat/F/G/E-flat (Figure 21) and other manufacturers quickly followed suit, including Holton with the Model TR-181 in B-flat/F/G-flat/D (1974). This was a time when many independent craftsmen worked to make inline conversions as companies began adding inline bass trombones to their catalogs. For instance, Larry Minick made a Conn 72H inline double-valve conversion in B-flat/F/G/E-flat for Jim Prindle in 1973, and in 1974, Dutch craftsman Ruud Pfeiffer made an inline double-valve conversion for Erik van Lier tuned to B-flat/F/D/B. Also in 1974, Pfeiffer’s design was adopted by Jerry Lesniuk of Schilke Co. in Chicago for an inline double-valve bass trombone (also with tuning in B-flat/F/D/B) for Edward Kleinhammer with a bell by Earl Williams (Figure 20).³⁰

There were fitful efforts to add even more valves to the bass trombone. Larry Ramirez of Holton (Leblanc) made a three rotary valve (two inline, one dependent) bass trombone in 1974, conceived as a large bore variant of the Holton TR-395 Superbone that he had designed in 1962, long before Maynard Ferguson became associated with the



Figure 21. Advertisement, “S•24G Bass Trombone (B-flat/F/G/E-flat)” from F. E. Olds & Son catalog, 1973, p. 24. Courtesy of John Lowe.²⁹

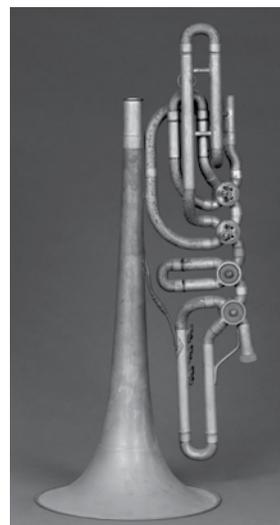


Figure 22. Bass trombone bell with four rotary valves by Holton (Leblanc), Elkhorn, Wisconsin, 1978. Prototype of TR-181 variant by Larry Ramirez. Ex collection: Holton Factory Reference Collection, Elkhorn, Wisconsin. Gift of Conn-Selmer, Inc., Elkhart, Indiana, 2008. National Music Museum Holton-0015, The University of South Dakota, Vermillion, South Dakota. Photo by Byron Pillow.

The history of the double-valve bass trombone may now be summarized in this way:

- **By 1910**—Trombones with F-attachment and second, static valve (*Stellventil*), hand turned to E or E-flat (makers included Lefevre and, later, Kruspe)
- **1921**—Ernst Dehmelt invents and patents an inline double-valve contrabass trombone in F/E-flat/B-flat/A-flat that he was to use in the Bayreuth Festival in Germany.
- **1926**—Conn 70H two-valve bass trombone in B-flat/F/E (static valve)
- **1927**—Holton Symphony Model 6 two-valve bass trombone in B-flat/F/E (static valve)
- **1935**—Holton Model 69 two-valve bass trombone in B-flat/F/E (static valve?)
- **1938**—Olds F and E Bass Model dependent double-valve bass trombone in B-flat/F/E (later labeled as Super B-flat/F/E Model and still later as Model S-23)
- **c. 1952**—T. M. Koeder (Naperville, Illinois) makes modifications to bass trombones to add a dependent second valve for Edward Kleinhammer and Gene Isaeff.
- **1956**—Vincent Bach modifies a Bach 50B to make a dependent double-valve bass trombone for Lawrence Weinman.
- **1958**—Reynolds “Stereophonic” Model Contempora 78-X dependent double-valve bass trombone in B-flat/F/E developed with Kauko Kahila, Allen Ostrander and Louis Counihan
- **1959**—Hans Kunitz patents an improved inline double-valve contrabass trombone in F/E-flat/B-flat/A-flat after the model by Ernst Dehmelt.
- **1961**—Bach 50B2 dependent double-valve bass trombone in B-flat/F/E
- **1962**—Holton Model 169 dependent double-valve bass trombone in B-flat/F with detachable E-attachment, developed with Edward Kleinhammer
- **1967**—George Strusel (Los Angeles) makes an inline double-valve bass trombone conversion for Ken Adkins.
- **1973**—Olds S-24G inline double-valve bass trombone in B-flat/F/G/E-flat; Larry Minick (Los Angeles) makes an inline double-valve bass trombone conversion in B-flat/F/G/E-flat for Jim Prindle.
- **1974**—Holton model TR-181 inline double-valve bass trombone in B-flat/F/G-flat/D; Ruud Pfeiffer (Netherlands) makes an inline double valve bass trombone conversion in B-flat/F/D/B for Erik van Lier and Jerry Lesniuk (Schilke, Chicago) makes an inline double-valve bass trombone conversion in B-flat/F/D/B after Pfeiffer’s design for Edward Kleinhammer.

