Brasswind Innovation and Output of Boosey & Co. in the Blaikley Era

Arnold Myers

Introduction

The Boosey company became big-time players in the brasswind market at a stroke in June 1868 by the purchase (for £9700) of Henry Distin's instrument factory.[1] Before that, their brass production had been either small or outsourced, but they did have a substantial customer base as instrument dealers.

Several instruments survive inscribed with both "C. BOOSE" and either "BOOSEY & SONS" or, latterly, "BOOSEY & COMPY." Carl Boosé, primarily a bandmaster and music publisher, died in August 1868.[2] It is not known who actually made the instruments marked "C. BOOSE." Their design is similar to Distin's models: it is possible that they were made in the Distin factory; but they could have been continental imports, or Carl Boosé could have operated his own workshop. In 1862 Boosey & Sons were sufficiently interested in brasswind to purchase the patent rights to the double-slide contrabass trombone, which they marketed as the *Basso Profundo*.[3] Producing this model alone, however, can hardly have made heavy demands on workshop facilities. The early stockbooks (described below) show that the brass instruments being sold by Boosey & Co. at the time of the acquisition of the Distin factory were nearly all going to bands and other customers. Since few were sold to dealers it is probable that Boosey & Co were themselves largely or entirely dealers in brasswind. This was not the case with woodwind, where Boosey & Co. were already established makers.

Distin & Co.

The story of the Distin family, their instrument dealerships, and Henry Distin's instrument-making activities is well documented.[4] According to Scott, the firm of Henry Distin became Distin & Co in 1862. Surviving instruments from 1862-68 are stamped "HENRY DISTIN & CO.," "DISTIN & Cos," or "DISTIN & CO."

When the factory and stock were purchased by Boosey & Co., the operations were not immediately integrated, but were conducted as separate businesses for nearly six years. The Distin & Co. stock books from 1868 to 1874 record numerous items "sold" to Boosey & Co., and the Boosey & Co. stock books from 1868 to 1874 record a number of items "sold" to Distin & Co. There were very few sales in the Distin & Co. stock books recorded to overseas customers, so it is probable that Boosey & Co. (then at 24 and 28 Holles Street) quickly took over handling the exports of Distin instruments. The use of the Distin & Co. inscription and trademark (see Appendix C) on instruments was discontinued early in 1874 when the Regent Street premises were acquired.

D.J. Blaikley

David James Blaikley (b. 13 July 1846, d. 29 December 1936) was undoubtedly the presiding genius of British brasswind manufacture at the end of the nineteenth century. The son of a portrait painter, he worked for Boosey's from 1859 to 1930, interrupted only by the four years prior to 1868 (spent as a railway engineer).[5] He was a practical acoustician, giving papers to the Musical Association (later the R.M.A.) on pitch, tone quality, and wind instrument design; he contributed to Grove's *Dictionary of Music and Musicians*; he travelled abroad, visiting instrument collections in Leipzig and elsewhere, and he formed a collection of historic instruments and set up a museum for Boosey & Co. in 1905 or possibly earlier. As factory manager from 1873 to 1918 he was responsible for many improvements, inventions, and the development of new models by Boosey & Co. In his final years with the company he was in charge of research and development. His son, Arthur Blaikley, was factory manager from 1918.

Information in the B&H archive

It is fortunate that a complete record survives in the Boosey & Hawkes archives of every brass instrument made by Distin & Co, Boosey & Co., and Boosey & Hawkes since the Distin manufacturing business was bought in 1868. It would appear that a fresh system of recording orders and sales was introduced from 1 June 1868. Although the entries in the manuscript books are in different hands, it is quite possible that the records were kept under the supervision of Blaikley from the beginning. The earliest definite sign of Blaikley's hand is a note written near the beginning of Distin & Co stock book 1868-1873 which is initialled "D.J.B."

Workshop order books

A series of books was kept, recording the instruments and other items ordered from the factory. W.O.B. 1 is missing, although its loss may be recent: Scott states "Distin & Co.'s production book of 1868, now in the possession of Boosey & Hawkes, lists the instruments produced and the name of the individual craftsmen who made each instrument."[6] This can only refer to a W.O.B. 1, describing instruments given out 9 July 1868-31 May 1870 and pistons given out 9 July 1868-15 June 1870.

W.O.B. 2 contains the orders from Distin & Co. at 9-10 Great Newport Street to their workshops, probably reflecting incoming orders from Boosey & Co. at 24 Holles Street and in New York as well as orders from Distin & Co.'s own customers. The book contains two main sequences: instruments 3 June 1870-29 January 1872, and pistons 16 June 1870-30 April 1872. The columns on "Instruments" pages are:

Date / given out
Date / received
No of / Piston
No of / Inst
Description

Class
Workman's Name
Date / given to / polish
Entered / in / stock
Remarks & Cost

W.O.B. 3 is arranged similarly, and includes instruments 1 May 1872-30 April 1874 and pistons 1 May 1872-6 March 1874. The pistons page includes coded bore sizes for pistons from 1 May 1872 plus those still in stock at 30 April 1872 (see below). The columns on "Pistons" pages are:

Date / given out
No of / Inst
No of / Piston
Description (the code indicating the bore is entered at the far right of this column)
Class
Workman's Name
Date / received
Date / made up
Remarks & Cost

W.O.B. 4 represents a fresh start with the recordkeeping, coinciding with the opening of the premises at 295 Regent Street and the replacement of the Distin & Co. inscription on the instruments by Boosey & Co. The former Distin & Co. sequence of instrument serial numbers was discontinued: W.O.B. 4 uses a serial number sequence continuing that of Boosey & Co. This book records the orders from Boosey & Co. trading as Distin & Co. at 9-10 Great Newport Street to their workshops, probably reflecting the requirements of Boosey & Co. at 295 Regent Street, New York and possibly other branches. The instruments section has column "Charged to Regent St" from the start of the book. This book arranged in sections, respectively:

Instruments 1 May 1874-30 May 1876
Pistons 7 March 1874-29 May 1876
Fitted cases
Sundries
Crooks, Slides, etc.
Silver Work

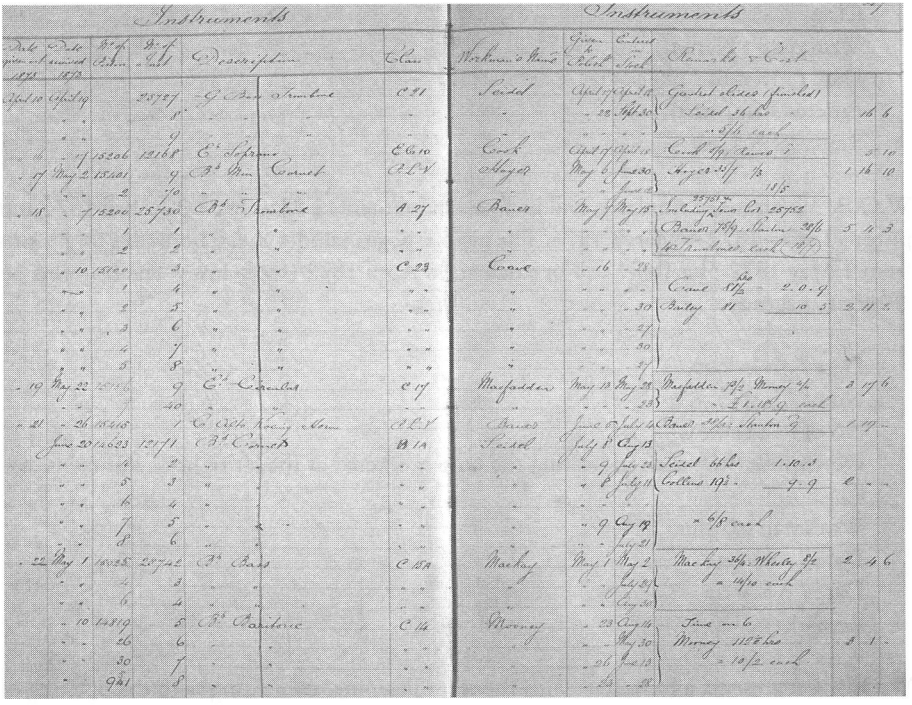


Figure 1
Double-page spread from W.O.B. 3, folio 47, showing brass instruments given out 10-22 April 1873 (brass instruments 25727-48 and cornets 12168-76). Includes class, workman's name, dates given out, received, given to polisher, and entered in stock. Shows the order for 25741, C Alto Koenig Horn.

Instrument books

When the works were moved from Great Newport Street to Stanhope Place in 1876, the recording of orders was again reorganized, although the serial number sequences were continued. Separate books were kept for brass instruments and for pistons, recording the orders from Boosey & Co. at Stanhope Place to their workshops, probably reflecting the requirements of Boosey & Co. at their various addresses. The Instrument Books form a sequence, starting with Book 1 from 1 June 1876 up to recent times, and the serial number sequence is still current at the time of writing.

From a point in Book 9 (19 February 1913-21 February 1916), details of hourly rates for the workmen were included. In 1913 there was a serious fire at the factory: many items circa September 1913 are annotated "destroyed by fire." From Book 10 (19 February 1916-17 October 1919), columns for polisher and grinder were added. From Book 11 (2 December 1919-20 April 1922), a column for plater was added. The last book within the scope of this article is Book 14 (30 January 1928-22 October 1931).

When Boosey and Hawkes merged, there was a similar lapse in time before the operations of the two firms were integrated. It was not until late 1931 that the first Boosey & Hawkes instruments with serial numbers continuing the former Boosey & Co. sequence were ordered from the former Hawkes & Son factory at Edgware.

The Instruments section of the Work Shop Order Books and the Instruments Books show that orders for instruments were given out in batches to specified workmen, who made the instruments using raw materials and stock items such as stays and water keys. The valve clusters were generally drawn from stock, and the serial numbers for "pistons" are given alongside the serial numbers for instruments. The polishing, grinding (of pistons and trombone slides) and plating were carried out by different workmen (although the names of the grinders often appear elsewhere as makers). Typical batch sizes in the period 1868 to 1931 ranged from two (for contrabasses) through four (bombardons), six (trombones) to twelve (cornets). Rarer models and special orders were usually made in a batch of one.

In the later books the number of hours worked on each batch and the sums of money paid to the workmen are recorded. Often more than one workman was paid for a batch, indicating that the work was shared. Sometimes there would be a payment to an apprentice or "boy"; this was at a pitifully low rate: in 1918 the most skilled workmen were paid 11 pence per hour, apprentices a mere $1^1/_2$ pence per hour. Following the end of the First World War, wage rates nearly doubled.

