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Instrument Making of the Salvation Army

The Salvation Army was formed as such in September 1878 as a development of the earlier Christian Mission in the East End of London, with origins in the Methodist Church, and became a separate Christian church. It was primarily evangelical, and adopted military organisational structures and metaphorical language as an effective stratagem. The poor were seen as neglected by the established churches, and converting the poor to Christianity was the chief aim of the Salvation Army. Conversion was largely brought about by preaching the gospel in meetings, and people were attracted to meetings by street demonstrations and open-air acts of witness. These demonstrations featured gospel singing which was usually accompanied by instruments of different kinds. Brass instruments proved to be particularly effective, and the instruments of popular brass bands were readily available. The first Salvation Army band is considered to have been the Fry family brass quartet, playing for an open-air meeting in 1878¹ and going on to

contribute to Army events across Britain; in 1880 the first corps (local congregation) band was established: 14 instrumentalists at Northwich.² The 1880s were a period of remarkable growth of the Salvation Army across Britain (and overseas), and saw brass bands develop an essential role for the Army in recruitment and worship. The Salvation Army brass band tradition and repertoire have been discussed in depth by Boon,³ Herbert,⁴ Holz⁵ and Cox,⁶ allowing us to focus here on instruments.

Playing in brass bands was a widely practised pastime for many, so the recruits to the early Salvation Army were often already brass band musicians. Some brought their own instruments which they then had to sell to the local Army corps: for the others the corps provided instruments which had to be bought from Headquarters. The Founder of the Salvation Army, William Booth, issued *Orders and Regulations for Field Officers* which went through several editions: the following are typical extracts concerning band instruments:

¹ Richard Slater, 'Salvation Army Bands: a Brief History', *The War Cry*, 12 October 1895, p.11.

² Slater (1895), p.11.

³ Brindley Boon, *Play the Music, Play! The Story of Salvation Army Bands*, 2nd edition (London: Salvationist Publishing and Supplies Ltd, 1978).

⁴ Trevor Herbert, 'God's perfect minstrels: the bands of the Salvation Army'. In Trevor Herbert (ed.), *The British Brass Band: A Musical And Social History* (Oxford: Oxford University Press, 2000), pp.187–216, 312–316.

⁵ Ronald W. Holz, *Brass Bands of the Salvation Army, Volume One: Their Mission and Music* (Hitchin: Streets Music, 2006).

⁶ Gordon Cox, *The Musical Salvationist: The World of Richard Slater (1854–1939) 'Father of Salvation Army Music'* (Woodbridge: Boydell Press, 2011).

	First Quality	Superior
	£ s d	£ s d
3 Cornets, B flat (with case)	8 – 0 – 6	10 – 7 – 0
2 Tenors, E flat	4 – 16 – 0	5 – 18 – 0
1 Baritone, B flat	2 – 11 – 6	3 – 9 – 0
1 Trombone, B flat (valve)	2 – 8 – 0	3 – 2 – 0
1 Euphonium, B flat	3 – 2 – 6	3 – 19 – 0
1 Bombardon, E flat	4 – 5 – 6	5 – 7 – 0
1 Bass Drum	2 – 19 – 0	3 – 16 – 6
1 Side-Drum (15-inch)	1 – 5 – 6	1 – 12 – 6
Sticks and Carriage for Side-Drum	0 – 4 – 11	0 – 5 – 6
Sticks and Carriage for Bass Drum	0 – 9 – 6	0 – 15 – 6
1 Pair of Cymbals	1 – 5 – 0	2 – 7 – 6
TOTAL	31 – 7 – 11	40 – 19 – 6

1. The Field Officer and the Bandmaster are responsible with the Divisional Officer for seeing that all Instruments are purchased from Headquarters.
2. The F.O. must see that the Crest, followed by the name and number of the Corps, is stamped or engraved on every Instrument obtained for the Band.
3. All musical Instruments used by Salvation Army Bands must be the property of The Army, no matter through whom they may have been purchased, or through whom presented. Bandsmen who have instruments of their own must either present or sell them to the Corps.
4. In no case are Instruments to be used to play anything but Salvation music, or on any but Salvation Army service.⁷

The extent to which these orders were followed in practice is an open question. On one hand the ownership and use of Army band instruments seems to have been largely segregated from outside

banding; on the other there is no evidence from surviving instruments that the name and number of the Corps was inscribed on the instruments. Here and elsewhere the term ‘bandsmen’ has been used to include women players: all positions in the Salvation Army were open to women from the beginning, although brass instruments were more usually played by men.

Bands were augmented by the teaching of Salvation Army members (termed soldiers) to play brass instruments: these learner musicians also needed instruments. The instruments, along with military-style uniforms and other equipment were initially purchased locally, but in 1882 the Army set up a central trade department to buy in bulk and negotiate favourable terms with instrument manufacturers.⁸ In 1882 bought-in sets of instruments for a band of 12 (Table 1) were sold from the Salvation Army Stores, 101 Queen Victoria Street, London.⁹

Early suppliers of the Army’s instruments seem to have been manufacturers in France such as Péliisson, Guinot, Blanchon & Cie. in Lyon,¹⁰ the instruments made specially by one of the largest manufacturers in the world.¹¹ The French operated the largest brass instrument factories and produced the cheapest

⁷ The Salvation Army, *Orders And Regulations for Field Officers* 1901, Book II Chapter VII – The Band, Section 3 – Instruments and Music, p.350. The regulations in the editions of 1886, 1891, 1917 and 1922 differ only slightly; the 1925 edition makes no mention of instruments. Salvation Army International Heritage Centre, London, archive.

⁸ ‘Our Own Make: Notes by Capt. Woodrow’, *The War Cry*, 12 October 1895, p.11. John Carleton, ‘The Trade Departments of the Salvation Army’, *The War Cry*, 31 December 1884, p.4, wrote a defence of the Army’s engaging in trade, which at that time included the retail of publications, clothing, watches and tea as well as musical merchandise.

⁹ ‘Notice ... Musical Department’. *The War Cry*, 2 November 1882, p.4.

¹⁰ Nick DeCarlis, *Pocket Cornets: Actual Size, A Pictorial Overview ...* ([Gainesville, FL]: the author, 2009), pp.30–31.

¹¹ ‘Are Salvation Army Instruments the Best? A Bandmaster’s Inspection of the Factory’, *The War Cry*, 19 May 1894, p.12.

instruments of low and medium quality. Today we would term these 'student models', but at that time they were simply cheap instruments. Instruments in two grades, stamped with the Salvation Army crest and headquarters address, were sold from the Army stores.¹² The Trade Department moved out of the Army's Queen Victoria Street headquarters in December 1884 to 96 Southwark Street.¹³ In May 1888 some trade departments moved to 56 Southwark Street,¹⁴ but instrument repairs remained at 96,¹⁵ and it is likely to have been at these premises that musical instruments were sold and where manufacture started.

The Salvation Army campaigned against exploitation of the working classes through excessive working hours and low pay, leaving the Army open to accusations of hypocrisy. Algernon Rose condemned the Salvation Army for their policy of importing cheap instruments from French factories where conditions were bad: he considered it hypocritical for the Army to be buying the very cheapest instruments made by sweated labour employed abroad, rather than patronising English makers who paid fair wages.¹⁶ The cheap instruments may have proved insufficiently robust to stand up to the rough conditions of the street demonstrations. There was also a general policy of the Army to meet its own special requirements, going into manufacture as necessary. Alongside printing works and factories making uniforms, an instrument workshop was started in May 1889. Captain Woodrow, head of Department in 1896,¹⁷ wrote in 1895:¹⁸

Our Musical Instrument Manufacturing Department was started six years last May. The main object in

establishing this department was that we should be able to meet the need of all our bandsmen, and be in a position to supply them with extra-superior instruments, as well as those of the cheaper class. We started with two men in a room about twelve feet by six feet, under great difficulties, but, praise God, the way is now much brighter. We have at present a staff of sixteen skilled workmen, some of whom have worked at the best houses in London. These men have left the workshops of prominent makers who are seeking worldly interest, and have come to us, not so much to benefit themselves as to be engaged in a shop where work is being turned out and used only for the extension of God's kingdom.

Moreover, the profits made by their work goes not to an individual or individuals, but to the spiritual funds of The Salvation Army. Our instrument make can pray, sing and testify to the saving and keeping power of God. That really is the secret of our success.

We have, during the past six years, turned out some 1,750 of 'Our Own Make' instruments, and from six to seven thousand repairs. We have all the latest and improved machinery, driven by steam power. We use nothing but the best brass in the market, and for our tube for slides, pistons, etc. is drawn on steel mandrels. Our machinery for piston-making is the latest, and every care is taken to get a clear passage.

Initially the workshop repaired band instruments and possibly assembled instruments from bought-in components. In 1890 the Trade Headquarters moved to 98–102 Clerkenwell Road,¹⁹ giving the instrument workshop 1,200 square feet and power-driven

¹² 'Price List of Musical Instruments', *The War Cry*, 7 August 1886, p.16.

¹³ 'Important Notice to Officers, Trade Treasurers, and Agents', *The War Cry*, 3 December 1884, p.4.

¹⁴ 'A Run Through Our New Printing and Publishing Warehouse, 56, Southwark Street', *The War Cry*, 12 May 1888, p.5.

¹⁵ 'A Tip', *The War Cry*, 18 May 1889, p.11.

¹⁶ Algernon Sidney Rose, *Talks with Bandsmen: a Popular Handbook for Brass Instrumentalists* with a new introduction by Arnold Myers (London: Tony Bingham, 1995). [Reprint of the 1st (1895) edition with a new introduction], pp.250–258.

¹⁷ James Bedford, 'The International Trade Headquarters', *The Conqueror*, August 1896, pp.377–380.

¹⁸ 'Our Own Make: Notes by Capt. Woodrow', *The War Cry*, 12 October 1895, p.11.

¹⁹ A notice in *The War Cry* of 15 March 1890 ('Customers, Note', p.10) announced that the Book and Musical Depts had by then been transferred to Clerkenwell Road but Tea and Outfit were still at 96 Southwark St. The same issue on p.8 ('At Headquarters') states that the Clerkenwell Road buildings should be ready to accommodate the remaining departments the following month (i.e. April). However, it was not until the 21 June 1890 that adverts for tea and uniform in *The War Cry* begin to use the Clerkenwell Road address, so it may in fact have been June before all the departments had transferred.



Figure 1. *The staff at the Clerkenwell Road factory, c1895. Courtesy of The Salvation Army International Heritage Centre.*

machinery²⁰ and good facilities.²¹ By 1893 they were making cornets. The Trade Department sold many instruments, but at this time only the brass were 'own make.'²² In 1893 the Trade Department as a whole employed 350, of which the largest number were Salvationists, while the remainder was 'almost composed of men and women who are pronounced Christians.'²³ In 1894 'the first full set of instruments was completed, specially manufactured for Luton II'. This set was completed in time for a Salvation Army festival at the Crystal Palace on 3 July 1894.²⁵ By 1895 the works employed 16 men (Figure 1), and could make all of the brass band instruments, the 'monster' BB₁ bass and the 'medium' BB₂ bass being the last to be added.²⁵ Figure 2 shows the earliest form of bell inscription.