instrument. A single example was completed but it was never marketed; its whereabouts are unknown. Larry Minick also made several three-valve basses in the 1970s.³¹ In 1978, Ramirez began to construct a four-valve inline bass trombone based on a Holton Model TR-181 (Figure 22); it was in B-flat with the first valve in A-flat, second valve A, third valve G and fourth valve F. This instrument, which was never finished, was not intended to have a moveable hand slide; rather, it was a model for a new kind of large bore valve bass trombone.³² Like the fourteen-key serpents that Thomas Key made in the first third of the 19th century,³³ the marketplace decided that more was not better despite the determination of individual players who continued ask for bass trombones with exotic valve/slide configurations.

Over the last 40-plus years, the double-valve bass trombone has maintained the general design that craftsmen and makers in the 1960s and ’70s settled upon: two valves—either dependent or inline—with the second valve activated by the third finger of the left hand. Ergonomic improvements and the use of a variety of valve types—such as modified rotary, Rotax, Axial Flow, Hagmann, TruBore, and countless others—as well as valve sections in various keys have not changed the basic design and functionality of the instrument. That this history goes back over 100 years is a testament to the many makers and players who identified a problem—how to provide the bass trombone with a fully chromatic range—and then developed creative solutions to give bass trombonists the tools to effectively meet the demands composers put upon them. We owe them our thanks.