The fact that every instrument made was individually recorded means that a count can be made of the production of each model. Appendix A gives the production broken down by the main type of instrument sample years. It is striking that some of the rarer instruments are well represented in collections. Many ballad horns, for example, survive—due to their domestic rather than band use, and being cute. All four slide contrabass trombones made in this period survive, due to their being orchestral rather than band instruments and not subject to heavy use. On the other hand, some models of instruments made in large numbers have virtually disappeared. Despite a large production, few Boosey & Co. circular basses survive. The F, G and E♭ valve trombones have also nearly vanished. Only one Boosey & Co. cavalry trombone appears to have survived: the F bass in Jeremy Montagu's collection (Figure 2).

There is a mismatch between museum holdings and production. It would appear that the archival records might provide a better guide to actual usage than museum populations do, though the museum examples are necessary for knowledge of what the old models actually were. However, it could be easy to jump to erroneous conclusions. What do the numbers in Appendix A actually mean? They are the numbers made in a year, or at least ordered from the factory, not the numbers sold. The proportions approximate to the demand for new Boosey & Co. instruments, not the numbers in use, since some instruments wear out or suffer damage more often and need replacing more frequently; also, some customers may have preferred Boosey for some types (such as euphoniums), but other makers such as Besson for other types. Some surprising conclusions can be drawn, however, such as the fact that the B♭ contrabass was made in much lower numbers than the E♭ bombardon in the nineteenth century, despite both being accepted as standard members of the British brass band.

Figure 2
F bass cavalry trombone made in 1913. Jeremy Montagu Collection, Oxford, item VI-226. Photograph courtesy of Jeremy Montagu.

Pistons and sundries books

The later piston-valved instruments of Distin & Co., all the piston-valved instruments of Boosey & Co., and earlier Boosey & Hawkes piston-valved instruments have pistons numbers stamped on the valve casings (Each valve cluster was given a number, not each piston.) These form one sequence from prior to 1868 until the practice was discontinued (19 October 1952). Rotary valves (termed "cylinders" in the records) were also employed on a small number of instruments, but these are not given serial numbers or entered in the Pistons Books.

The valves were made by specialist workmen. Most were made in quite large batches (six, twelve, twenty-four, even forty-eight) and kept in stock until required. Instruments were made either in batches (e.g., for stock) or in response to special orders. It was thus common for an instrument to have been made with pistons that had been in stock for several

years. Quite frequently, however, pistons were made immediately before the instruments. And occasionally, presumably for a rush order, work would start on the instrument before the pistons were finished.

The serial numbers for the instruments eventually incorporating the valve clusters were added alongside the serial numbers for pistons, and the date the pistons were "made up" into instruments is recorded, this in many cases being identical with the date the instrument was "given out." Occasionally mix-ups occurred: sometimes a surviving instrument is found to have been made with a different valve cluster from that intended when made up. The codes for bore sizes (see below) continued in use throughout the period these books were kept. Costs were systematically added from 1921, but recorded intermittently for earlier pistons.

Amusingly, Pistons Book 1 includes not only pistons and sundries such as screws for card (march card holders), ligatures, button tops, stays, water keys, crooks for ballad horns, bassoons, etc., but also "pairs of gun-metal brake-blocks for Mr Boosey's carriage (4 prs made but 1 useless–misfit)."

Pistons Book 5 at end of old stock lists three experimental pistons "Transferred to Museum Dec 30/05," this being the first recorded mention of the museum, which was operated by Boosey & Hawkes until 2001.

Comparing the codes for bore sizes with the bore diameters of the inner valve tuning-slides of surviving instruments, the code appears to have been:

bore 3 = 11.0mm (0.43 inch)
bore 4 = 11.6mm (0.455 inch)
bore 5 = 12.2mm (0.48 inch)
bore 6 = formerly 11.6mm, latterly 13.0mm (0.51 inch)
bore 7 = 13.05mm (0.515 inch)
bore 8 = 14.65mm (0.575 inch)
bore 9 = 15.6mm (0.615 inch)
bore 10 = 16.3mm (0.64 inch)
bore 11 = 17.3mm (0.68 inch)

The instrument and pistons order books show the extent to which Boosey & Co. employed labor of overseas origin. Algernon Rose, describing his visit to the Boosey factory ca. 1893, writes "I was glad to note that two-thirds of Messrs. Boosey's employés were Englishmen."[7] The names of the most skilled hands suggest that perhaps a higher proportion of craftsmen were of European extraction, and may have learned their trade abroad. In the period to 1899 the more prominent makers of pistons were: Derkinderen, Holmes, Kurzendorfer, J. Rockaerts, N. Rockaerts, and V. Rockaerts. In the same period the more prominent makers of instruments were Bailey, Bauer, Bloomfield, Cave, Cook, French, Henry, Hoyer, Jacob, Korb, Kurzendorfer, Last, Mackay, Mooney, Seidel, Sendlick, Squire, Ungelenk, and Villefranc. They all built in the house style rather than with individual characteristics. Each

maker was apparently required to make the whole range of instruments; however some makers were favored for special orders. For example, whenever a rarer model or one-off trombone was ordered, it was entrusted to Jacob.

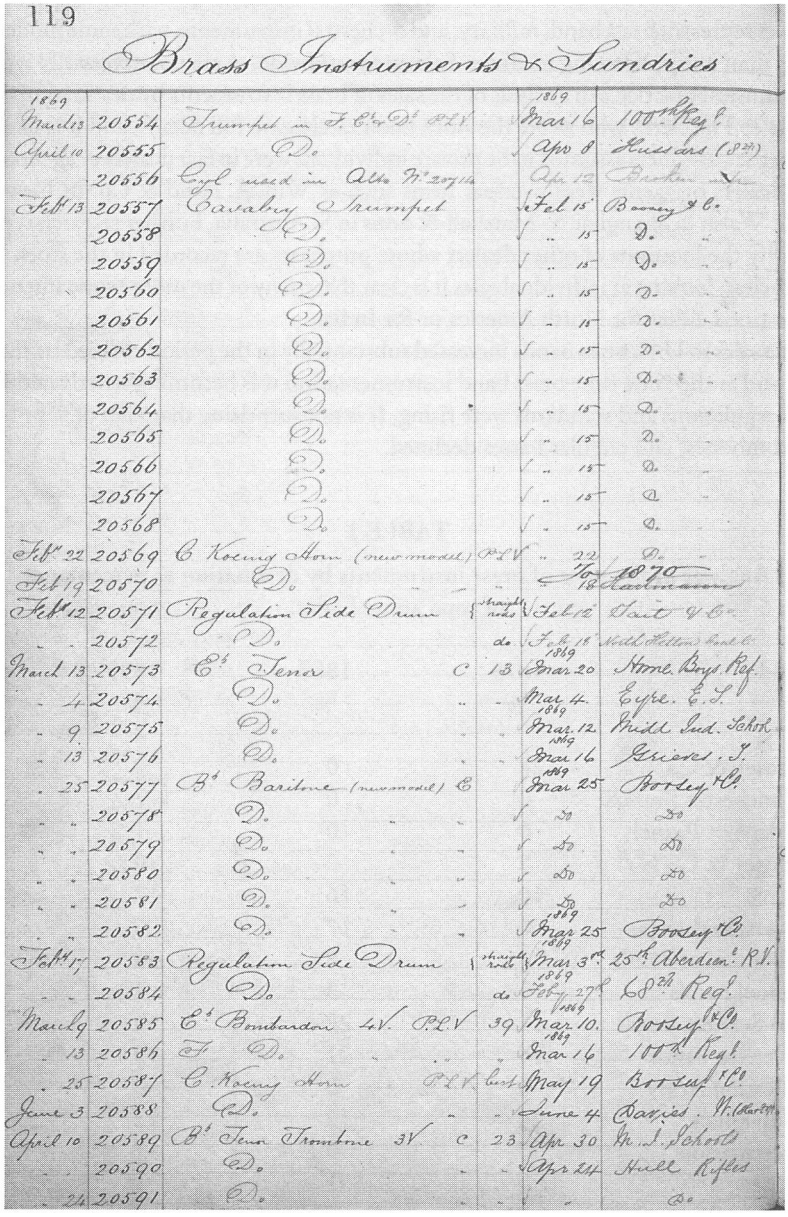
Instrument stock books

The surviving stock books consist of two complete but brief early series and a subsequent series that is unfortunately very incomplete. These books also list drums and woodwind instruments, but only brasswind are discussed here.

There are two Distin & Co. "Band Instrument Stock Books Ct/Brass/Wood and Reed," covering June 1868 to December 1873 and January-September 1874. These list the stock held by Distin & Co. at 15 June 1868 and 1 January for each of the years 1870-74 ordered by type of instrument, and the instruments added between stock-takings in order of serial number. Against each entry is the date of sale and customer's name (or if unsold, a note that it is entered in stock again the following January). This period is characterized by small batches with quick turn-over. Many instruments were "sold" to Boosey & Co., especially in 1874, when it appears stock was run down at Great Newport Street and transferred to Regent Street. The first mention of Regent Street is on 17 March 1874 when a "Circular E♭" was sold to "Boosey & Co Regent St." Instruments given out before but not completed by 30 April 1874 all have two serial numbers: the Distin & Co. numbers (up to 26960, 12801) and the Boosey & Co. numbers added later in red ink (3798-3895 and 14195-14344). The five-digit numbers correspond to the entries in the Boosey & Co. Stock Account Book. The four-digit numbers do not correspond to any surviving documents, and may possibly refer to Boosey & Co. New York stock numbers. The five-digit numbers have been found stamped on instruments, but not the four-digit numbers.

There are two Boosey & Co Band Instrument "Stock Account Book Ct/Brass/Wood and Reed" covering January 1868-December 1873 and January 1875-December 1875. As with the Distin stock books, these list the stock held by Boosey & Co. on 1 January for each of the years 1868-75 ordered by type of instrument, and the instruments added between stock-takings in order of serial number. Some items were "sold" to Distin & Co. and appear correspondingly in the Distin & Co. stock books. There are entries for the larger number of instruments "bought" from Distin & Co., but not all the items recorded in the Distin & Co. stock books as sold by Distin & Co. to Boosey & Co. appear in these Stock Account Books: the other sales were probably to branches of Boosey & Co. in New York, Aldershot and elsewhere. For the stock-taking at 1 January 1875, brass instruments occupy twenty-six pages (reflecting Distin & Co. stock and Boosey & Co. stock having been combined at Regent Street from September 1874).