Figure 2. 'Our own make' inscription on an early cornet. *Courtesy of the Salvation Army Central Territory Historical Museum, Hoffman Estates, Illinois, U.S.A.*

²⁰ 'Are Salvation Army Instruments the Best? A Bandmaster's Inspection of the Factory', *The War Cry*, 19 May 1894, p.12.

²¹ Boon (1978), p.173.

²² The Army made extensive use of concertinas and tambourines. A move to adopt the autoharp is described in 'Salvation Trading: its Ramifications and Results', *The War Cry*, 4 February 1893, p.7.

²³ 'Salvation Trading: its Ramifications and Results'. *The War Cry*, 4 February 1893, p.7.

²⁴ Arthur Bristow, 'Our Own Make: the Story of the Manufacture of Salvation Army Brass Instruments', *The Musician of the Salvation Army*, Volume 11, 14 February 1948, p.56.

²⁵ According to Woodrow ('Our Own Make: Notes by Capt. Woodrow', *The War Cry*, 12 October 1895, p.11), complete sets had been supplied to International Headquarters, Clapton, Stockport, Luton I, Luton II, Hamilton, Penge, and Northwich bands.



Figure 3. *The Trade Department showroom at Fortess Road, from the Catalogue of Brass and Military Band Instruments and Drums, [1905]. Courtesy of The Salvation Army International Heritage Centre.*

In September 1896 the Trade Department and factory moved to premises at 79 and 81 Fortess Road, Kentish Town²⁶ (leaving the printing works in Clerkenwell Road). However, Fortess Road provided less than ideal facilities for instrument making;²⁷ at one time the Trade Department had taken in so many chests of tea that the building threatened to collapse and had to be propped up.²⁸ Nevertheless, the showroom continued at Fortess Road until May 1911,²⁹ see Figure 3.

Finally, on 5 November 1901,³⁰ the Salvation Army moved its instrument-making operation to a more spacious factory with its own railway siding at Campfield Road in St Albans, together with its printing works, see Figures 4 and 5. St Albans was already a centre for the printing industry, and the

Army's printing operations dictated the location. Trade Headquarters remained in London, and '79 and 81 Fortess Road' continued to be the address stamped on instruments until new premises at Judd Street, Kings Cross, were opened on 1 June 1911.³¹ In 1907 the factory started manufacturing drums.³²

On 7 July 1917 the Trade Department became 'Salvationist Publishing & Supplies' (S.P. & S.), incorporated as a limited liability company with its headquarters at Judd Street.³³ This new name was stamped on instruments thereafter.

DEMAND AND SUPPLY

There have been two facets to Salvation Army brass band music, the outdoor, typified by open-air evangelism (as in Figure 6) and street marching to

²⁶ [William Booth], 'Important Re-Arrangements for the Extension of Our Trade ... Another Striking Advance', *The War Cry*, 15 August 1896, p.8; 'Changes and Developments', *The War Cry*, 3 October 1896, p.7.

²⁷ Bristow (1948), p.56.

²⁸ '23,000 Brass Instruments: Two Craftsmen with 116 Years' Service', *The Musician of the Salvation Army*, 29 March 1952, pp.101, 104.

²⁹ 'Great Coming of Age Sale at Judd Street', *Bandsman and Songster*, 28 May 1932, p.176.

³⁰ Boon (1978), p.174.

³¹ 'Remember these Dates', *Bandsman, Songster and Local Officer* 3 June 1911, p.352; 'Great Coming of Age Sale at Judd Street', *Bandsman and Songster*, 28 May 1932, p.176.

³² *The Salvation Army Yearbook*, 1908.

³³ Companies House website.

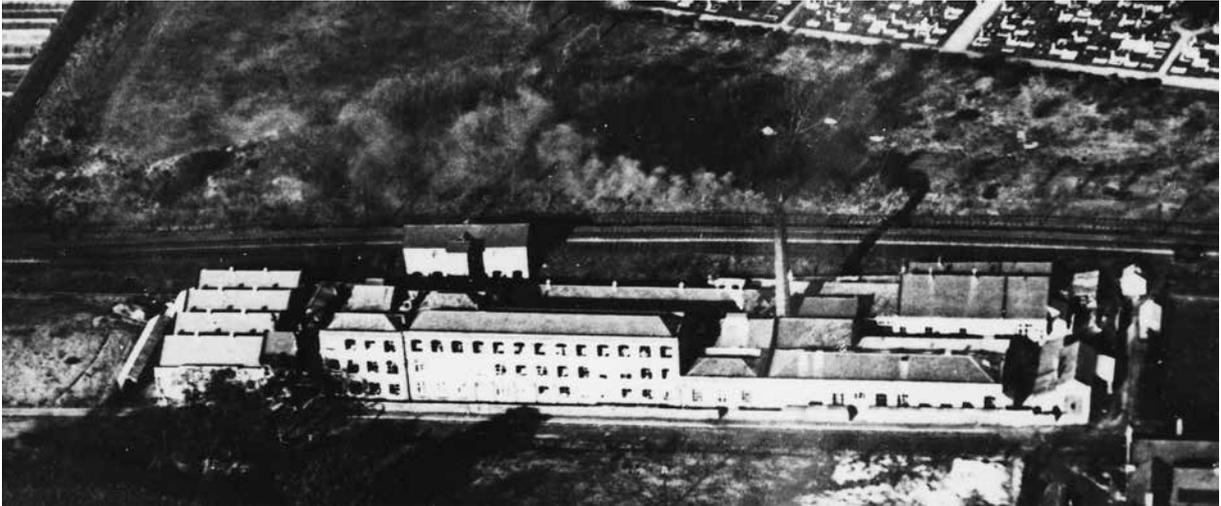


Figure 4. *Campfield Road instrument factory and printing works in 1938. Courtesy of The Salvation Army International Heritage Centre.*



Figure 5. *Campfield Road instrument factory and printing works. Courtesy of The Salvation Army International Heritage Centre.*

meeting halls (termed ‘citadels’). In the early days especially, the musical standards outdoors could at times be rough and ready.

The other facet was the indoor, where bands accompanied the singing of gospel songs and performed fantasias and variations on the song tunes, including a genre specific to the Army, the ‘meditation’. Since the early decades, musical standards have risen steadily: the elite Salvation Army bands, such as the International Staff Band, can now be compared with the finest contesting bands, such as the Black Dyke Band and the Cory

Band. The instrumentation calls for exactly the same kinds of instrument as in contesting bands, though not limited to contesting numbers: there is optional doubling of trombone and other parts. In the 1960s, one of the finest Salvation Army bands was in Edinburgh – the Gorgie Citadel Band (Figure 7).

From the East End of London the Army spread rapidly: corps were being established and citadels built everywhere in Britain in the 1880s, and internationally the Army quickly reached all corners of the British Empire, the U.S.A., and countries



Figure 6. Two Salvation Army bands leading singing at an open-air meeting, probably early twentieth century. Courtesy of The Salvation Army International Heritage Centre.



Figure 7. Gorgie Citadel Band, Edinburgh, with announcer, making a BBC broadcast in 1963. Thirty-six players, conducted by Alex Thain. The first trombone player, Richard Hewat, is using a Boosey & Hawkes 'Imperial' trombone. Courtesy of The Salvation Army, Edinburgh Gorgie Corps.

across Europe. They took brass bands with them, with British brass band instrumentation and in many cases instruments from their own factory. By 1897 there were 12,000 bandsmen.³⁴ In 1922 there were an estimated 1,926 Salvation Army bands worldwide, nearly half of them in Britain,³⁵ see Table 2. By 1930 an estimated 34,237 band members were active.³⁶

Initially Army bands were expected to buy their instruments from the Trade Department. As own make instruments were brought into production, the buying in of French instruments was phased out except for less regularly used models such as pocket cornets and valve trombones. To a large extent, the Salvation Army factory enjoyed a monopoly of its specific market. However, the purpose of the manufacturing enterprise was evangelism, not profit. It was in the interest of the organisation as a whole that the instruments were fit for purpose, robust and long-lasting. They needed to be adequate for the specific repertoire in which rendering recognisable gospel song tunes was prioritised and displays of virtuosity *per se* were frowned on.

In the early period, the Salvation Army claimed to offer better value for money than ‘outside’ manufacturers. This was possible because they did not employ commercial travellers, did not give prizes at contests, and did not pay commissions to bandmasters, had a modest showroom, advertised minimally and only in Army publications, and were ‘content with a very small margin of profit.’³⁷ The prices were generally slightly lower than those of the best British makers, although it is difficult to determine which were models of comparable quality. The lower priced models carried the Salvation Army emblem and the trade address; the best models also had the foliage and floral decoration as seen in Figure 12 (right), much the same as on the commercial instruments of the period.

The factory had produced over 1,500 instruments by 1894.³⁸ It was fairly common for bands to

Table 2. Distribution of Salvation Army Bands, 1922.

England	761
Scotland	102
Wales	70
Denmark	32
Finland	18
Germany	25
Holland	38
Norway	42
Sweden	141
Switzerland	65
Australia	204
Canada	118
New Zealand	54
South Africa	31
United States	210
Other countries	15
TOTAL	1926

purchase instruments in complete sets: no fewer than ten bands in Great Britain bought complete sets in 1906.³⁹ In its 80 years of production the Army made some 34,283 instruments (assuming serial numbers started from 1 and had no gaps), an average of 430 a year, or enough in total to equip 1900 bands with 18 brass instruments.

The archive of the Salvation Army International Heritage Centre, London, holds two factory workshop books recording serial number, model, makers, date of tuning, date of despatch and destination of each instrument.⁴⁰ There are also two stock books recording serial number, date of tuning, date of

³⁴ William Booth, ‘My Model Bandmaster’, *Local Officer* I (3), October 1897, p.1.

³⁵ ‘Prophesy Fulfilled’, *Bandsman, Local Officer and Songster*, 28 October 1922, p.349.

³⁶ ‘There are now 34,237 Band Members’. *Bandsman and Songster*, 25 January 1930, p.27. An extensive time series of band member numbers is given in Herbert (2000), pp.313–315.

³⁷ ‘Are Salvation Army Instruments the Best? A Bandmaster’s Inspection of the Factory’, *The War Cry*, 19 May 1894, p.12.

³⁸ ‘Are Salvation Army Instruments the Best? A Bandmaster’s Inspection of the Factory’, *The War Cry*, 19 May 1894, p.12.

³⁹ *The Salvation Army Yearbook*, 1907, p.48.