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EVOLUTION

NOTES

1. Roger Challoner Green, *Proclamation: In Pursuit of a Dream*. Winfield, England: White Horse Books, 1996, p. 77.
2. David Kassler, *Edward Kleinhammer: His Musical Training, Career and Impact*. Doctor of Musical Arts dissertation, University of Miami, 2004, p. 39.
3. Bartók's *Concerto for Orchestra* (premiered in Symphony Hall, Boston, December 1, 1944) was written to be played on a bass trombone in F, on which the composer's printed glissando from BB up to F in the fourth movement, "Intermezzo Interrotto," would have been easily playable from seventh to first positions. The bass trombone in F was not used in the United States, leaving bass trombonists with having to solve the problem of negotiating a glissando that was not playable on a single valve bass trombone in B-flat/F.
4. Douglas Yeo, "A Conversation with Kauko Kahila," *International Trombone Association Journal*, Vol. 15, No. 3, Summer 1987, p. 20.
5. Roger Challoner Green, *Proclamation: In Pursuit of a Dream*, p. 77.
6. Bruce Tracey, "A Conversation with Allen Ostrander," *International Trombone Association Journal*, Vol. 12, No. 2, April 1984, pp. 10–11.
7. Howard Weiner, "When is an Alto Trombone an Alto Trombone? When is a Bass Trombone a Bass Trombone?—The Makeup of the Trombone Section in Eighteenth and Early Nineteenth-Century Orchestras," *Historic Brass Society Journal*, Vol. 17, 2005, pp. 37–80.
8. Hector Berlioz, translated and edited by David Cairns, *The Memoirs of Hector Berlioz*. New York: Alfred F. Knopf, 2002, p. 329.
9. Gavin Dixon, "Farewell to the Kidshifter: The Decline of the G Bass Trombone in the UK 1950–1980," *Historic Brass Society Journal*, Vol. 22, 2010, pp. 75–90.
10. Trevor Herbert, *The Trombone*. New Haven: Yale University Press, 2006, p. 29.
11. Dehmel's *Gebrauchsmuster* (utility model) patent, number S. 56011 IX/51c, dates from June 5, 1921, and was valid for five years.
12. For a discussion of players and instruments used in the Bayreuth Festival, see Karlheinz Weber, "Die Posaunisten im Festspielorchester Bayreuth," *Das Schallstück*, No. 26, February 1998, pp. 9–16.
13. Holton Catalog 101, from 1932, describes the Model 69 as having an "additional rotary change to E" and Holton Catalog 107 from March 1935 (Figure 8) describes it as having an "additional rotary valve to E natural."
14. Waxman's score was orchestrated by Clifford Vaughan (1893–1987). *The Bride of Frankenstein* was the first of many films on which Waxman and Vaughan collaborated including *Captains Courageous* (1937). Vaughan also composed the music to the serial *Flash Gordon* (1936).
15. Hyrum Lammers, who played in John Philip Sousa's band, taught at the University of Southern California, and was associated with Warner Brothers ("Weber State Music Teacher Gains Recognition, Pens Book on Brass," *Ogden Standard-Examiner*, May 30, 1968), appears in an Olds advertisement in *Metronome* ("A Tribute to Olds: the Man who Makes the World's Best Trombones"), February 1941. Lammers is referred to as "Teacher of Stars."
16. Correspondence with John Lowe, December 10, 2014.
17. This conversation could not have happened in the 1960s as Kleinhammer stated in his account quoted by Roger Challoner Green (footnote 1).
18. Lawrence Weinman played bass trombone in the Minneapolis Symphony (the orchestra changed its name to the Minnesota Orchestra in 1968) from 1956–1976; Max Bonecutter succeeded him in 1977.
19. An Olds catalog from c. 1950 contains a photograph of Vincent Clarke with an Olds Super B-flat/F/E dependent double-valve bass trombone; the caption states that he played in the Radio City Music Hall Orchestra. Clarke also played with the NBC Symphony of the Air and played principal trombone on tour with Arthur Fiedler and the Boston Pops Tour Orchestra; he was praised by Fiedler after playing 59 performances of Ravel's *Bolero* ("Obituary: Vincent Clarke, 91; Trombone Virtuoso Was a True Music Man," *San Diego Union-Tribune*, November 24, 2004).
20. An undated note, "From the desk of Vincent Bach," in Bach's handwriting contains the following instructions: "Larry Weinman 2 Valve Bass—make the F slide on each side ½" shorter. Make the bow on each side ½" shorter. Return this to me." Courtesy of Tedd Waggoner, Conn-Selmer, Inc.
21. Correspondence with Lawrence Weinman, December 14, 2014.
22. This instrument has come full circle: Weinman sold it to a student at Manhattan School of Music who then sold it to Richard Erb, bass trombonist of the New Orleans Symphony from 1964–2007. Erb had Ron Parch of Toronto convert it to an inline valve configuration; Erb subsequently sold to David Taylor. Taylor then sold it to a player who returned the instrument to its original single valve setup. Its whereabouts today are unknown. (Correspondence with Richard Erb, December 15, 2014).
23. Correspondence with Roy Hempley, December 18, 2014; interview with Edwin Anderson, January 3, 2015.
24. German patent 1 225 033, filed November 21, 1959; French patent 865.455, filed June 20, 1961; British patent 1,003,389, filed September 4, 1961.
25. Edward M. Kleinhammer, *The Evolution of the Bass Trombone*. Elkhorn: Holton Company, undated (c. 1964), p. 3.
26. Edward Kleinhammer, *The Art of Trombone Playing*. Evanston: Summy-Birchard Company, 1963, p. 54.
27. Douglas Yeo, "In Defense of the Single-Valve Bass Trombone," *International Trombone Association Journal*, Vol. 12, No. 3, July 1984, pp. 20–22.
28. Correspondence with Ken Adkins, December 9, 2014.
29. This advertisement states the tuning of the Olds S24G bass trombone was B-flat/F/E/G but this is an error; the instrument was tuned in B-flat/F/G/E-flat.
30. Correspondence with Erik van Lier, March 15, 2015.
31. See: www.robbstewart.com/OtherProjects/BassTromboneThreeValves.html
32. Interview with Larry Ramirez, December 10, 2014.
33. Douglas Yeo, "The Serpent in England: Evolution and Design" in *Le serpent: itinéraires passés et présents*. Paris: CNRS Éditions, 2013, p. 209.