Finally there are two volumes remaining from the subsequent series of stock books, the Boosey & Co. "Band Instrument Stock Book," January 1882-December 1885 and August 1895-December 1899. The system of annual stocktaking and additions ordered by serial number is continued. The first of these books starts with 36½ pages stocktaking of brass instruments at 1 January 1882.



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Brass Instruments & Sundries

1869					1869	
March 13	20554	Trumpet in F. C's & D's P.L.V.			Mar 16	100th Regt
April 10	20555	Do			Apr 8	Hussars (8th)
	20556	Cyl. used in Alto No 20714			Apr 12	Bracken & Co
Feb 13	20557	Cavalry Trumpet			Feb 15	Boosey & Co.
	20558	Do			" 15	Do.
	20559	Do			" 15	Do.
	20560	Do			" 15	Do.
	20561	Do			" 15	Do.
	20562	Do			" 15	Do.
	20563	Do			" 15	Do.
	20564	Do			" 15	Do.
	20565	Do			" 15	Do.
	20566	Do			" 15	Do.
	20567	Do			" 15	Do.
	20568	Do			" 15	Do.
Feb 22	20569	C Koenig Horn (new model)	P.L.V.		" 22	Do.
Feb 19	20570	Do			Jo 18	1870 Hartmann
Feb 12	20571	Regulation Side Drum		Straight rods	Feb 12	Hart & Co
	20572	Do		do	Feb 15 1869	Mill Hollins & Co
March 13	20573	Eb Tenor	C	13	Mar 20	Stone Boys Ref
" 4	20574	Do			Mar 4.	Eyre. & S.
" 9	20575	Do			Mar 12 1869	Middl. Sud. School
" 13	20576	Do			Mar 16 1869	Grieves. J.
" 25	20577	Bb Baritone (new model)	C		Mar 25 1869	Boosey & Co
" "	20578	Do			Jo	Jo
" "	20579	Do			Jo	Jo
" "	20580	Do			Jo	Jo
" "	20581	Do			Jo	Jo
" "	20582	Do			Mar 25 1869	Boosey & Co
Feb 17	20583	Regulation Side Drum		Straight rods	Mar 3rd 1869	25th Aberdeen R.V.
" "	20584	Do		do	Feb 27th 1869	93rd Regt
March 9	20585	Eb Bombardon 4V.	P.L.V.	39	Mar 10. 1869	Boosey & Co.
" 13	20586	Do			Mar 16 1869	100th Regt
" 25	20587	C Koenig Horn	P.L.V.	last	May 19	Boosey & Co
June 3	20588	Do			June 4	Davies. W. (Aberdeen)
April 10	20589	Bb Tenn Trombone 3V.	C	23	Apr 30	Gr. I. School
" "	20590	Do			Apr 24	Hull Rifles
" 24	20591	Do			"	Do

Figure 3

Distin & Co Band Instrument Stock Book 1868-1873 Ct / Brass / Wood and Reed, p. 119, showing Brass instruments 20554-91 (entered in stock 12 Feb-3 Jun 1869). Shows the sale of C Koenig Horn 20569 to Boosey & Co.

Sales represent brass band, military, and orchestral instruments, with some models used in more than one performing medium. Sales are worldwide, so are not necessarily typical of British musical practice. An analysis of the sales of brass instruments by destination is given in Table 1. The clerks who wrote the stock book rarely gave full details, and it is likely that many of the customers assumed to be private individuals were in fact dealers or agents. Many of the dealers or agents were overseas firms such as Wm. A. Pond & Co. in New York, Kelly & Walsh in Shanghai, S. Marshall & Sons in S. Australia. Further research is needed to identify the locations of other dealers whose purchases are recorded in the stock books. Nevertheless, looking at individual sales it is clear that many of the more exotic instruments were destined either for North America or for India.

The sales to U.K. brass bands increased substantially in the period covered by the stock books, and at the same time brass band instrumentation was becoming strictly codified by contest regulations and standards were rising. It is not surprising that sales of ventil horns, valve trombones, and circular basses declined.

TABLE 1

Analysis of the sales of brass instruments by destination as percentages of total annual sales.

Sold	1875 %	1885 %	1899 %
Boosey & Co	28	0	0
Manchester Branch	0	0	7
Aldershot Branch	0	0	1
Boosey & Co NY	5	0	0
Firms	10	16	17
Overseas dealers	0	17	0
GB amateur bands	7	8	32
School bands	1	3	1
GB Services bands	11	22	14
Overseas bands	14	21	15
Salvation Army	0	0	0
Individuals	24	12	12
Presentation	0	0	1
Others	0	1	1
Total	100	100	100

Slow-moving stock was sometimes a problem. In the nineteenth century it was not unknown for old items to be sent for auction at Puttick and Simpson; in the 1920s trade was slack and some instruments were sent for silver-plating years after they had been made.

Keyed brass

Only seven ophicleides were handled by the firm, the latest being sold (apparently to India) in 1883. These were clearly not made in the workshops but were bought in. Amazingly, however, a keyed bugle was made as late as 1894, described in the Instrument Books as "C & B♭ Key Bugle copper 7k brass rim to bell."

"Trumpettina" and soprano trumpet

The short B♭ trumpet was available early in the period, one "trumpettina" already being in Boosey & Co. stock on 1 January 1868. Production was minimal, however, with fewer than ten being made up to 1899. At this time the instrument was referred to as a "soprano trumpet." Production accelerated after 1900 and by 1929 (well into the dance band era) the B♭ trumpet was one of the best-selling lines.

Koenighorn and tenor cor

It is surprising that Boosey & Co produced "Koenighorn" models and "Tenor Cor" models side-by-side for a long time, since it is commonly assumed that the tenor cor was a derivative of the F or E♭ Koenighorn. In the Distin/Boosey tradition they were separate species. The Koenighorn was a saxhorn wrapped in left-handed French-horn configuration, the tenor cor had a narrower mouthpipe.[8] According to Jack Scott, Distin & Co's 1869 catalogue announced,

> Messrs. Distin and Co. beg to call attention to the newly-invented horn or tenor cor, which combines the mellow tone of the French horn with the fullness of the tenor. The fingering is the same as the cornet, hence a great desideratum hitherto greatly required in military bands is obtained. Up to the present time, the disablement of the French horn player in the band of a Regiment has caused the immediate loss of that instrument, the fingering of the French horn being so totally different from that of any other instrument.[9]

Tenor cors were also made in bell-up format until 1914 and few as bell-forwards ("Forcor" model) from 1927. No tenor cors earlier than 1890 and no Koenighorns at all by the firm appear to have survived apart from a pre-1868 example in the Carse Collection at the Horniman Museum in London (14.5.47/161, which very closely resembles the Koenighorn of Courtois.

Ballad horn

Ballad horns were developed in 1869, the brand name probably deliberately shared with Boosey's series of ballad concerts established in 1867.[10]

On 19 February 1869 Distin & Co. entered into stock instrument 20570, a "C Koenig Horn (new model)," followed on 22 February 1869 by similar instrument, 20569. And on 25 March 1869 Distin & Co. entered into stock instrument 20587, "C. Koenig Horn best." Instruments 20569 and 20587 were then sold to Boosey & Co., who entered into stock in February 1869 a "Koenig Horn in C. new model," which was probably 20569. However they entered 20587 into stock as a "C Ballad Horn" (it was sold 26 May 1869 to "H. Stoeckel B.M."). Subsequent instruments (20724-5, 20841-6 etc) were entered into Distin & Co. stock as "Ballad Horns" and were sold to various customers including Boosey & Co. The latter, for example, in turn sold instrument 20844 on 5 July 1869 to "C. Gould Calcutta."

We may never know to what extent the ballad horn was a new invention. Certainly it had a distinctly narrow and more cornet-like bore than saxhorns of similar pitch. No instrument appears to survive by any maker that can be positively identified as a baritone Koenighorn. There is a Koenighorn in eight-foot C in the Edinburgh University Collection of Historic Musical Instruments, but of much wider bore and probably originally a bass (we know from the stock books that there were both baritones and basses at this pitch).

The ballad horn was a relatively successful model, with 200 being produced in the six years following its introduction. Other makers made copies[11] and many examples survive in collections. Ballad horns were made until 1925. The bell-up ("ventil ballad horn") was much rarer: only two were made, one of which survives (in Edinburgh, EUCHMI 604).

Lied horn

The Lied horn was an attempt to produce a soprano counterpart to the tenor-tessitura ballad horn. The first was (according to the work shop order books) a "C Alto Koenig Horn," given out 21 April 1873 (see Figure 1) and entered in stock 4 July 1873. According to the Distin & Co. stock books, 25741 "C Alto Koenig Horn" was sold in 1874 to Boosey & Co. In the Boosey & Co. stock books the same instrument appears as 14003 "C Lied horn," entered in stock 20 March 1874 and sold the same day to Groening. It is now in the Bernouilli collection at the Musikinstrumentenmuseum in Basel (1980.2568). The number stamped on the instrument is 25741, not 14003.

There are further examples in the Carse Collection at the Horniman Museum, London (14.5.47/75), and the Utley Collection of the National Music Museum (University of South Dakota). One is in private ownership in the London area complete with shank for C and crooks for B♭ and A. In total, forty-four Lied horns were made (in the period 1873-1903). Those surviving all have fluegelhorn bells, but a single early batch of five was made with cornet bells.

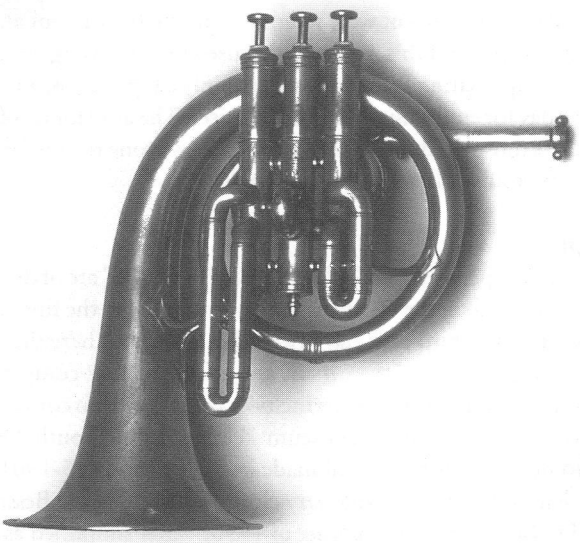

Figure 4
Lied horn in 4-ft C made in 1882. Joe and Joella Utley Collection, National Music Museum (University of South Dakota, Vermillion), item 7121. Photograph: Mark Olencki.