⁴⁰ MIF 2/2. The first workshop book covers serial numbers 18361–26609 (1925–52); the second book 26610–34283 (1952–1972).

despatch and destination of each instrument,⁴¹ also listing Boosey & Hawkes and Besson instruments supplied to Army bands between 1945 and 1957. It is likely that the workshop books were maintained in the factory at St Albans while the stock books with duplicate information were at the retail arm in Judd Street, London. These factory books allow a very granular exploration of the second half of the Army's production of brass instruments.

The Trade Department placed an advertisement for 'Triumph' brass band instruments in four issues of *The British Bandsman and Contest Field* (8 and 22 March, 5 and 19 April 1902), introducing an 'Arc de Triomphe' trademark. This appears to have been a short-lived measure to exploit the resources of the new St Albans factory by offering instruments to the general public.

On the three occasions when Army instruments have been entered for an exhibition they won gold medals. These events were at Christchurch, New Zealand, in 1907, the Franco-British Exhibition at the White City, London in 1908, and at the International Exhibition of Wind Instruments held at the Hague (Holland) in 1951 where the 'Bandmaster' cornet gained the gold award,⁴² the 'Triumphonic' four-valve euphonium and 'Triumphonic' E \flat bombardon receiving second place in their respective classes.⁴³

The Salvation Army also published its own music, establishing a Musical Department by September 1882⁴⁴ which was headed by Richard Slater from 1883 to 1913.⁴⁵ From 1885 Salvation Army bands could play only music that came from Army headquarters.⁴⁶ Salvation Army musicians were not allowed to play in other brass bands such as contesting bands. Many outstanding orchestral players and soloists

have indeed come from the ranks of the Salvation Army, but musicians had to leave Army bands to play outside. This exclusivity was not relaxed until 1 March 1992 when Army music was made available for outside bands to play and restrictions on Army musicians were lifted.⁴⁷

THE INSTRUMENTS

The early instruments were copies of instruments by established British makers, in many cases those of Besson.⁴⁸ The Foreman in 1894 made no apology for using 'the same model and proportions' as other manufacturers.⁴⁹ The 11 models of cornet advertised in 1894 included a 'Besson' model and a 'Courtois' model.⁵⁰ In the early days there was much open hostility to the Army and band members, and their instruments were treated roughly. Many Salvation Army instruments were made of thicker metal than typical commercial instruments to better withstand abuse. Alongside the heavy-duty instruments, lighter models were offered, described as 'orchestral', 'artist' or 'soloist'.⁵¹

The instrumentation of prominent early bands⁵² shows that the brass instruments were largely of the same kinds as were used by contesting bands: cornets in E \flat and B \flat , tenor horns, baritones, tenor and bass trombones, euphoniums, bombardons in E \flat , and BB \flat , basses. Many early bands (including some which were over 30-strong) did not adopt the E \flat soprano cornet and none used a flugelhorn, although both instruments later were scored for in Army music for large bands. Several incorporated clarinets and a few bands used saxophones (Figure 11).

Although production was nearly all of the standard instruments used by British brass bands (contestig

⁴¹ MIF 2/1. The first stock book covers serial numbers 18361–29685 (1925–61); the second book 29686–33776 (1960–1969).

⁴² '23,000 Brass Instruments: Two Craftsmen with 116 Years' Service', *The Musician of the Salvation Army*, 29 March 1952, pp.101, 104.

⁴³ Boon (1978), p.174.

⁴⁴ Richard Slater, 'Salvation Army Bands: a Brief History', *The War Cry*, 12 October 1895, p.11.

⁴⁵ Cox (2011), pp.70–92.

⁴⁶ 'General Order Respect Brass Bands', *The War Cry*, 27 May 1895.

⁴⁷ Herbert (2000), p.187; Cox (2011), p.194.

⁴⁸ For example baritone serial number 3604 manufactured by the S.A. at Clerkenwell Road is exactly the same model as Besson & Co serial number 109164 down to ferrule and bow guard details.

⁴⁹ 'Are Salvation Army Instruments the Best? A Bandmaster's Inspection of the Factory', *The War Cry*, 19 May 1894, p.12.

⁵⁰ 'Musical Instruments', *The War Cry*, 12 May 1894.

⁵¹ *Catalogue of Brass and Military Band Instruments and Drums*. Salvation Army [1905]. Salvation Army International Heritage Centre, London, archive, MIF/3.

⁵² *Musical Salvationist* 10 (1896), p.47; also reproduced in Herbert (2000), p.198.



Figure 8. *Contrabass trombone in 18-ft B \flat . The Salvation Army, Clerkenwell Road, London, numbered by October 1896, serial number 3993. Author's collection. Photograph: Antonia Reeve.*

and Salvation Army alike), 'Own Make' echo cornets, were advertised in 1894;⁵³ the 1905 Catalogue⁵⁴ also offered E \flat and B \flat trumpets, vocal or ballad horns, and tenor cors.⁵⁵ Other instruments such as valve trombones could be supplied on demand, in which case they presumably would have been bought in. The factory workshop books (1925–1972)⁵⁶ later record other models such as fanfare trumpets (soprano in B \flat , trumpet in B \flat , tenor trombone in B \flat ,

bass trombone in G)⁵⁷ and B \flat + F trombones (from 1965).

Around 1900 a couple of non-standard models were offered. The earlier was a contrabass slide trombone, pitched in B \flat an octave below the tenor trombone, but with a double slide, so the shifts were they same as those on the tenor trombone, see Figures 8 and 9. According to the Army's 1905 catalogue, it had 'enormous depth and range'.⁵⁸ The



Figure 9. *The Clapton (London) Congress Hall Band, early 20th century. The bandsman at the left of the front seated row holds a contrabass trombone. It is probable that all the brass instruments were made by the Salvation Army. Author's collection.*

⁵³ 'Musical Instruments', *The War Cry*, 12 May 1894.

⁵⁴ The *Catalogue of Brass and Military Band Instruments and Drums* was announced in 'A New Instrument Catalogue', *The Local Officer*, March 1905, p.290.

⁵⁵ *Catalogue of Brass and Military Band Instruments and Drums*. Salvation Army [1905], p.11. Salvation Army International Heritage Centre, London, archive, MIF/3.

⁵⁶ Factory workshop book, Salvation Army International Heritage Centre, London, archive, MIF 2/2.

⁵⁷ A set for the International Staff Band in 1962, and sets for Canada and elsewhere overseas in 1962 and 1966.

⁵⁸ *Catalogue of Brass and Military Band Instruments and Drums*. Salvation Army [1905], p.16. Salvation Army International Heritage Centre, London, archive, MIF/3.



Figure 10. *E♭* bass trombone, pulley model with auxiliary slide. The Salvation Army, Judd Street, London, numbered at latest by June 1911 but probably before 31 December 1909, serial number 10121. Edinburgh University Collection of Historic Musical Instruments, St Cecilia's Hall Concert Room and Music Museum (5853). Photograph: Raymond Parks.

design is broadly similar to those of contrabass trombones by Boosey & Co and Antoine Courtois. At least five examples survive, dating from 1896 (or soon before) to around 1910.⁵⁹

Clifford Grinsted, in charge the instrument factory from before the move to St Albans in 1901⁶⁰ until 1919, probably promoted the use of the contrabass trombone. He and his colleague Ernest Edgar Stuart were responsible for the Army's most ingenious invention, the *E♭* bass trombone, see Figures 10 and 11. This had an auxiliary slide moved by a cord running round pulleys. When the normal

playing slide was moved forwards, the auxiliary slide moved backwards by half the distance. The ratio of $1\frac{1}{2}$ to 1 is in musical terms a perfect fifth. The lines and spaces of the tenor clef are a fifth higher than the lines and spaces of the bass clef. Thus a player of a tenor trombone in *B♭*, reading normal notation (in tenor or transposing treble clef) could on this instrument play parts written for an *E♭* tuba in its normal transposed notation using familiar slide positions. A tenor player could play bass parts without mental transposition or having to learn new positions.⁶¹ The slide movements may have been

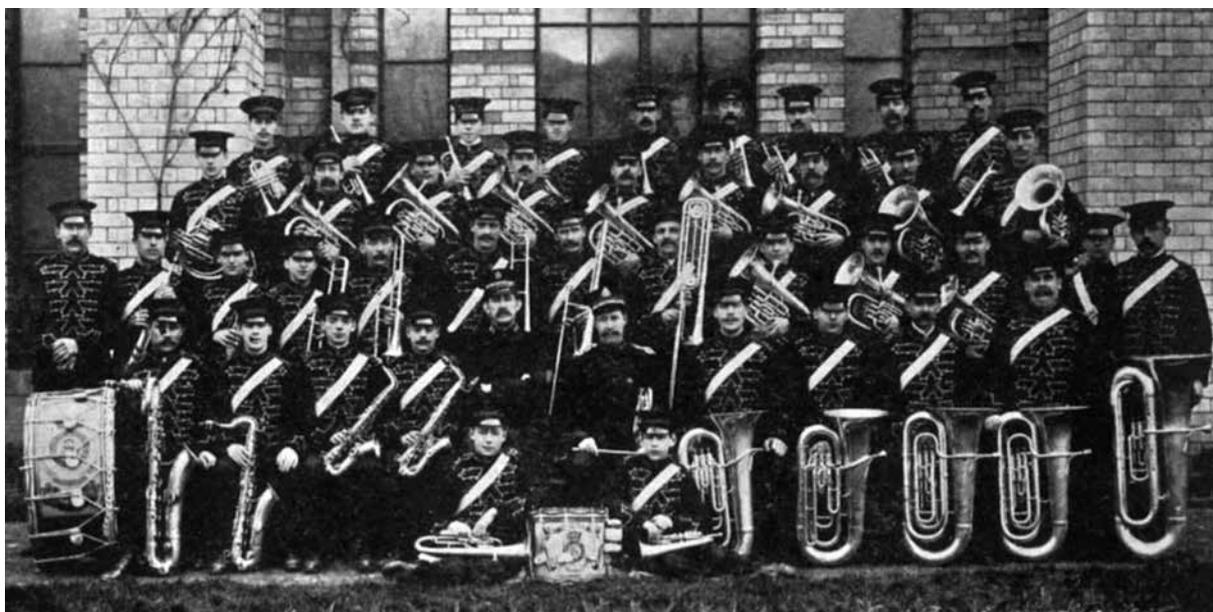


Figure 11. *The Chalk Farm (London) Salvation Army Band, circa 1910, bandmaster Alfred W. Punchard. The bandsman in the centre holds an E♭ bass trombone. It is probable that all the brass instruments (but not the saxophones) were made by the Salvation Army. Courtesy of Gavin Holman [www.ibew.co.uk]*

⁵⁹ Journal of surviving Salvation Army brass instruments, with archival and catalogue data, <<http://www.galpinsociety.org/reference.htm>>

⁶⁰ 'Band Section', *The Local Officer* IV (7), February 1901.

⁶¹ Clifford Grinsted, 'Our Instrument Factory Inventions: The *E♭* Trombone, Water-Key and Lock Device', *The Local Officer*, May 1905, pp.374–376.

a bit cumbersome, but no doubt this instrument could add to the sonority of song accompaniment. According to the catalogue, it had a 'brilliant and powerful tone', giving 'volume and great depth to a large band, and overcoming 'the difficulty of Bass Clef for Bass Trombone players'.⁶² A patent was taken out⁶³ and at least three examples survive.⁶⁴

A trombone water-key and a trombone slide lock were also patented by Grinsted and Stuart.⁶⁵ The water-key was operated by a finger-hook just below the outer slide stay which was connected to the key by a Bowden cable (a steel wire running through a hollow casing wire of german silver)⁶⁶ – a system more frequently found on some German trombones.⁶⁷ The Salvation Army believed it was the first trombone maker to put a lock on a slide,⁶⁸ now a standard feature of all trombones, but slide locks had previously been made⁶⁹ although Grinsted and Stuart were probably unaware of this. A final patent also related to trombone water-keys.⁷⁰

The Salvation Army's best quality instruments until just after WWI were the 'Triumph' models, some of which continued in production through the

1920s alongside the cheaper 'Reliance' instruments. 'Endurance' was the brand name used for later cheap imports, most if not all made in France.⁷¹ The 'Triumphonic' models were introduced from 1920 and were, along with 'Bandmaster' cornets and euphoniums, the top-of-the-range lines.⁷² A 'Jubilee' model cornet was produced for the fiftieth anniversary of the Salvation Army: a prototype was sent from the factory to Judd Street on 8 December 1927 and a number were made in 1928.⁷³

The 'Triumphonic Soloist' tenor trombone followed in June 1932⁷⁴ and was advertised as

Specially Light in Weight (only 2 lb.), nevertheless strong and durable [...] The position of the bell is less over the shoulder, bringing the bell end lower down the slide section; the fourth position can be gauged by adjustment with the rim of the bell [...] The taper of the bell approximates to that of the trumpet, thus making for additional clarity and brilliance of tonal quality. Strain on thumb and fingers of the left hand [is] relieved by shortening the distance between the crossbars of the bell and slide sections.⁷⁵

⁶² *Catalogue of Brass and Military Band Instruments and Drums*. Salvation Army [1905–11], p.16. Salvation Army International Heritage Centre, London, archive, MIF/3.

⁶³ Ernest Edgar Stuart and Clifford Grinsted, 'Improvements in trombones'. G.B. Patent 1236, application 17 January 1903, accepted 19 February 1903. The patent also covered other applications of the auxiliary slide principle such as an alto trombone with tenor trombone slide positions: these may possibly never have been made.

⁶⁴ Journal of surviving Salvation Army brass instruments, with archival and catalogue data, <<http://www.galpainsociety.org/reference.htm>>

⁶⁵ Clifford Grinsted and Ernest Edgar Stuart, 'Improvements in or relating to trombones'. G.B. Patent 21124, application 1 October 1904, accepted 10 August 1905; Clifford Grinsted and Ernest Edgar Stuart, 'Locking device for slide trombones'. G.B. Patent 21125, application 1 October 1904, accepted 10 August 1905.

⁶⁶ Grinsted (1905).

⁶⁷ It was also patented subsequently in 1914 by Joseph Krause who lived in Chicago (information courtesy of Douglas Yeo).

⁶⁸ Grinsted (1905).

⁶⁹ Conn's slide lock was first advertised in 1899, although there was an earlier design by Samuel Stephens from 1895 that was probably not adopted (information courtesy of Douglas Yeo).

⁷⁰ Clifford Grinsted and Ernest Edgar Stuart, 'Improvements in or relating to trombones'. G.B. Patent 995, application 13 January 1913, accepted 8 January 1914. The patent covered operation of the water-key by rotation of the main part of the outer slide.

⁷¹ Instruments were also made by one or more unidentified German manufacturers for sale to continental European Salvation Army bands: examples are a cornet (Salvation Army Central Territory Historical Museum, Hoffman Estates IL, 2014.67) and a cornet (Klingende Sammlung, Bern) inscribed on a plaque on the bell "HANDELSDEPARTMENT" / the Salvation Army emblem with "BLUT u. FEUR and "DIE HEILSAMER" / "DÉPARTEMENT COMMERCIAL".

⁷² Mentioned in *Special list of 'Our Own Make' Band Instruments*. Salvationist Publishing and Supplies Ltd, [1920]. Salvation Army International Heritage Centre, London, archive, MIF/3; *Price list of Band Instruments*. Salvationist Publishing and Supplies Ltd, 1920. Salvation Army International Heritage Centre, London, archive, MIF/3.

⁷³ Factory workshop book entry for instrument 20318, Salvation Army International Heritage Centre, London, archive, MIF 2/2.

⁷⁴ 'The Very Latest: the New "Triumphonic" Soloist Trombone', *Bandmaster and Songster*, 4 June 1932, p.184.

⁷⁵ *Instruments by Salvationist Publishing and Supplies Ltd*, 1937. Salvation Army International Heritage Centre, London, archive, MIF/3; *Instruments by Salvationist Publishing and Supplies Ltd*, 1951, Salvation Army International Heritage Centre, London, archive, MIF/3. The 1951 edition is little changed from the 1937 edition.



Figure 12. Bell flares of standard 'Class A' tenor trombone, numbered at latest by June 1911 but probably before in 1904, serial number 6326 (left) and 'Triumphonic Soloist' tenor trombone, numbered by 7 December 1932, serial number 22542 (right). Authors' collection. Photograph: Antonia Reeve.

At first glance a 'Triumphonic Soloist' appears to be a typical French model narrow-bore tenor trombone, very similar to Besson, Boosey, Hawkes and Higham instruments, but close examination reveals important differences and confirms the advertising claims. The weight of the 'Soloist' bell (without tuning-slide) is only 350g (average of six weighed) which can be compared with the standard 'Triumphonic' trombones at 405g. The sheet brass was the thinnest used in the factory, 0.48mm. The bell end is 60mm lower than on the 'Triumphonic' trombone, and 65mm lower than on the earlier 'Triumph' model trombone. The bell has a more acute flare (see Figures 12 and 13), as a result of which the bell cut-off frequency is higher than for a typical French model trombone, giving greater security in playing high notes and a brighter timbre.⁷⁶ The input impedances of the two instruments, corresponding to the response of the instruments to a player are plotted in Figure 14.

These show higher peaks for resonances 8, 9, 11, and 12 for the 'Triumphonic Soloist' model, which a player would experience as a stronger response in the higher register. This appears to have been intentional acoustical engineering, and is very comparable to the development of the 'Webster Trumpet' by Rudall Carte in the early 1920s.⁷⁷ It is not clear who was responsible for this innovative design: the prominent trombonist Harold Laycock (1895–1974) may have contributed as the prototype was sent on 24 March 1932 to Judd Street 'for Mr Laycock', and on 27 April 1936 Laycock visited the factory and tested a subsequent 'Triumphonic Soloist' trombone.⁷⁸ The model immediately became the best-selling trombone produced by the Army, and was its choice for display in the Festival of Britain Exhibition in 1951.⁷⁹ The last 'Triumphonic Soloist' trombone was numbered by 18 February 1952, by which time narrow-bore trombones had everywhere gone out of fashion.

⁷⁶ Arnold Myers, 'The Horn Function and Brass Instrument Character'. Stewart Carter (ed.), *Perspectives in Brass Scholarship: Proceedings of the International Brass Symposium, Amherst, 1995* (New York: Pendragon, 1997), pp.239–262.

⁷⁷ Frank Tomes and Arnold Myers, 'Rudall Carte's Patent Conical Bore Brasswind and Webster Trumpets'. *Historic Brass Society Journal* 7 (1995), pp.107–122.

⁷⁸ Factory workshop book entry for instruments 22450 and 23429, Salvation Army International Heritage Centre, London, archive. MIF 2/2.

⁷⁹ Factory workshop book entry for instrument 26364, despatched 1 May 1951, Salvation Army International Heritage Centre, London, archive, MIF 2/2.

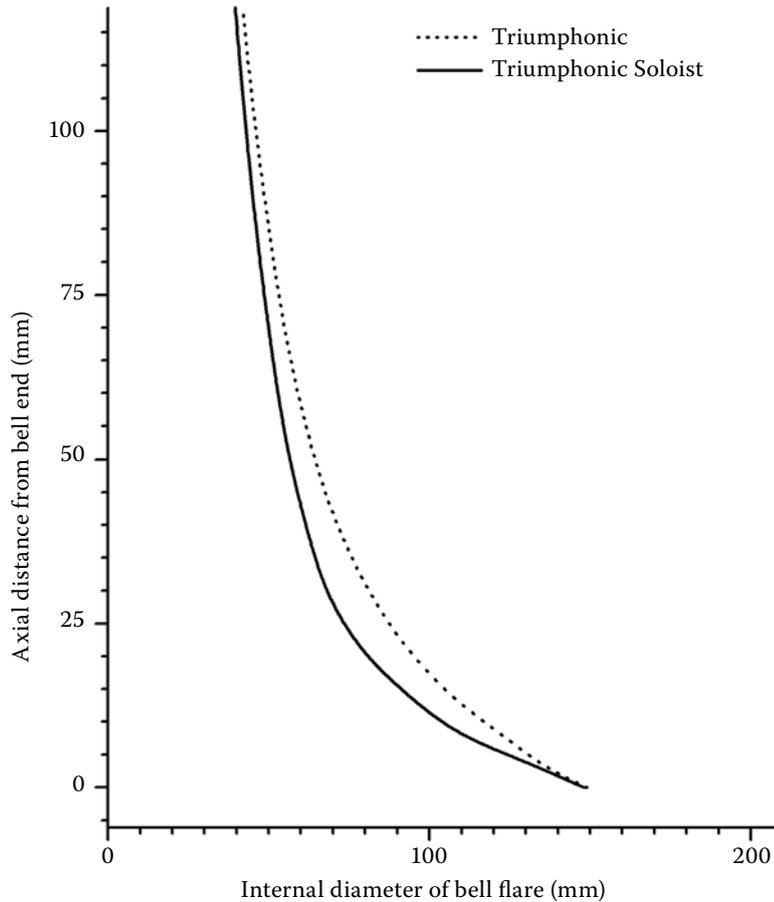


Figure 13. Bell flare profiles of ‘Triumphonic’ tenor trombone, numbered at latest by 16 September 1925 but probably in 1923, serial number 17340 (dotted line) and ‘Triumphonic Soloist’ tenor trombone 22542 (solid line). Authors’ collection.