Compensating pistons

D.J. Blaikley is often given credit for inventing the principle of compensating valves, and indeed compensating instruments have been a very successful development for Boosey & Co. and latterly Boosey & Hawkes. However, the idea had already been exploited by Gautrot in Paris as the *système equitonique*. This system was also patented in Britain.[12] Gautrot's *equitonique* instruments have four valves, with two distinct sets of passages through valves 1-3 (six passages per piston). The first mention of compensating valves in the Work Shop Order Books is in June 1873, when a C Euphonion with "perfected" valves was produced, the pistons being "New model 5 passages to each pump."

The only significant difference between the Gautrot *equitonique* system and Blaikley's Compensating Pistons is that the Gautrot pistons each have six passages, whereas the Boosey pistons have only five passages in each piston. One passage in the Blaikley piston has a dual function and is "in circuit" whether the valve is operated or not.

When Blaikley took out his patent (G.B. Patent No 4618, 14 November 1878) it covered exclusively the three-valve compensating pistons with the third valve acting as the master and the first and second pistons having five passages. Boosey & Co. had, however, made a four-valve compensating instrument as early as 1874 in which (like the Gautrot

equitonique instruments) the fourth valve is the master. The compensating instruments made before the date of the patent were referred to in the Instrument and Pistons books as "Perfected": it is not known if this term was also used in advertising material in this period.

Blaikley's "Compensating Pistons" were certainly a big success, and have continued in use to the present day for euphoniums and brass basses. The availability of well-in-tune brass instruments such as those produced by Boosey & Co. was one reason for the high standards and ambitious repertoire of brass bands in Britain.

Double principle

Some instruments stamped "COMPENSATING PISTONS" are of different design, more akin to the double horn than the compensating horn. In these, the first valves acts as master valve and the second and third each have two valve loops, but here they are alternatives of slightly differing lengths, rather than main and much shorter compensating loops. The surviving "double principle" instruments include one E♭ soprano cornet (7014 in the Utley Collection of the National Music Museum [University of South Dakota], several B♭ cornets,[13] and some E♭ tenor horns); all made in the period 1895-1901.

It appears that Boosey & Co came very close to infringing the Besson patent "Victory Compensator-Transpositor" model cornet of 1890,[14] later simplified as the Besson & Co. "Enharmonic Patent" valves of 1901.

Case's model slide trombones

The trombonist George Case worked closely with Boosey & Co. in the 1880s, and various developments followed. Case was also recorded in the stock books as a customer, perhaps buying on behalf of pupils. Thirteen "Cases's Model" trombones were made, all in 1885. The varieties were: alto in E♭, slide trombone in C, trombones in B♭ small, [standard], medium and bass, bass slide trombone in G, and bass slide trombone in F. The unique feature of these instruments was a tuning slide at the foot of the playing slide. Further ideas cannot be identified from the Instrument Books or surviving specimens, but Day in the catalogue of the 1890 Royal Military Exhibition describes under item 376 a trombone tuning-slide with tapered bore slide legs and under item 377 a trombone with fixed inner and outer, moving outer and inner (Case).[15]

Orpheons

At the beginning of February 1887 there was a rush order for a set of instruments of a design new to the Boosey & Co. factory. In the Instrument Books they are designated "Antoniophones," indicating that they were basically copies of the family of instruments of this name developed by Courtois in Paris. These remodelled antoniophones were disguised by a new name "Orpheon," which was inscribed on the bell. Four of the most skilled makers were set to work on this special order for New York.

Only twelve orpheons were made: one E♭ soprano (February 1887), two B♭ cornets (February 1887 and December 1888), two altos (December 1888 and November 1889), two tenors (February 1887 and December 1888), three baritones, (February 1887,

March 1888, and December 1888), one euphonion (December 1888), and one bombardon (February 1887). ("Alto" was the term used in the Boosey factory for what is now called a fluegel.)

Of the original (New York) set, only the tenor appears to survive (it is 7311 in the Utley Collection of the National Music Museum, University of South Dakota; see Figure 5). Although recorded in the company archives as an "E♭ Tenor Antoniophone," it is stamped on the bell "ORPHEON / E♭ ALTO," conforming to American nomenclature. However, the picture of the "quintette of antoniophones" (See Figure 6) sported by Patrick Gilmore's band in 1889[16] shows that at least the largest instrument was not the Courtois model, but a Blaikley compensating instrument and thus an orpheon, the unique "Bombardon Orpheon" in fact. It is possible that the original set of orpheons was destined for Gilmore's band. This would be supported by the statement that the antoniophone was introduced to the United States by Alfred Phasey of Gilmore's Band.[17] Either Alfred Phasey or his father had close connections with Boosey & Co., being cited in the stock books as using a Boosey & Co. contrabass trombone at the Crystal Palace.

The second baritone survives in a private collection in Switzerland.[18] The last-made alto, tenor, and baritone and the sole euphonion survive in a private collection in Australia. At a time when instrumentation was becoming more standardized everywhere and especially in brass bands, there was no real demand for such flights of fancy. The orpheons were not even mentioned in Boosey's 1892 trade catalogue.[19]

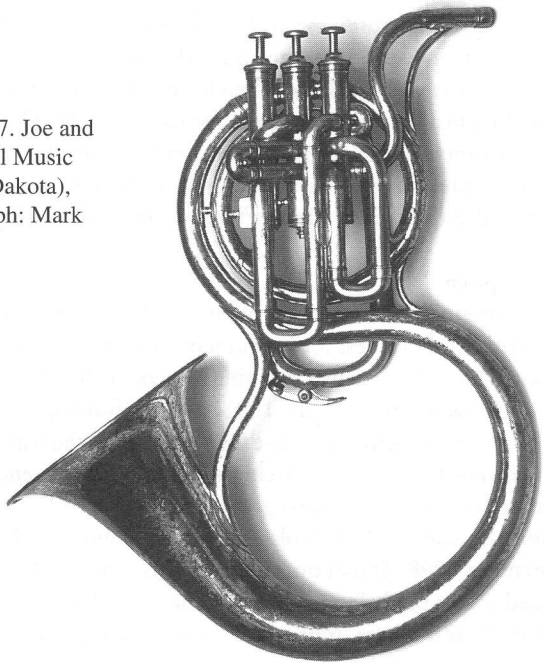

Figure 5
Orpheon in 6½-ft E♭ made in 1887. Joe and Joella Utley Collection, National Music Museum (University of South Dakota), Vermillion, item 7311. Photograph: Mark Olencki.

Figure 6
"Quintette of Antoniophones" of Patrick Gilmore's Band,
from the Supplement to *Harper's Weekly*, 28 September 1889.

Orthochromatic trumpet

According to the surviving technical drawing in the Boosey and Hawkes Archive, this unsuccessful invention was the idea of the trombonist George Case. Boosey's production of slide trumpets was small (eight made between 1868 and 1913), but a greater share of the dwindling market must have been seen as desirable. The "Orthochromatic Trumpet" had a forward-moving slide allowing a greater lowering of pitch than the standard slide trumpet. It was described in the Instrument Books as "Slide trumpet in D♮, two tones shift." Although illustrated in the 1892 catalogue,[20] the two made in September 1891 were all there ever were.

French pitch

The introduction of "French pitch" in British orchestras in the mid 1890s must have provided good business for instrument makers. The prevailing "Old Philharmonic" pitch standard (a^1 = 452 Hz) was straining singers' voices. The first of Henry Wood's Promenade Concerts was given in August 1895, with the funding for the series provided by Dr. George Cathcart, an eminent ear- and -throat specialist, who stipulated that continental (low) pitch be used. The Boosey & Co. archives record several "French pitch" instruments made at this time, starting with an F tuba given out in June 1895.[21] In October 1898 the stock books record the sale to "Von Holst" of a "B♭ Trombone (F.P.) small," made as a one-off in September 1898. At that time Gustav Holst was a professional trombonist, and would have needed a low-pitch instrument. In the early 1900s the term "International Pitch" was preferred, and where appropriate Boosey & Co. instruments were stamped "I.P." (see Figure 13).

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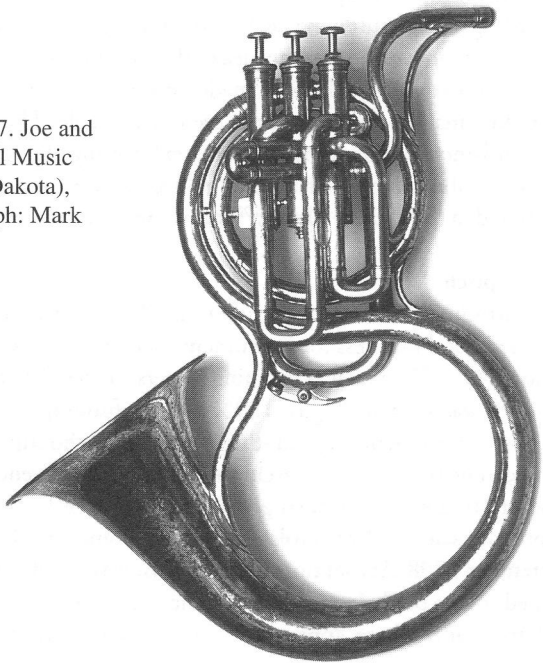

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The cornet Columbia and fixed-mouthpipe cornets

This model, designed for the U.S. market, was introduced in 1906. It had a fixed mouthpipe and a restrained pull slide for change from B♭ to A on the bow between the main tuning-slide and the third valve. A later (1920s) version had a quick-change rotary valve for A in a U-bend between the first valve and the bell bow. This was described as "B♭ Cornet, American model" in the Instrument Books, and as "Columbia Model Cornet" in the illustrated catalogue.[22]

In common with other British makers, Boosey & Co. offered fixed-mouthpipe cornets from circa 1900 for the few who wanted them. The uptake of fixed-mouthpipe cornets in the U.K. was tiny, and detachable shanks were more commonly made there until the 1950s.

Bersagliere horns

Boosey & Co. started production of these one-valve bugles in June 1910 and made them into the 1920s. The cause for a sudden British interest in bersag horns is not known, but they seem to have taken off rapidly from 1910 and the following few years. Soprano and alto were narrow- and wide-bore, respectively, instruments in four-and-one-half-foot B♭; tenor and bass were narrow- and wide-bore, respectively, nine-foot B♭ instruments.

Compensating double horns

D.J. Blaikley's last patent[23] was for a "fourth valve for horns to allow transposition to a higher key." The "F. French horn, fixed m'pipe large bore, 4th V to high B♭" made in 1911 was the first of a modest production of ten compensating double horns made by Boosey & Co. Although not the first compensating French horn (Gautrot offered an *equitonique* horn in B♭ + E♭ with crooks for the usual tonalities), Blaikley's may have been the first fixed-mouthpipe piston-valve compensating horn.