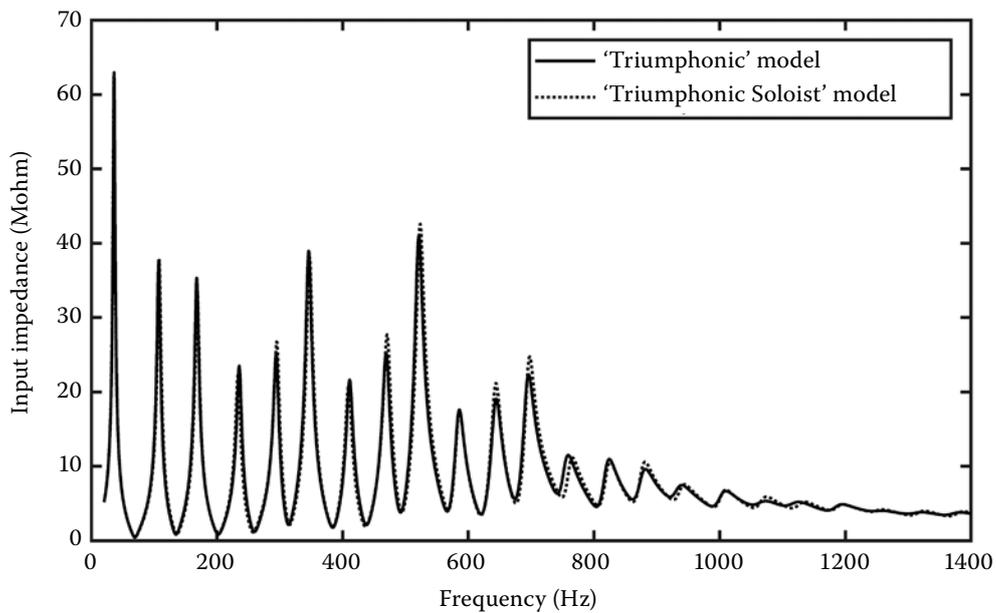


Figure 14. Input impedance plots calculated from the bore profiles of ‘Triumphonic’ tenor trombone, serial number 17340 (solid line) and ‘Triumphonic Soloist’ tenor trombone 22542 (dotted line), both with a Salvation Army ‘Eesi-Lype’ trombone mouthpiece, Edinburgh University Collection of Historic Musical Instruments, St Cecilia’s Hall Concert Room and Music Museum (2962). Courtesy of Murray Campbell.

The 'Festival' model tenor trombone made from 1952 was a medium bore instrument (considered to be large bore at the time) with integral slide stockings, comparable to the Besson 'Academy' and the Boosey & Hawkes 'Imperial 4040' trombones of the late 1940s.⁸⁰ It was developed by Bernard Adams, Manager of the Musical Instruments and Publications Department of S.P. & S. together with the factory craftsmen.⁸¹ A 'Festival' G bass trombone followed in 1953.⁸² Very few narrow-bore trombones were made subsequently.

FACTORY OPERATIONS

The Salvation Army has published illustrated descriptive accounts of its instrument factory operations from time to time, the first soon after the move to St Albans.⁸³ A five-part anonymously-written series appeared in 1920,⁸⁴ followed by a six-part editorial series ten years later.⁸⁵ Finally, a post-war account was written by Arthur Bristow, Manager of the Musical Instruments and Publications Department, in 1948 and 1949.⁸⁶

In the very early days the staff consisted of two men only – a 'maker' and a 'polisher'. In July 1889 an

apprentice was taken on, his indentures signed by the Army's Founder, William Booth. That boy was Jack Furness, who became 'known throughout the trade as an expert in the art of valve-making', perhaps the most skilled job in brass instrument manufacture.⁸⁷ In 1890 a Mr. Hunt started in the workshop at Southwark Street to bring the staff to five. He had just completed his apprenticeship at 'a firm of instrument makers in High Holborn' (presumably William Hillyard) and stayed with the Army for the rest of his career, becoming a cornet and tenor trombone maker, and the deputy foreman.⁸⁸ It was claimed that an unnamed slide maker joining the staff in 1894 had 'spent nearly fifteen years in this particular branch of manufacture, with such houses as Distin's, Higham's, and Boosey's'.⁸⁹

The foreman of the factory in 1894 had been 'apprenticed to a London maker of note, employed by them for sixteen years'.⁹⁰ Clifford Grinsted, apparently the second apprentice taken on,⁹¹ was in charge of the instrument factory for 24 years (1895 to 1919).⁹² Grinsted was also an accountant and held the position of Financial Secretary to the Trade Department;⁹³ in the 1905 and 1914 patents Ernest

⁸⁰ Factory workshop book entry for instruments 26566, numbered by 15 August 1952, Salvation Army International Heritage Centre, London, archive, MIF 2/2.

⁸¹ Bernard Adams, 'Getting Down to Cases'. *The Musician of the Salvation Army*, 17 May 1952, p.154.

⁸² Factory workshop book entry for instrument 26932, numbered by 6 August 1953, Salvation Army International Heritage Centre, London, archive, MIF 2/2.

⁸³ 'The Making of Musical Instruments: An Interesting Visit to One of the Best-Equipped Factories in the Country. Never so Busy as at Present. The Turn-over for 1904 exceeds the Previous Year by £3,000', *The War Cry*, 3 December 1904, p.3.

⁸⁴ 'Army Instruments in the Making'. *The Bandsman, Local Officer, and Songster*, March 1920, p.35; April 1920, pp.57–58; May 1920, p.73; June 1920, p.91; July 1920, pp.105, 107.

⁸⁵ [Thomas E. Tucker], 'The Making of Army Instruments: a Survey of the Work Done at the St Albans Factory', *The Bandsman and Songster*, 22 February 1930, p.59; 1 March 1930, p.69; 8 March 1930, p.76; 15 March 1930, p.87; 22 March 1930, p.94; 29 March 1930, p.101.

⁸⁶ A. Bristow, 14 February 1948, pp.49, 56; 21 February 1948, p.61; 20 March 1948, p.93; 10 April 1948, p.117; 15 May 1948, p.157; 22 May 1948, p.165; 5 June 1948, p.181; 19 June 1948, p.197; 17 July 1948, p.229; 21 August 1948, p.269; Volume 12, 9 April 1949, p.113; 15 May 1949, pp.153, 155; 23 July 1949, p.236; 10 September 1949, p.293; 8 October 1949, pp.324–325; 19 November 1949, p.371; 26 November 1949, p.379.

⁸⁷ Arthur Bristow, 'Our Own Make: the Story of the Manufacture of Salvation Army Brass Instruments'. *The Musician of the Salvation Army*, Volume 11, 14 February 1948, p.56.

⁸⁸ Bristow (1948), p.56.

⁸⁹ *The War Cry*, 19 May 1894, p.12. This claim is to be treated with suspicion since the Distin factory at Great Newport Street was acquired by Boosey & Co in 1868 and closed in 1876, see Arnold Myers, 'Brasswind Innovation and Output of Boosey & Co in the Blaikley Era', *Historic Brass Society Journal* 14 (2002), pp.391–423.

⁹⁰ 'Are Salvation Army Instruments the Best? A Bandmaster's Inspection of the Factory'. *The War Cry*, 19 May 1894, p.12.

⁹¹ 'The Making of Musical Instruments: An Interesting Visit to One of the Best-Equipped Factories in the Country. Never so Busy as at Present. The Turn-over for 1904 exceeds the Previous Year by £3,000', *The War Cry*, 3 December 1904, p.3.

⁹² Boon (1978), p.174.

⁹³ *The Salvation Army Yearbook*, 1907; *The Salvation Army Yearbook*, 1910.



Figure 15. General view of the main workshop at the St Albans factory, from the *Catalogue of Brass and Military Band Instruments and Drums*, [1905]. Courtesy of The Salvation Army International Heritage Centre.

Edgar Stuart was described as ‘Foreman’.⁹⁴ The St Albans works manager in the factory’s heyday, from 1919 to 1939, was the Jack Furness mentioned above,⁹⁵ also at one time bandmaster of the St Albans Salvation Army Band. From 1939 to 1950 the manager was Arthur Bristow.⁹⁶

The period 1901–14 was a period of expansion in the spacious St Albans factory (see Figure 15). By 1904 the factory employed 60 men and women at St Albans, and exported instruments to Canada, Australia, New Zealand, and South Africa.⁹⁷ Arthur Bristow wrote of the pre-war period:

Instruments were also made for export and orders began pouring in from all parts of the world. It was not an unusual thing to have from 250 to 300 instruments on order, in addition to an enormous number of home orders. Of this period, one skilled craftsman wrote ‘We worked overtime for four-and-a half years, sometimes at the week-end, sometimes all night. We had seventy-four men at work.’

The 1914–18 war proved a real set-back. All orders were cancelled, including those for 250 instruments for export alone. Work came to a standstill. All the men were drafted into the forces or to national service, and the factory was left empty apart from the foreman and one or two lads. After the war orders for full sets began to flow again. New ideas, new methods of production and new models were introduced.⁹⁸

While the factory was recovering after the war it was inundated with orders and Richard Wilson, the Trade Secretary, exhorted customers to ‘exercise a little patience’ with the backlog.⁹⁹

Labour relations were apparently good: profits went to propagating the gospel rather than to rich factory owners or remote shareholders. Nevertheless, the Salvation Army entered into an agreement in 1913 with the main commercial brass instrument makers to ‘resist the demands of the men for an increased rate of pay’. On 18 November 1913 the Managing Director of Besson & Co, Henry Grice,

⁹⁴ G.B. Patent 21125, application 1 October 1904, accepted 10 August 1905; G.B. Patent 995, application 13 January 1913, accepted 8 January August 1914.

⁹⁵ ‘Army Instruments in the Making: From Small Beginnings to Present-Day Achievements - Our St. Albans Factory Described’, *The Bandsman, Local Officer, and Songster*, March 1920, p.35; Bristow (1948), p.56.

⁹⁶ Salvation Army Yearbooks; Bristow (1948), p.49; Boon (1978), p.17.

⁹⁷ *The War Cry*, 5 November 1904, p.15; *The War Cry*, 3 December 1904, p.3.

⁹⁸ Bristow (1948), p.56.

⁹⁹ ‘Music, Instruments and Uniform’, *The Bandsman, Local Officer, and Songster*, August 1919.

wrote to John Laurie, Secretary of Trade Affairs at Judd Street, confirming what had been agreed at a meeting of the two on the previous day, principally:

- They would resist the demands of the men for an increased rate of pay
- They were opposed to the imposition of a flat rate for all grades of labour
- They would refuse to employ Trade Union labour only, but would remain free to employ any competent man, whether a Unionist or non-Unionist
- The S.A. would be favourable to a system of piece work or payment by results
- The S.A. would be in favour of a larger proportion of Apprentices than 1 to 10
- They would concede to the demand for a 54 hours week and to pay time and a quarter for any overtime beyond the 54 hours

Besson were acting in concert with Hawkes & Son and Boosey & Co, agreeing that in the event of a strike against either, the other two would lock their Union workmen out. The Army doubted whether they could undertake not to employ any men then employed by Besson, Hawkes or Boosey in the event of a strike or lockout.¹⁰⁰ This letter also confirms that the employers conceded to the workers' demand to reduce the working week to 54 hours. The Boosey & Co Brass Instrument Books show that wage levels remained low until 1918.¹⁰¹

The immediate post-war period was a time of rapid inflation and labour unrest. The Military Musical Instrument Makers' Trade Society negotiated a settlement with the principal London manufacturers of wind instruments and drums which came into effect in January 1919. The minimum rates of pay agreed were 1s 8d per hour for men making instruments, valves, bells and bows, spinners, piston, mouthpiece and general turners; 1s 7d per hour for

assistants to the above and for tube branch makers, ferrule and slide turners, also for drum makers and liners; 1s 6d per hour for polishing, finishing and other skilled work; and 1s 5d per hour for drum painters and primers. Improvers (workers in their first year after a four- or five-year apprenticeship) were to be paid a minimum of 1s 2½d or 1s 1d per hour depending on the work. The standard week was to be 48 hours with overtime paid beyond this and for Saturday afternoons, Sundays, holidays, and night work. All apprentices were to be indentured, and taken on in a ratio of one apprentice to five employed men. Discharged and disabled soldiers and sailors were also to be taken on at one per five employed men.¹⁰² As a result of this agreement, instrument prices had to be raised by 10%.¹⁰³

The Army asserted in 1920 that

Trade Union conditions prevail throughout the factory, which is perhaps the best-situated and most hygienic in the trade. No piece-work or bonus system is in operation. Employees are paid hourly rates, and we find this improves good feelings between the men and the management. Built on the outskirts of the historic city of St. Albans, in the midst of green fields, with the clean breezes from the Hertfordshire hills blowing through many windows, the factory is far from being typical of the hot, badly-ventilated workshops common to our industrial areas.¹⁰⁴

Of the 50 or so men, women and boys at St Albans in 1920, some were makers responsible for the completion of instruments, others were valve makers, polishers, and other operatives. The makers tended to specialise in certain instrument types, as shown for a typical year in Table 3.

We see for example that Austin made all the euphoniums but nothing else; Last and Dear between them made all the cornets; Hunt made all

¹⁰⁰ Besson & Co. Directors' Minute Books, Boosey & Hawkes Archive, Horniman Museum.

¹⁰¹ Boosey & Hawkes Archive, Horniman Museum, London.

¹⁰² *Schedule of Minimum Rates and Working Conditions agreed to by the employers named heron and the Military Musical Instrument Makers' Trade Society* [printed pamphlet]. Salvation Army International Heritage Centre, London, archive, MIF/1. The agreement was signed for Besson & Co. by Henry Grice (Director), for Boosey & Co. by D. J. Blaikley (witness, Arthur Blaikley), for Hawkes & Son by Geoffrey Hawkes; for Rudall Carte & Co. by Montagu S. George, and for Salvationist Publishing & Supplies, Ltd. by W. Wilson; it was signed for the men by W. Rugless, A. Owen, J. Deletant, J.H. Adamson, A. Atkins, and P. Dowling, Secretary.

¹⁰³ *Price list of Band Instruments*. Salvationist Publishing and Supplies Ltd, 1920. Salvation Army International Heritage Centre, London, archive, MIF/3. This is overprinted 'Owing to increases in wages since going to press, the prices of Brass Instruments and Fittings in this list are advanced by 10%. The commercial manufacturers increased prices even more.'

¹⁰⁴ 'Army Instruments in the Making: From Small Beginnings to Present-Day Achievements - Our St. Albans Factory Described', *The Bandsman, Local Officer, and Songster*, March 1920, p.35. Nevertheless, despite these ideal conditions, a completed batch of 12 cornets (18366-75) was destroyed by fire on 11 November 1925 (Factory workshop book and stock book, Salvation Army International Heritage Centre, London, archive, MIF 2/2 and MIF 2/1).

Table 3. Named operatives in 1926. The factory workshop books also record the names of the polishers: Clare, Dibsedale, Dunham, Firman, Greengrass, Keen, Runchman, G. Smith, Wright.

Instrument Maker	Production in 1926
E. Austin	96 euphoniums
Arthur Carrick	60 tenor horns + 24 G bass trombones + 1 flugelhorn + 1 B \flat trumpet
Dear	143 B \flat cornets + 18 soprano cornets + 6 B \flat trombones
Fassnidge	33 bombardons and monster basses
Hodgson	6 flugelhorns + 6 baritones
Hunt	35 B \flat trombones
Last	170 B \flat cornets
Lawrence	6 baritones
Norton	48 bombardons and monster basses
T. Palmer	72 baritones
Thompson	18 bombardons and monster basses
Valve Maker	Production in 1926
Charles Palmer	239 valve sets for cornets, euphoniums, bombardons and monster basses
Parsons	150 valve sets for baritones, bombardons and monster basses
Young	241 valve sets for cornets, tenor horns, flugelhorns and trumpet

the tenor trombones and nothing else. The workshop processes were exactly the same as in the commercial London factories: instruments were ‘completely manufactured throughout from brass sheets and seamless tubes supplied by manufacturers.’¹⁰⁵ Arthur Carrick worked in the instrument factory from 1892, was appointed senior charge hand in 1921 and retired in 1952, while Charles Palmer joined the staff in 1903 and by 1919 was head of the valve section, also retiring in 1952; both were trombonists in Salvation Army bands and learned the trade on the job.¹⁰⁶

In contrast to the experience of other brass instrument makers, the setbacks of the Second World War were less severe than those of the first. Arthur Bristow wrote:

When World War II broke out and men and materials became short the manufacture of brass instruments became very difficult. A large percentage of the Army’s skilled men were directed into Government-controlled shops. But the work of manufacture of Salvation Army instruments continued on a modified scale. In October, 1940, the Air Ministry requisitioned the greater portion of the factory. Fortunately, ‘Campfield’ was allowed to retain the up-to-date electro-plating plant and the burnishing and polishing rooms. Rooms outside the factory

were rented to house unused machinery and stock. Instrument manufacture continued.

Worse was to come, however. On January 22, 1941, a further requisition was asked for: ‘The remaining section of the musical instrument manufacturing and repair shop at Campfield Works, Campfield Road, St. Albans, together with necessary access to the services thereto.’ This, of course, would have meant closing the Works for the duration of the war. However, an appeal was made and the Army was allowed to retain a narrow strip of floor space – fourteen yards by four and a half yards – to contain the minimum machinery. Despite discomforts, the remaining instrument makers carried on, making and repairing instruments throughout the war.

With the cessation of hostilities came the work of reconstruction. This was no easy task, for it was several months after the war’s conclusion that the men returned from work of national importance. They had been engaged in specialized work as sheet metal workers, coppersmiths and aircraft constructors ... Bandsmen who are mechanics will readily understand the depreciation which overtook the delicate machinery during its years of idleness, and the wear and tear of those machines requisitioned for Government use. Much had to be done to repair plant, benches, tools and machinery

¹⁰⁵ Bristow (1948), p.56.

¹⁰⁶ ‘23,000 Brass Instruments: Two Craftsmen with 116 Years’ Service’, *The Musician of the Salvation Army*, 29 March 1952, pp.101, 104.

before full production could take place, but everyone worked with a will to bring this about.¹⁰⁷

Most of the factory footprint was used through the war by the De Havilland Aircraft Company¹⁰⁸ who brought in their own operatives rather than employing the Salvation Army instrument-making staff.

The factory workshop books show that instruments were ordered in batches, usually of 12 of the same model, never more, and occasionally six or another number. The instruments in a batch were given consecutive serial numbers. It can be assumed that a batch would be ordered when stocks at Judd Street were running low, but frequently one or two instruments in a batch would be completed quickly (presumably to meet an urgent order), while others in the same batch could be tuned and despatched months (sometimes years) later. Evidently at any one time there would be large numbers of partly-made instruments in the factory.

The instrument-making processes, identical with those in comparable craft-based brass instrument factories, are described and illustrated in the accounts cited above, and selected photographs are reproduced here (Figures 16–27) to convey something of the character of the St Albans factory.



Figure 16. *Marking out a bell using a template.* Courtesy of *The Salvation Army International Heritage Centre.*



Figure 17. *Preparing to gusset a bell.* Courtesy of *The Salvation Army International Heritage Centre.*

¹⁰⁷ Bristow (1948), p.61.

¹⁰⁸ '23,000 Brass Instruments: Two Craftsmen with 116 Years' Service', *The Musician of the Salvation Army*, 29 March 1952, pp.101, 104.



Figure 18 (above). *Filling a tube with lead in preparation for bending. Courtesy of The Salvation Army International Heritage Centre.*



Figure 19 (left). *Tube bending by hand using a jig. Courtesy of The Salvation Army International Heritage Centre.*