Imperialphones

Boosey & Co adopted the brand name "Imperial Model" from 1911. The Imperial E♭ bass now in the Museum of the Royal Military School of Music (191) was probably the first example to be made of a model that was the acme of British E♭-flat bass design in the twentieth century. Indeed its basic layout and tubing sizes are still used by Boosey and Hawkes for their compensating E♭ basses. It was made March-April 1911. Boosey & Co. had made an "EE♭ Monster" in 1906, but this does not survive and was probably an experiment or a special order rather than the first of a distinguished line. Later the "Imperial" name was applied to euphoniums, contrabasses, trombones, and other instruments.

Boosey & Co. started making E♭ and BB♭ sousaphones in 1923 and the Instrument Book entries record a number being produced as sousaphones. However, towards the end of 1925 the sousaphone entries cease. Comparison of surviving sousaphones with their Instrument Book entries reveal that the name was changed to "Imperialphone." Since sousaphones were also being produced by Hawkes & Son there can have been little hope for establishing a new name for the Boosey & Co. products.

Other inventions

D.J. Blaikley and his son Arthur Blaikley took out several patents,[24] the more significant already having been mentioned. A further important innovation was the use of bronze for valve pistons and trombone slides, successful in reducing friction. After preliminary experiments recorded in the Pistons Books, the term "SOLBRON" for the special bronze pistons was introduced in 1907 and from circa 1926 "SILBRON" was also used. Neither term appears to have been stamped on Boosey & Hawkes instruments.

Arthur Blaikley was also responsible for a number of inventions and developments, including in the 1930s the hydraulic expansion process for forming tubing. His 1922 patent was for "New Valve Action" in which a spring is extended when the valve is operated, in contrast to the conventional compression spring. This appears to have been effective in producing low-friction silent-action valves, and the "N.V.A" logo was a mark stamped on the best cornets and trumpets between 1922 and 1946. Boosey & Co, and later Boosey & Hawkes, made trombones to Hutchison's patent[25] in which the stocking at the foot of the inner sides is shortened and a bush is provided at the top of the outer slides.

New York

At the time of Boosey's takeover of the Distin factory, there seems to have been a flourishing branch of Boosey & Co. in New York, and substantial numbers of instruments were recorded as sales to "Boosey & Co. N.Y." From 1876 or 1877, however, this arrangement was replaced by the dealership of Wm A. Pond & Co., which lasted until after 1887 (probably 1892). Boosey & Co. again opened a New York branch in 1892[26]; "9 EAST 17th. St. / NEW YORK" was stamped on instruments up to 1911. In 1913 quite a few items were given new numbers when returned from New York, perhaps marking the closure of the branch.

Conclusion

The material presented here is only a small fraction of the information contained in the archival records. Many further interesting instruments were made by the firm that were never intended to be production models, but were apparently made to satisfy customers' special requests. The innovations of Boosey & Co., when investigated closely, can in most cases be shown to be derivative, generally being based on French models. Nevertheless, in the Blaikley era a well-informed and earnest endeavor to improve brass instrument design coupled with a high quality of workmanship gave the firm a position of advantage, strengthened by good advertising. When the market contracted in the 1930s and 1940s, they swallowed up the firms who were their biggest competitors in the late nineteenth century: Hawkes & Son, Besson & Co., and Rudall Carte.

Note

Further illustrations of Boosey & Co brass instruments can be viewed via the World-Wide Web at *http://www.music.ed.ac.uk/euchmi/bpesy.html*

APPENDIX A
Production statistics

Production broken down by the main type of instrument for five sample periods:

Type	1871-2 av.	1876-8 av.	1887-8 av.	1897-8 av.	1929
Soprano in E♭	39.5	79.3	33.0	33.5	48.0
Soprano in E♭ and D♭	7.5	0.0	0.0	0.0	0.0
Miniature soprano in E♭	0.0	1.3	0.0	0.0	0.0
Soprano ventil horn in E♭	1.5	0.0	0.5	0.0	0.0
Soprano antoniophone in E♭	0.0	0.0	0.5	0.0	0.0
Cornet in C	1.5	7.3	3.5	5.5	0.0
Miniature cornet in C	0.0	2.3	0.5	0.0	0.0
Miniature cornet in C and B♭	1.0	0.0	0.0	0.0	0.0
Cornet in C, B♭ and A	0.0	0.0	0.0	0.0	5.0
Echo cornet in C	0.0	2.3	0.0	0.5	0.0
Cornet in B♭	355.5	412.7	319.5	573.5	685.0
Cornet in B♭, large bore	0.0	0.0	12.0	0.0	0.0
Cornet in B♭, silver	0.0	0.3	1.0	0.0	0.0
Cornet in B♭, round	13.5	9.7	0.0	0.0	0.0
Cornet in B♭, ventil	0.5	0.0	0.0	0.0	0.0
Cornet in B♭, small	2.5	0.0	0.0	0.0	0.0
Miniature cornet in B♭	6.0	10.0	0.0	2.0	0.0
Cornet antoniophone or orpheon in B♭	0.0	0.0	1.0	0.0	0.0
Cornet, bell in middle	0.5	0.0	0.0	0.0	0.0
Echo cornet in B♭	8.5	16.0	14.0	6.0	0.0
Alto in C and B♭	0.0	0.3	0.0	0.0	0.0
Flugel horn in B♭, 3 cylinders	1.0	0.0	0.0	0.0	0.0
Alto in B♭	24.0	7.0	22.0	89.5	60.0
Alto ventil horn in B♭	8.5	1.7	1.5	0.0	0.0
Alto orpheon in B♭	0.0	0.0	0.5	0.0	0.0
Flugel horn in F and E♭	0.0	0.0	0.5	0.0	0.0
Tenor in F and E♭	17.5	24.3	28.0	30.0	2.0
Tenor ventil horn in F and E♭	0.5	0.3	0.0	0.0	0.0
Tenor in F and E♭, bell forward	0.5	0.0	0.0	0.0	0.0
Flugel horn in E♭, 3 cylinders	0.0	0.3	0.0	0.0	0.0
Flugel horn in E♭, 4 cylinders	0.0	0.3	0.0	0.0	0.0
Tenor in E♭	102.5	120.0	112.5	176.0	212.0
Tenor ventil horn in E♭	7.5	10.0	3.0	0.0	0.0
Tenor in E♭, bell forward	1.0	0.0	0.0	0.0	0.0
Tenor antoniophone or orpheon in E♭	0.0	0.0	1.0	0.0	0.0
Tenor in B♭	0.0	2.0	5.0	0.0	0.0
Baritone in C and B♭	7.5	3.3	0.0	2.0	0.0
Baritone in B♭	102.0	98.7	85.0	134.5	117.0
Baritone ventil horn in B♭	2.5	3.3	0.5	0.0	0.0
Baritone antoniophone or orpheon in B♭	0.0	0.0	1.5	0.0	0.0

Type	1871-2 av.	1876-8 av.	1887-8 av.	1897-8 av.	1929
Alto slide trombone in F	0.5	0.3	0.0	0.0	0.0
Alto slide trombone in E♭	0.5	0.0	0.5	0.5	0.0
Alto valve trombone in E♭	17.0	13.7	2.0	0.0	0.0
Slide trombone in C	1.5	0.7	0.5	0.0	0.0
Valve trombone in C	1.0	0.0	0.0	0.0	0.0
Valve trombone in C and B♭	5.0	2.3	2.5	5.5	0.0
Bass valve trombone in C and B♭	0.0	0.0	0.5	0.0	0.0
Slide trombone in B♭	18.0	22.3	52.0	129.0	251.0
Valve trombone in B♭	79.0	98.3	50.5	25.0	0.0
Baritone valve trombone in B♭	0.0	0.0	0.0	0.5	0.0
Tenor cavalry trombone in B♭	2.0	0.0	0.0	0.5	0.0
Bass slide trombone in B♭	0.0	2.0	3.0	0.0	0.0
Bass valve trombone in B♭	0.0	2.3	3.0	0.0	0.0
Trombone in B♭ + F	0.0	0.0	0.0	0.0	1.0
Slide trombone in G	8.0	5.3	16.0	45.0	62.0
Valve trombone in G	20.5	7.0	10.0	5.5	0.0
Bass cavalry trombone in G	0.5	0.0	0.0	0.5	0.0
Valve trombone in G and F	2.0	1.0	0.0	0.5	0.0
Bass valve trombone in F	0.5	12.7	0.5	1.0	0.0
Bass cavalry trombone in F	0.5	0.0	1.0	0.0	0.0
Bass cavalry trombone in F and E♭	3.0	0.3	0.0	0.0	0.0
Bass double-slide trombone in E♭	0.0	0.0	0.0	0.5	0.0
Bass valve trombone in E♭	1.0	2.7	2.0	2.5	0.0
Bass cavalry trombone in E♭	1.0	0.7	0.0	0.0	0.0
Contrabass slide trombone in C	0.0	0.0	0.0	0.5	0.0
Slide trombone in BB♭	0.5	0.0	0.0	0.0	0.0
Valve trombone in B♭B♭	0.5	0.0	0.0	0.0	0.0
Tenor euphonion in E♭	2.0	0.7	0.0	0.0	0.0
Bass in C	3.0	3.0	0.0	0.0	0.0
Euphonion in C	2.0	0.0	2.0	2.0	0.0
Bass in C and B♭	7.0	5.7	0.0	0.0	0.0
Euphonion in C and B♭	0.0	0.3	0.0	2.0	0.0
Bass in B♭	72.5	80.3	1.5	0.0	0.0
Euphonion in B♭	21.0	2.0	89.5	170.5	176.0
Bass or euphonion ventil horn in B♭	1.0	1.7	0.5	0.0	0.0
Euphonion antoniophone or orpheon in B	0.0	0.0	0.5	0.0	0.0
Bombardon in F	1.0	1.0	1.0	0.0	0.0
Bombardon in F and E♭	1.0	0.3	0.0	0.0	0.0
Bombardon in F and E♭, circular	0.0	0.0	0.0	2.0	0.0
Bombardon in E	0.5	0.0	0.0	0.0	0.0
Bombardon in E♭	79.5	78.0	85.0	147.0	139.0
Bombardon in E♭, circular	29.0	52.3	29.5	26.0	0.0
Bombardon antoniophone in E♭	0.0	0.0	0.5	0.0	0.0
Imperialphone in E♭	0.0	0.0	0.0	0.0	3.0
Contrabass in C	0.0	0.0	1.5	0.0	0.0
Contrabass in C and B♭	0.0	1.7	0.5	0.0	0.0
Contrabass in C and B♭, circular	0.5	0.0	0.0	0.0	0.0
Contrabass in B♭	2.0	7.3	12.5	67.5	94.0
Contrabass in B♭, circular	13.5	14.0	11.5	22.0	0.0
Imperialphone in BB♭				6.0	