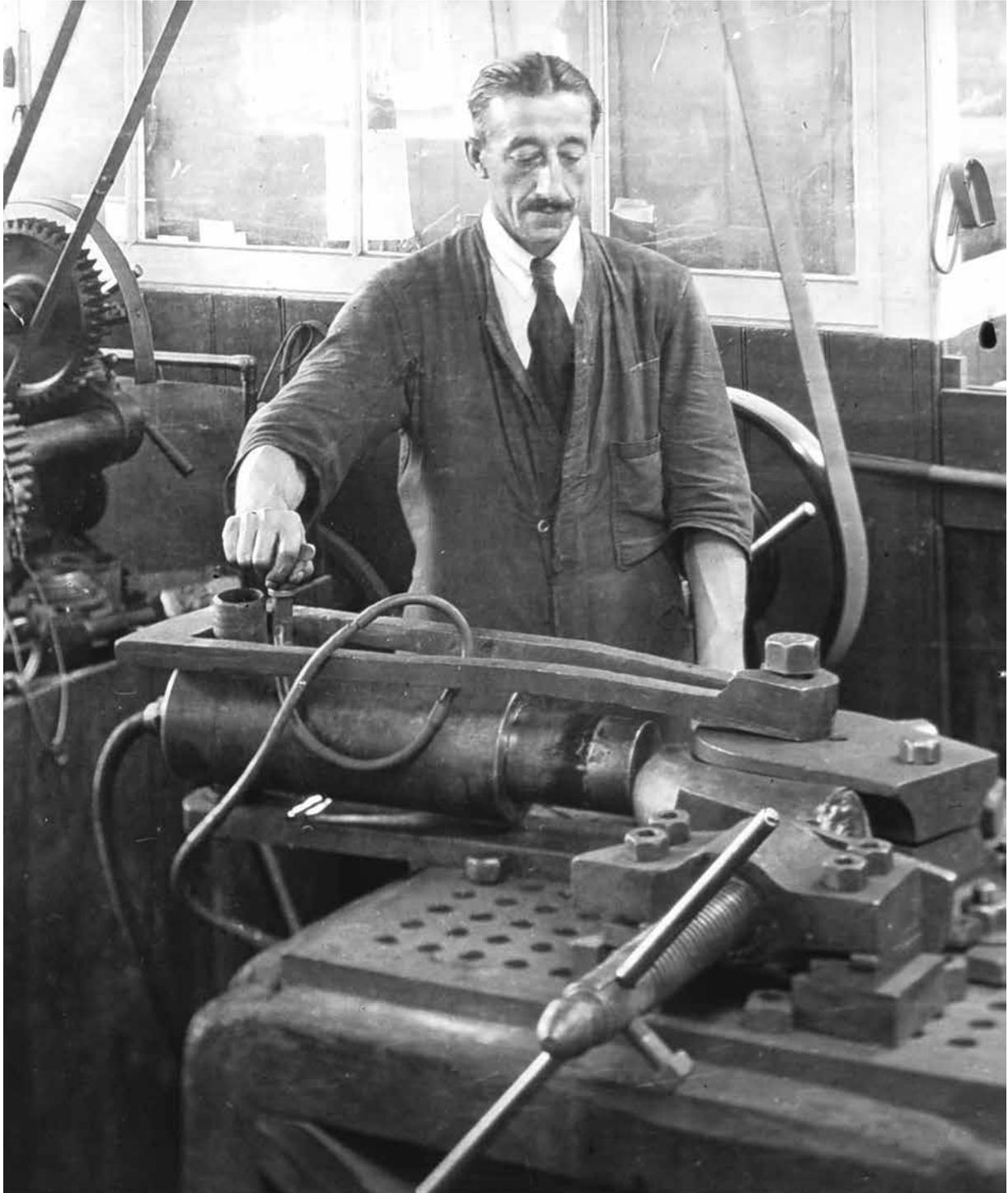


Figure 20. *Bending a wide tube using hydraulic power. Courtesy of The Salvation Army International Heritage Centre.*



Figure 21 (above). *Bell spinning.* Courtesy of The Salvation Army International Heritage Centre.



Figure 22 (left). *Assembling and fitting.* Courtesy of The Salvation Army International Heritage Centre.



Figure 23. *Assembling and fitting.* Courtesy of The Salvation Army International Heritage Centre.



Figure 24. *Engraving and burnishing.* Courtesy of The Salvation Army International Heritage Centre.

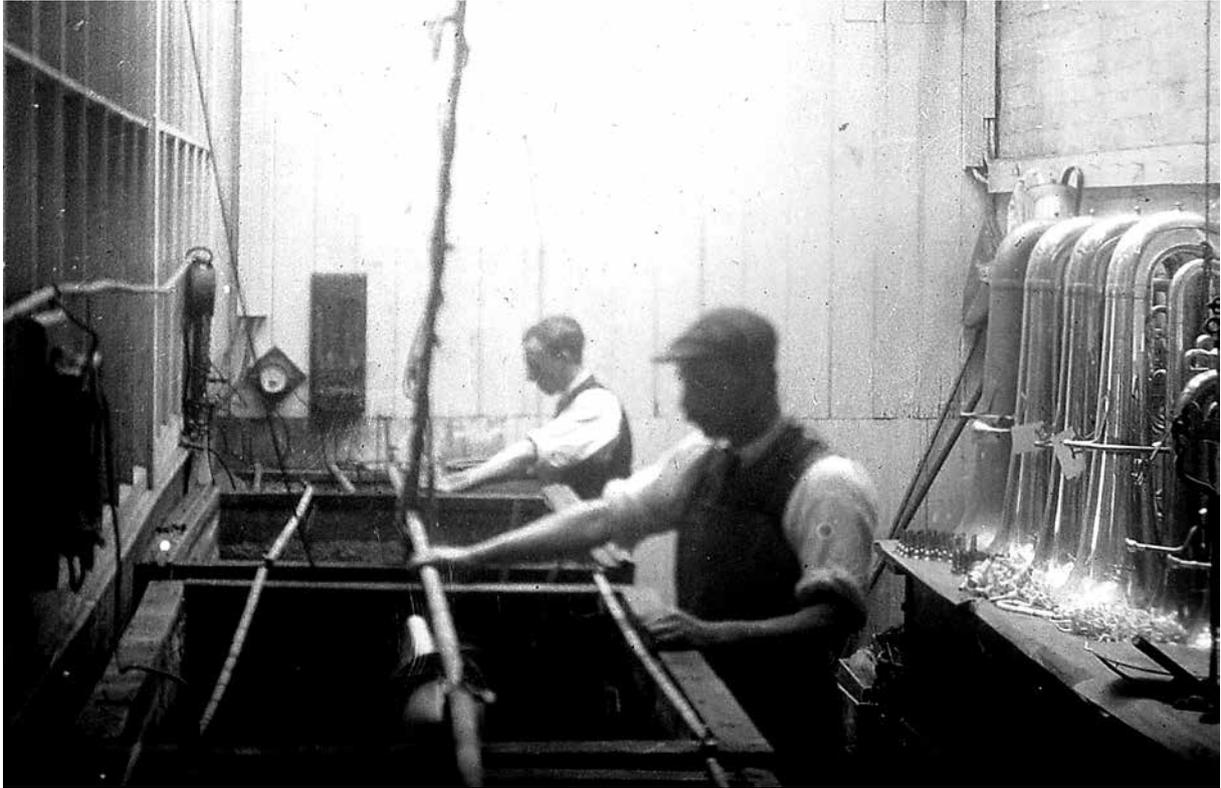


Figure 25. *Silver-plating. Courtesy of The Salvation Army International Heritage Centre.*

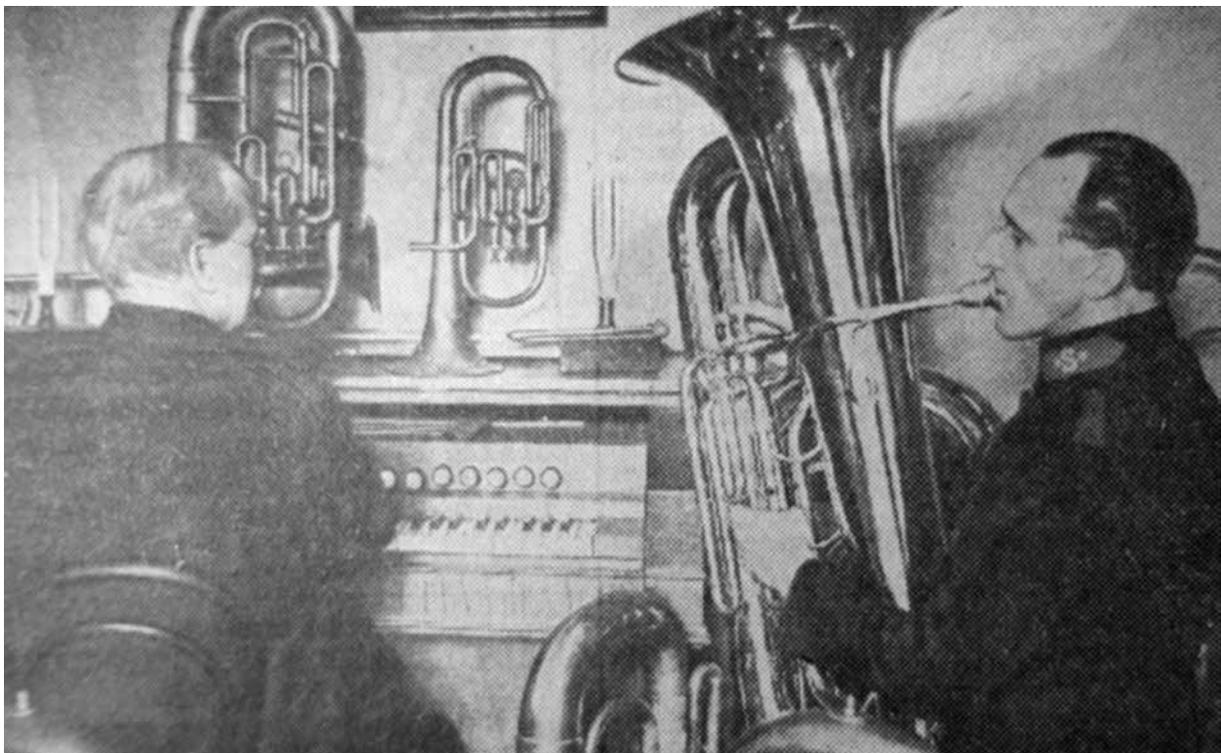


Figure 26. *Frederick Hawkes (at the harmonium) and Albert Jakeway (with monster BB_b bass) tuning in 1930. Bandsman and Songster, 15 March 1930, p.87.*



Figure 27. Mr Hunt testing in 1930 before packing the instruments for despatch. *Bandsman and Songster*, 29 March 1930, p.101.

Silver-plating was initially seen as an unnecessary extravagance for Army Instruments,¹⁰⁹ but by the time of the move to St Albans it was recognised as good value for money as it extended the life of brass instruments.¹¹⁰

Tuning was taken seriously. When instruments were made in London, each was tested in the presence of the Head of Army Music, Richard Slater.¹¹¹ At St Albans, Clifford Grinsted tuned every instrument during his tenure.¹¹² After Grinsted left for a new appointment in 1919, tuning became a weekly ritual: Frederick Hawkes and Arthur Goldsmith, jointly in charge of Army music and composers of much

of it, came down from London and tuned every instrument.¹¹³ A standard of A4 = 455Hz was used,¹¹⁴ all instruments were 'tuned a little sharp to allow of the predisposition noted among some Bandsmen to blow slightly on the flat side'.¹¹⁵ Instruments were tuned before completion so that adjustments could be made if necessary.

DECLINE

After the post-war absorption of Besson & Co by Boosey & Hawkes¹¹⁶ and the fading of the Higham brand¹¹⁷ there remained only two British manufacturers of brass band instruments,

¹⁰⁹ '23,000 Brass Instruments: Two Craftsmen with 116 Years' Service', *The Musician of the Salvation Army*, 29 March 1952, pp.101, 104.

¹¹⁰ Boon (1978), pp.173– 4.

¹¹¹ Are Salvation Army Instruments the Best? A Bandmaster's Inspection of the Factory. *The War Cry*, 19 May 1894, p.12.

¹¹² Boon (1978), p.174.

¹¹³ 'Music, Instruments and Uniform', *The Bandsman, Local Officer, and Songster*, August 1919, p.43; 'Our "Triumph" Instruments: an Appreciation', *The Bandsman, Local Officer, and Songster*, April 1920, p.56.

¹¹⁴ 'Army Instruments in the Making', *The Bandsman, Local Officer, and Songster*, June 1920, p.91.

¹¹⁵ 'The Making of Army Instruments: A Survey of the Work Done at the St. Albans Factory', *The Bandsman and Songster*, 15 March 1930, p.87.