Type	1871-2 av.	1876-8 av.	1887-8 av.	1897-8 av.	1929
Herald's trumpet in B♭ (natural)	0.0	0.0	0.0	2.0	0.0
Herald's trumpet in G (natural)	0.0	0.0	0.0	1.0	0.0
Duty or cavalry trumpet (natural)	91.0	13.0	20.0	27.5	38.0
Herald's trumpet (natural)	3.0	0.0	1.0	4.0	6.0
Bach trumpet in D	0.0	0.0	0.0	0.0	1.0
Trumpet in C and B♭	0.0	0.0	0.0	0.0	1.0
Trumpet in B♭	0.0	0.0	0.0	0.0	286.0
Bach trumpet in B♭, 3 valve	0.0	0.0	0.0	2.0	0.0
Bach trumpet in A, 2 valve	0.0	0.0	0.0	0.5	0.0
Trumpet in F and E♭	9.5	18.3	3.0	0.0	0.0
Trumpet in F, E♭ and D♭	33.5	13.0	11.5	15.0	0.0
Trumpet in F, 1 valve	0.0	0.0	2.0	0.0	0.0
Trumpet in E♭, valve	0.0	0.0	0.5	0.0	0.0
Trumpet in C, 1 valve	0.0	0.0	2.0	0.0	0.0
Slide trumpet in F and D	0.5	0.0	0.0	1.0	0.0
Slide trumpet in D only	0.0	0.0	0.0	0.5	0.0
French horn	3.0	15.7	1.5	1.5	0.0
French horn, military	0.0	0.0	0.0	0.0	30.0
French horn, right-hand	0.5	0.0	0.0	0.0	0.0
French horn, 2-valve attachment	0.0	0.0	1.0	0.0	0.0
French horn, hand or valved	0.5	0.0	0.0	0.0	0.0
French horn, orchestral	0.0	0.0	0.0	0.0	16.0
French horn B♭ to Eb, Raoux model	0.0	0.0	4.0	0.0	
French horn B♭ to C	0.0	0.0	0.5	0.0	0.0
French horn in A	0.0	0.0	1.0	0.0	0.0
French horn A♭ to D♭	0.0	0.7	0.0	0.0	0.0
French horn G to D♭, 2 valves	3.0	2.0	0.0	0.0	0.0
French horn G to D♭, 3 valves	9.0	7.0	0.0	0.0	0.0
French horn G to D♭, cavalry model	1.0	0.0	0.0	0.0	0.0
French horn in F and E♭	0.0	1.0	20.0	27.0	0.0
French horn in F and E♭, Raoux model	0.0	0.0	0.0	2.0	0.0
French horn in F, E♭ and D	0.0	0.0	0.0	0.5	0.0
French horn in E and E♭, hand	0.5	0.0	0.0	0.0	0.0
Koenig horn in F and E♭	8.5	5.0	2.0	1.5	0.0
Tenor cor in F and E♭	4.0	5.3	34.5	34.5	0.0
Tenor cor in F and E♭, round mode	0.0	0.0	0.0	2.0	0.0
Tenor cor in F and E♭, bell up	0.0	0.0	1.0	0.0	0.0
Tenor cor in F and E♭, bell forwards	0.0	0.0	0.0	0.0	1.0
Tenor cor in F, E♭ and D♭	1.0	0.7	0.0	0.0	0.0
Tenor cor in E♭	2.5	2.7	0.0	1.0	0.0
Tenor cor in E♭, round mode	0.0	0.0	0.0	0.5	0.0
Tenor cor in E♭, upright model	0.0	0.0	0.0	0.5	0.0
Tenor cor in D and C	0.0	0.3	0.0	0.0	0.0
Lied horn in C	0.0	1.7	1.0	0.0	0.0
Ballad horn	28.0	20.7	6.0	2.0	0.0

Type	1871-2 av.	1876-8 av.	1887-8 av.	1897-8 av.	1929
Soprano bugle in E♭, no valves	0.5	0.7	0.0	0.0	0.0
Bugle	106.0	6.7	0.0	0.0	60.0
Bugle in C	0.0	4.0	0.0	0.0	0.0
Bugle in C and B♭	0.0	26.3	21.0	16.0	0.0
Bugle in B♭	0.0	9.7	37.0	55.5	0.0
Bugle, silver	0.5	0.0	0.5	1.0	1.0
Reed horn	2.0	3.0	1.0	0.0	0.0
Miniature hunting horn	0.0	0.0	0.5	0.0	0.0
Hunting horn, copper	85.0	55.0	37.0	13.0	19.0
Hunting horn, brass	41.0	6.3	0.5	3.5	1.0
Hunting horn, silver	4.5	3.3	1.5	0.0	3.0
Hunting horn, german silver	0.0	0.3	0.0	0.0	0.0
Hunting horn, gilding metal	0.0	0.0	0.0	0.0	0.0
Post horn	0.0	0.0	0.0	0.0	30.0
Post horn, 18-inch brass	0.0	0.0	0.5	0.0	0.0
Post horn in D, brass	0.0	0.0	0.5	0.0	0.0
Post horn in G, brass	0.0	0.0	0.5	0.0	0.0
Post horn in B♭, brass	0.5	0.0	0.5	1.5	0.0
Post horn in A, brass	0.5	1.0	1.0	5.0	2.0
Post horn in A, copper	0.0	0.0	0.0	1.0	0.0
Post horn in A♭	0.0	0.0	0.5	0.0	0.0
Post horn, brass	0.5	0.0	0.0	0.0	0.0
Post horn, copper	0.5	2.3	0.0	0.0	0.0
Pocket post horn, brass	4.0	0.0	0.0	0.0	0.0
Drag horn	0.0	0.0	0.0	0.0	1.0
Drag horn, copper	39.0	77.3	31.0	32.0	0.0
Drag horn, brass	39.5	24.7	17.0	100.0	0.0
Drag horn, silver	0.0	0.0	0.0	0.5	0.0
Drag horn in C, brass, 1 valve	0.0	0.0	1.0	0.0	0.0
Drag horn in C, brass, 2 valves	0.0	0.0	0.0	0.5	0.0
Drag horn in B♭, brass, 2 valves	0.0	0.0	0.0	1.0	0.0
Drag horn in B♭, brass, 3 valves	0.0	0.0	0.0	0.5	0.0
Drag horn in A, brass	0.0	0.0	0.0	0.5	0.0
Bicycle horn, 1-turn, copper	0.0	4.0	1.0	0.0	0.0
Bicycle horn, 2-turn, copper	0.0	4.0	0.0	0.0	0.0
Bicycle horn, bugle model, brass	0.0	0.3	0.0	0.5	0.0
Coach horn	0.0	0.0	0.0	0.0	3.0
Otter horn, copper	0.0	0.3	0.0	0.0	0.0
Dog-cart horn, bras	0.5	0.0	0.0	0.0	0.0
Forester's horn, brass	0.0	0.3	0.0	0.0	0.0
Forester's horn, silver	0.5	0.0	0.0	0.0	0.0
Tandem horn, brass	0.0	0.0	0.0	0.5	0.0
TOTAL	1635.0	1569.7	1287.5	2072.0	2360.0

APPENDIX B
Serial numbers

These tables give the earliest serial numbers recorded for the respective periods.

Distin & Co brasswind serial numbers

NUMBER	DATE ADDED TO STOCK
10052	1868 Jun 15 (cornets)
20100	1868 Jun 15 (other brass instruments)
10616	1870 Jan 1 (cornets)
21439	1870 Jan 1 (other brass instruments)

NUMBER	DATE ORDER GIVEN OUT
10814	1870 Jun 3 (cornets)
21855	1870 Jun 3 (other brass instruments)
11054	1871 Jan 1 (cornets)
22635	1871 Jan 1 (other brass instruments)
11536	1872 Jan 1 (cornets)
24160	1872 Jan 1 (other brass instruments)
12005	1873 Jan 2 (cornets)
25479	1873 Jan 2 (other brass instruments)
12611-12801	1874 Jan 1 - Apr 30 (cornets)
26571-26960	1874 Jan 1 - Apr 30 (other brass instruments)

Boosey & Co brasswind serial numbers

NUMBER	DATE ORDER GIVEN OUT
14345	1874 May 1 (all brass instruments)
15488	1875 Jan 1
17081	1876 Jan 1 - May 31 [final orders to Great Newport Street]
17815	1876 Jun 1 [start of orders to Stanhope Place]
18745	1877 Jan 1
20532	1878 Jan 1
22246	1879 Jan 6
24069	1880 Jan 2
25654	1881 Jan 1
26893	1882 Jan 2
28197	1883 Jan 1
29674	1884 Jan 1
30974	1885 Jan 2
32103	1886 Jan 1
33156	1887 Jan 4
34373	1888 Jan 2

35886	1889 Jan 1
37813	1890 Jan 1
39632	1891 Jan 1
41507	1892 Jan 1
43393	1893 Jan 2
45080	1894 Jan 1
46572	1895 Jan 1
47880	1896 Jan 2
49539	1897 Jan 5
51590	1898 Jan 1
53893	1899 Jan 2
56377	1900 Jan 1
59198	1901 Jan 2
61677	1902 Jan 3
64179	1903 Jan 1
66495	1904 Jan 1
68978	1905 Jan 2
71718	1906 Jan 2
73814	1907 Jan 3
75600	1908 Jan 1
77423	1909 Jan 1
79257	1910 Jan 5
81723	1911 Jan 2
83688	1912 Jan 2
85996	1913 Jan 1
88523	1914 Jan 5
93415	1915 Jan 4
98316	1916 Jan 3
100679	1917 Jan 3
102990	1918 Jan 4
104183	1919 Jan 1
107455	1920 Jan 1
111174	1921 Jan 4
114201	1922 Jan 2
116945	1923 Jan 2
119411	1924 Jan 1
121910	1925 Jan 1
125285	1926 Jan 1
128009	1927 Jan 1
131460	1928 Jan 4
134299	1929 Jan 1
136685	1930 Jan 2
138565	1931 Jan 1
140164	1932 Jan 4 added Hawkes & Son

Note: the exceptionally large number of serial numbers allocated in 1915 reflects the large number of bugles and duty trumpets produced for the War Department.

APPENDIX C
Trade Marks

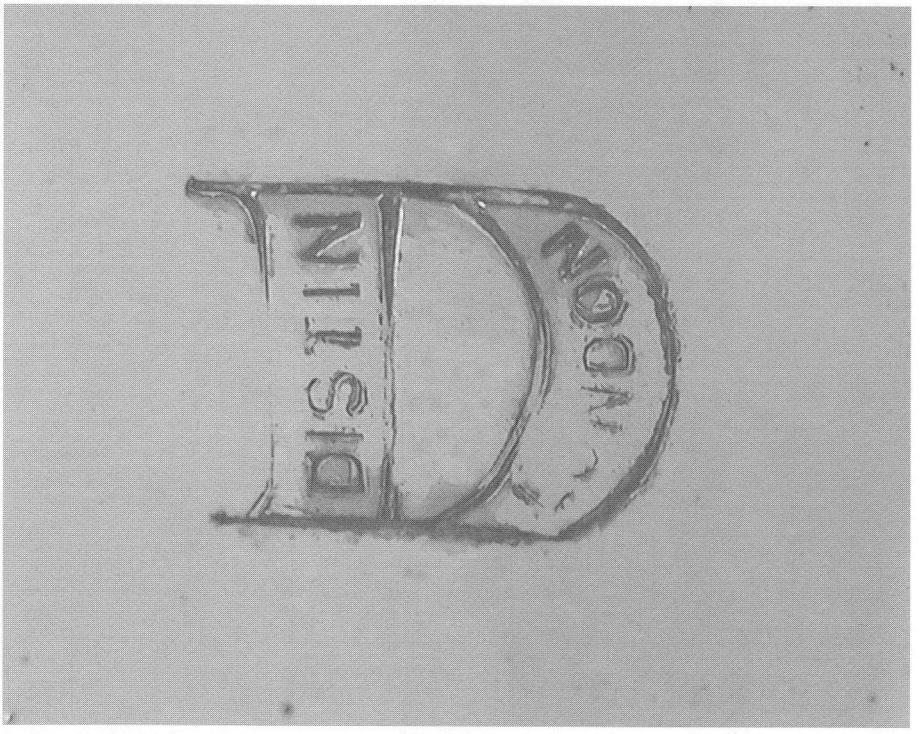

Figure 7
letter D trademark incorporating "DISTIN" and "LONDON."
A bell stamp used until circa 1860.

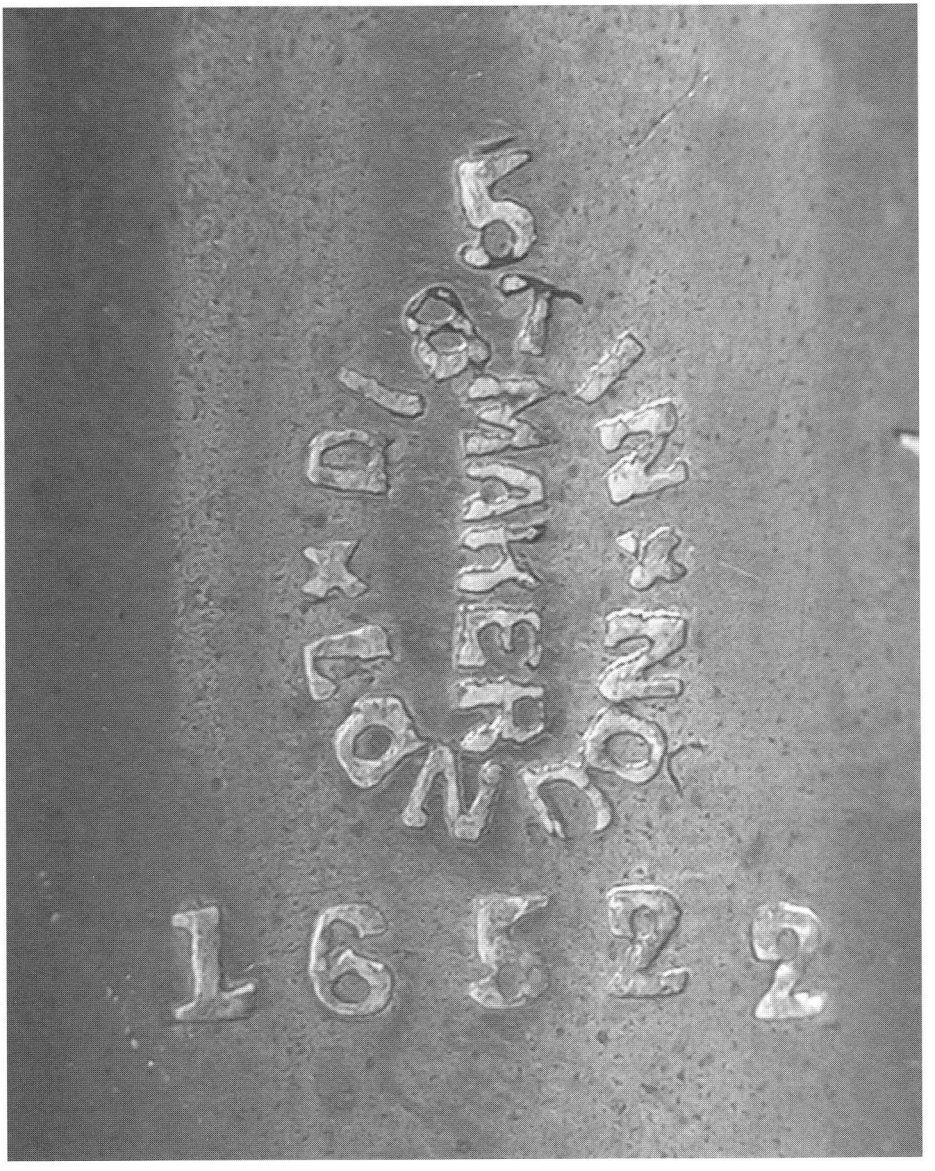

Figure 8
Trademark of words forming an ellipse "DISTIN * LONDON *," inside "MAKER."
A pistons stamp used from circa 1860 to February/March 1874.
There is usually a pistons number, but not always adjacent to the trademark.

Figure 9
Trumpet-and-banner trademark incorporating "DISTIN" but not "TRADE MARK." Bell stamp used from circa 1865 to January/February 1874.

Figure 10
Trumpet-and-banner trademark incorporating "TRADE MARK" and "DISTIN." Bell and pistons stamp used from February/March 1874 to 1887 always used in conjunction with BOOSEY & CO bell inscription.

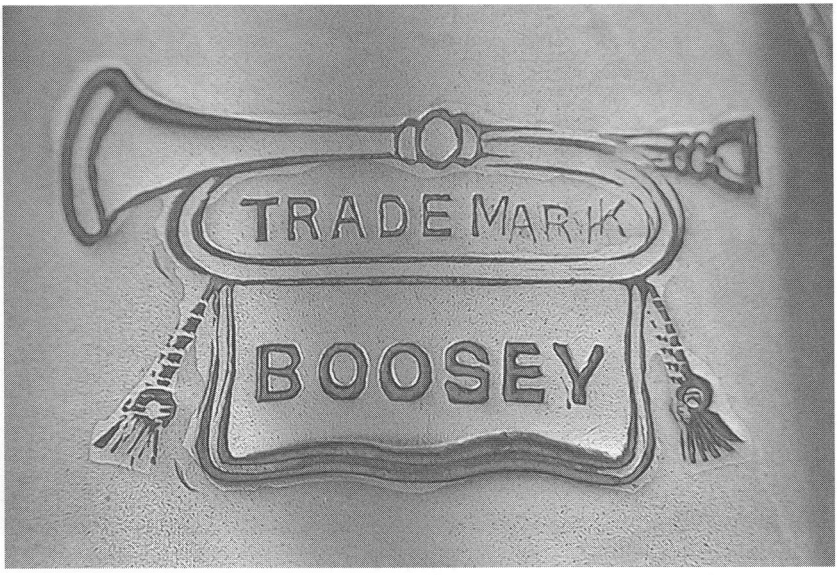

Figure 11
Trumpet-and-banner trademark incorporating "TRADE MARK" and "BOOSEY." Bell and pistons stamp used from March 1879 to 1931, always used in conjunction with BOOSEY & CO bell inscription. For valved instruments there is always a pistons number, but not always adjacent to the trademark.

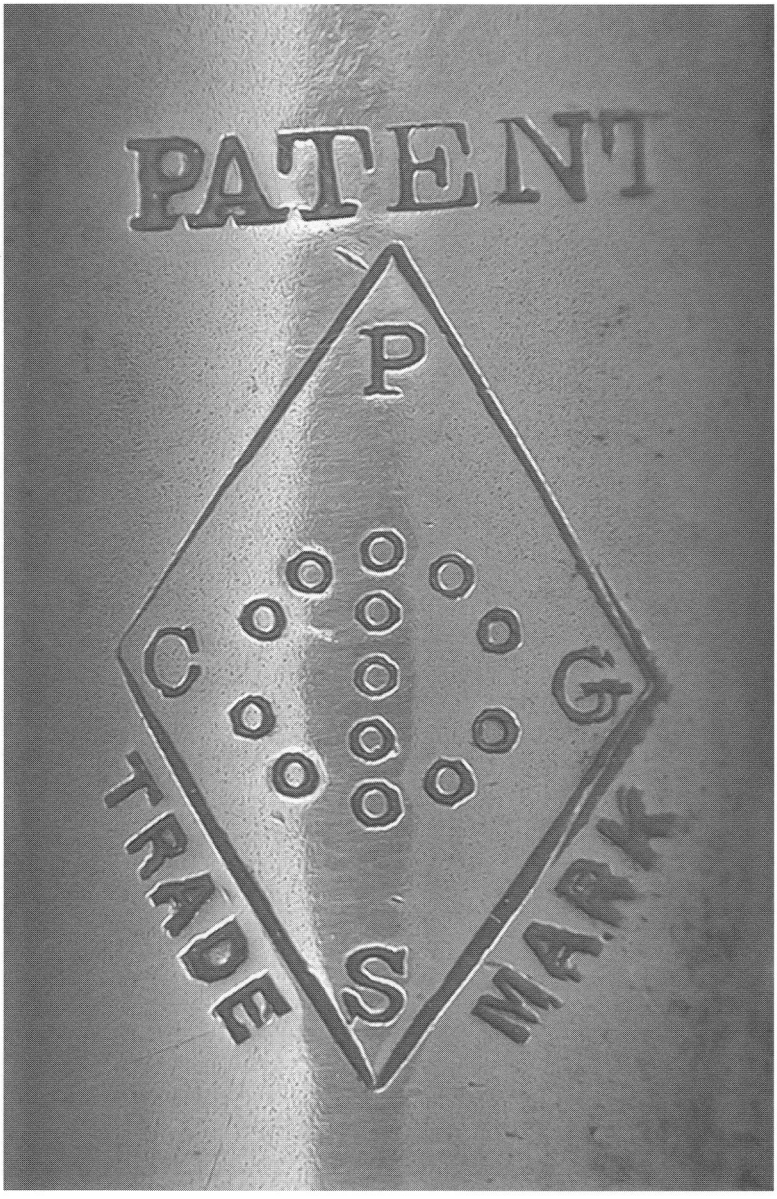

Figure 12
Diamond-shaped trademark containing letters "P," "C," "G," "S,"
and pattern of 13 circles / "TRADE" "MARK". A trademark registered in 1892.
Pistons stamp used for compensating pistons 1892 to 1930 or 1931.
The word "PATENT" does not always appear.

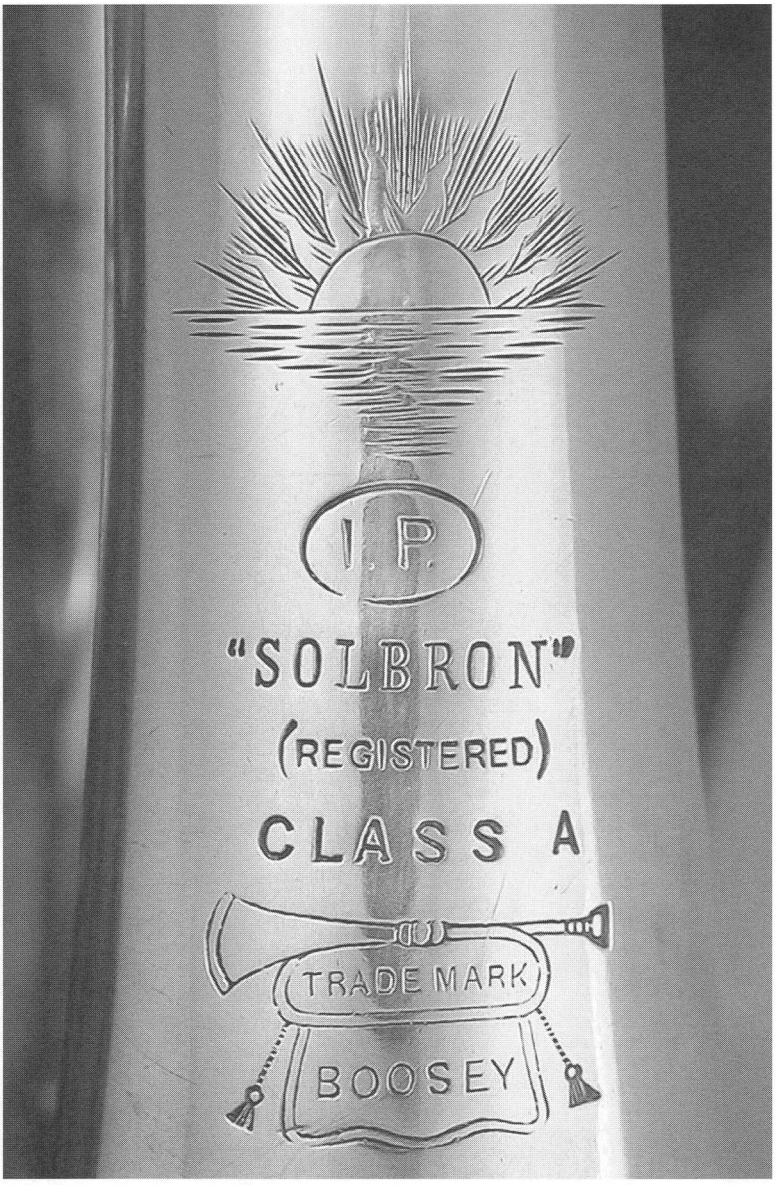

Figure 13
Sun trademark. In the period 1903 to 1912, entries in the Instrument Books for some batches of A5, A6 and A7 model cornets were recorded as "Sun" or "Sun Bell." These cornets were possibly intended for the American market, a rising sun was perhaps an allusion to the firm's East Street address in New York at this time.

Photographs 7-13: Raymond Parks

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Arnold Myers completed his doctorate at the University of Edinburgh with research into acoustically based techniques for taxonomic classification of brass instruments. He contributed the chapter "Instruments and Instrumentation in Brass Bands" to the recent Oxford University Press book The British Brass Band: a Musical and Social History. *He is the Director and Curator of the Edinburgh University Collection of Historic Musical Instruments and edits the ongoing Catalogue of the Collection.*

NOTES

[1] William Waterhouse, *The New Langwill Index of Musical Wind-Instrument Makers and Inventors* (London: Tony Bingham, 1993).
[2] Ibid.
[3] Arnold Myers, "A Slide Tuba?," *Galpin Society Journal* 41 (1989): 127-28.
[4] The seventy-six models of brass instruments produced by Distin and Co. in 1857 are listed in Arnold Myers, "The Horn Function and Brass Instrument Character," in Stewart Carter, ed., *Perspectives in Brass Scholarship: Proceedings of the International Symposium on Historic Brass Instruments, Amherst, 1995* (Stuyvesant, NY: Pendragon, 1997), pp. 239-62. See also Waterhouse, *New Langwill Index;* and Jack L. Scott, *The Evolution of the Brass Band and its Repertoire in Northern England* (Ph.D. diss., University of Sheffield, 1970).
[5] "Personal and Otherwise," *Musical Opinion* (June 1930): 707; "Death of Mr. D.J. Blaikley" (obituary), *Musical Progress and Mail* (January 1937); "Death of Mr. D.J. Blaikley" (obituary), *Music Trades Review* (January 1937); Havergal Brian, "D.J. Blaikley" (obituary), *Musical Opinion* (February 1937).
[6] Scott, *Evolution*, p. 99.
[7] Algernon S. Rose, *Talks with Bandsmen: a Popular Handbook for Brass Instrumentalists* (London: William Rider, 1895; reprint, London: Tony Bingham, 1995).
[8] C.R. Day, *A Descriptive Catalogue of the Musical Instruments Recently Exhibited at the Royal Military Exhibition, London, 1890* (London: Eyre & Spottiswoode, 1891), item 431.
[9] Ibid.
[10] William Boosey, *Fifty Years of Music* (London: Ernest Benn, 1931).
[11] John Webb, "Notes on the Ballad Horn," *Galpin Society Journal* 37 (1984): 57-61.
[12] G.B. Patent 741, 16 March 1865.
[13] Illustrated in Arnold Myers, ed., *Historic Musical Instruments in the Edinburgh University Collection: The Catalogue of the Collection,* vol. 1: *The Illustrations* (Edinburgh: EUCHMI, 1990 [ISBN 0 907635 17 2]).
[14] Described in Arnold Myers, ed., *Historic Musical Instruments in the Edinburgh University Collection: The Catalogue of the Collection,* vol. 2, part H, fascicle 8: *Cornets and Ballad Horns* (Edinburgh: EUCHMI, 2000).
[15] Day, *Descriptive Catalogue.*
[16] Leon Mead, "The Military Bands of the United States," Supplement to *Harper's Weekly* (28 September 1889): 788. The picture "P.S. Gilmore's Famous Band 1885" shows an antoniophone, reproduced in Carolyn Bryant, *And the Band Played On, 1776-1796* (Washington: Smithsonian Institution Press, 1975), p. 28 (courtesy of University of Michigan Bands, Goldman Collection); In H.W. Schwartz, *Bands of America* (Garden City, NY: Doubleday, 1957; reprint, New York: Da Capo, 1975), pages 131-32, we read about Gilmore's 22nd Regiment Band, ca. 1890: "The instrumentation of the band at this time was just about what Gilmore had dreamed of years before. Of course he used a quintet of antoniophones, but these were treated as novelty instruments and were not considered as a standard part of the instrumentation."
[17] Mead, "Military Bands," writes of the orpheon, "This instrument is played by a dashing young English Fifth Lancer with brilliancy, his manipulation of the pedal notes being remarkable. His great forte is in the rendition of pathetic passages in the old songs." and "Mr. Phasey's excellent performance on the barytone antoniophone has prompted one critic to designate it 'vox humana.' It has frequently been heard with appreciation in unaccompanied quartet. At present Mr Phasey is filling his father's position as solo euphoniumist at the Crystal Palace, London."

[18] Günter Dullat, *Fast vergessene Blasinstrumente aus zwei Jahrhunderten: vom Albisiphon zur Zugtrompete* (Nauheim: [the author], 1992).
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[20] Ibid.
[21] Arnold Myers "Historical Instrument Section: Museums" *ITEA Journal for Euphonium and Tuba* 29/3 (Spring 2002): 59-60.
[22] Boosey & Co, *Military Band Instruments,* Catalogue 1923 (EUCHMI 3032R).
[23] D.J. Blaikley, "Improvements in French Horns," G.B. Patent Specification 28599, Appl: 11 Dec 1912.
[24] D.J. Blaikley, "Brass Musical Wind Instruments," G.B. Patent Specification 4618, Appl: 14 Nov 1878; sealed 9 May 1879.
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D.J. Blaikley, "Mandrel-drawn Tubes," G.B. Patent Specification 13980, Appl: 17 Jul 1893.
D.J. Blaikley, "Clarinets etc.," G.B. Patent Specification 9952. Appl: 22 May 1894.
D.J. Blaikley, "Cornets etc.," G.B. Patent Specification 28474. Appl: 2 Dec 1897.
D.J. Blaikley, "Improvements in French Horns," G.B. Patent Specification 28599, Appl: 11 Dec 1912.
A. Blaikley. "An Improved Manufacture of the part commonly known as the Bell of Wind Musical Instruments of the kind known as 'Brass'," G.B. Patent Specification 14046, Appl: 4 Oct 1915.
Arthur Blaikley, "An Improved Arrangement of the Springs Operating the Pistons or Pumps of Cornets and the like Wind Musical Instruments," G.B. Patent Specification 193729, Appl: 4 Apr 1922.
[25] Joseph Hutchison, G.B. Patent Specification 256,761, accepted 19 Aug 1926.
[26] *New Grove Dictionary of Music and Musicians*, 2nd ed. (London: Macmillan, 2001), s.v. "Boosey & Co," by D.J. Blaikley et al.