¹¹⁶ Jocelyn Howell, 'Boosey & Hawkes: The Rise and Fall of a Wind Instrument Manufacturing Empire, PhD Thesis, City University London, 2016.

¹¹⁷ Arnold Myers, 'Made in Manchester: Instruments of the Higham Firm', *The Galpin Society Journal LXXI* (2018), pp.161–178, 156–157.

Salvationist Publishing and Supplies and the far larger company of Boosey & Hawkes. They were not strictly in competition since the Army ‘own make’ instruments were sold only to Salvation Army bands. In 1964 there was a joint announcement from the two manufacturers that they would discontinue the manufacture of high pitch instruments.¹¹⁸ Until then, Salvation Army and ‘outside’ brass bands in Britain maintained a pitch standard of A4 = 452.4 Hz, while the rest of the musical world played nominally at A4 = 440 Hz. This created problems for British brass bands wishing to play alongside military bands, orchestras or overseas brass bands, or play band instruments with piano accompaniment. Both factories were making instruments at high and low pitch – in the case of the Salvation Army the low pitch instruments were for overseas bands. The move to low pitch took several years. The Army’s existing brass instruments (if not scrapped) were virtually all converted to low pitch by sets of replacement tuning-slides or by extending their original tuning-slides. Much of this refurbishment was carried out in the St Albans factory.

After the Second World War the commercial makers of brass instruments (in the U.K., principally Boosey & Hawkes) largely replaced craft production by modern equipment, efficient engineering, semi-skilled machine operators, and line production.¹¹⁹ The Salvation Army’s factory, which had been well-equipped and up-to-date in 1901, had become old-fashioned with its dependence on traditional skills. Commercial makers in Britain and overseas could make instruments better (at the high end of the market) and cheaper (at the low end). The Salvation Army’s ‘Own Make’ ceased being economical.

Production had declined from 700 instruments per annum in 1926 (mostly for the home market) to 400 in 1937, and the same in 1957 (but by this time mostly sold overseas). A late typescript price list details a very limited range.¹²⁰ The Salvation Army

Table 4. Trading figures averaged over the ten years 1957–66 (years to 31st March).

Sales income	£21,000
Increase in value of stock	£500
Purchases [materials]	£4,000
Wages	£21,000
Rent, utilities, etc	£2,000
Annual loss	£6,000

itself was no longer rapidly expanding as it had been in the early decades. The Army’s models fell behind fashions in brass instruments, and it was becoming more attractive for the Salvation Army bands to buy good instruments from other makers. Indeed, in the years following the Second World War, when the factory was rebuilding capacity, the Salvation Army bought in over 1000 instruments from Boosey & Hawkes and Besson to meet their needs.¹²¹ The Army’s overseas territories were ordering more instruments from other makers, such as the ‘Dixie’ long model cornets and trombones made by Boosey & Hawkes (presumably for the U.S.) in the early 1960s.¹²²

By the 1960s the factory was losing money, and an account was drawn up showing losses in the period 1957–66 inclusive,¹²³ see Table 4.

Over this period wages rose from £16,000 per annum to £24,000 and losses rose from £1,000 to £7,000 per annum. By 18 February 1972 a decision to transfer the factory and most of the staff to Boosey and Hawkes had been taken. Bernard Adams, by then Chief Secretary of S.P. & S. at Judd Street, wrote to Mr. A. Smith, Secretary to the Campfield Press Pension Fund at St Albans, to settle the pension arrangements of the ten remaining factory staff. Eight members of the musical instrument factory were to cease being employed by S.P. & S. on 24 February 1972 when they were to enter service with

¹¹⁸ ‘Low Pitch for Army Bands: Gradual Change from High Pitch Advised’, *The Musician of the Salvation Army*, 27 (12), 21 March 1964, p.177; Dean Goffin, ‘Advantages are Incalculable’ *The Musician of the Salvation Army*, 27 (12), 21 March 1964, p.179; Eric Ball, ‘“Low” Pitch for Brass Bands: definite plans at last’, *British Bandsman*, 4 April 1964, p.1; Dean Goffin, ‘Advantages are Incalculable’, *British Bandsman*, 4 April 1964, p.2.

¹¹⁹ Howell (2016).

¹²⁰ *Price List of ‘Triumphonic’ Instruments*. Salvationist Publishing and Supplies Ltd, August 1971 [typescript]. Salvation Army International Heritage Centre, London, archive, SPS/2/1/3.

¹²¹ Stock books. Salvation Army International Heritage Centre archive, MIF 2/1.

¹²² The ‘Dixie’ cornet was model 826; the ‘Dixie’ trombone was model 1400, similar to the ‘Westminster’ and ‘Regent’ trombones for the home market.

¹²³ *Musical instrument factory comparative trading and profit & loss account*. Salvation Army International Heritage Centre archive, MIF/1.

Boosey and Hawkes, and were due to be paid the respective amounts to which they become entitled on ceasing membership of the Pension Fund. In addition, *ex gratia* payments from S.P. & S. were to be made to the same men. Two remained as S.P. & S. employees; their pension fund affairs were unaffected when control of the instrument factory transferred to Boosey and Hawkes.¹²⁴

Boosey & Hawkes acquired the equipment (superannuated as it was), rented the St Albans factory, took over management,¹²⁵ and continued to make the 'Bandmaster' cornet and 'Triumphonic' tenor horn, two of the Army's more successful models,¹²⁶ reportedly until 1979.¹²⁷ The Boosey & Hawkes Brass Instrument books show that 207 instruments such as cornets of B&H and Besson models were also made at St Albans in the 1970s.¹²⁸ Salvationist Publishing & Supplies continued to supply Army bands with instruments, selling those made by Boosey & Hawkes in St Albans, Boosey & Hawkes's own models made in Edgware, instruments from other makers, and second-hand stock (used instruments could be traded in).¹²⁹ S.P. & S. continued to handle brass instrument repairs, some of which may have been carried out by Boosey & Hawkes in the basement of their Regent Street premises. The Campfield factory has since been demolished and the site given over to light industry.

THE HERITAGE

What is our heritage today of this 80-year production of 'own make' instruments? Salvation Army models have rarely if ever been the instruments of choice for players.¹³⁰ They were, with the few exceptions described above, of conventional design and were generally of workmanlike but modest quality. Those extant are mostly less than 100 years old. Salvation Army instruments are unlikely ever to be played in period music performance or to be copied for use in re-enactments. As a result they have had little appeal to collectors, and have not extensively migrated into

music museum holdings, see Table 5.

Salvation Army instruments in museums are mostly in museums devoted to the history of the Salvation Army, such as the Salvation Army International Heritage Centre in London and several overseas (Table 6). Half of these are cornets. In Salvation Army museums instruments tend to be regarded as memorabilia kept because of their associations with particular players or local corps. The number in private hands is unknown,¹³¹ and no doubt some are still in use in S.A. bands, though these, if made before the change to low pitch following the decision of 1964, have usually suffered pitch conversion by extension of the tuning-slides.

The 22 instruments of the Salvation Army Central Territory Historical Museum were donated in 2014 by William Scarlett – salvationist, collector and former Chicago Symphony Orchestra trumpet player.¹³² Overall there is a preponderance of cornets, reflecting the tendency of collectors and

Table 5. Museum populations of 'own make' Salvation Army brass instruments.

Instrument	Music Museums	Salvation Army Museums
Soprano cornet	0	0
B ₁ Cornet	1	24
Flugelhorn	3	3
Tenor horn	2	5
Baritone	1	5
Alto trombone	0	1
Tenor trombone	5	7
G bass trombone	1	1
E ₁ bass trombone	1	1
Contrabass trombone	0	0
Euphonium	2	5
E ₁ bass	0	2
BB ₁ bass	1	0
Total	17	48

¹²⁴ Salvation Army International Heritage Centre, London, archive, MIF/1.

¹²⁵ Dennis Lofthouse, 'Wedding of the Year'. [Boosey & Hawkes] *Edgware Newsletter*, Christmas 1972, p.5.

¹²⁶ 'Instrument Factory Changes'. *The Musician of the Salvation Army*, 19 February 1972, p.115.

¹²⁷ William Scarlett, quoted at: <<http://www.heilsarmeemuseum-basel.ch/E/brassinstruments.php>>

¹²⁸ Boosey & Hawkes Archive, Horniman Museum.

¹²⁹ 'Instrument Factory Changes'. *The Musician of the Salvation Army*, 19 February 1972, p.115.

¹³⁰ Nevertheless, publicity for Army instruments could draw on testimonials with glowing praise, as in 'Important to Bandmasters, Deputy Bandmasters and Bandsmen', *The War Cry*, 5 November 1904, p.15.

¹³¹ One private collector in Finland has no fewer than 18.

¹³² Elizabeth Kinzie, 'Bill Scarlett: A Noteworthy Life', *The War Cry* [U.S.], 1 March 2003, pp.4, 7.

S.A. Central Territory Historical Museum, Hoffman Estates, IL	22
University of Edinburgh	10
S.A. International Heritage Centre, London	8
Heilsarmee-Museum (S.A. Museum), Basel	8
Stiftung Heilsarmee Schweiz (S.A. Archive and Museum), Bern	8
S.A. Australia Southern Territory Archives and Museum, Melbourne, VIC	6
S.A. Archives & Museum, Scarborough, Ontario	5
S.A. Australia Eastern Territory Heritage Preservation Centre, Bexley North, NSW	3
The Zurbarán Trust (The Faith Museum, Bishop Auckland)	2
Royal Conservatoire of Scotland	2
Horniman Museum, London	2
Klingende Sammlung, Bern	2
S.A. Museum of the West, Rancho Palos Verdes, CA	1
Ringve Museum, Trondheim	1
Historical Museum, Basel	1
Musica Kremsmünster	1

keepers of memorabilia to amass small instruments. A list of surviving brass instruments is maintained on the Galpin Society website, URL: <<http://www.galpinsociety.org/reference.htm>>; the author would be glad to hear of other extant instruments.

APPENDIX – SERIAL NUMBERS

Dating instruments by serial number is necessarily approximate. It is a reasonable assumption that numbers were allocated serially at the time instruments were ordered (usually in batches) from the factory. After a period of time, an instrument would be completed to the extent that the number

and trading address were stamped on the bell. The date when an instrument was tuned was also a considerable time after it was numbered, and the date of despatch from the factory was usually later still. The factory workshop and stock books record only these last two dates. The period of time from order to despatch could be weeks or months, in many cases years, and varied greatly within batches: some instruments progressed rapidly from order to inscribing, tuning and despatch while others in the same batch took longer to complete. This variation accounts for some apparent anomalies, such as the fact that the highest serial number of an instrument

May 1889	Workshop commenced at Southwark Street	Serials may (or may not) have started with 1
April 1890	Factory and Trade Headquarters moved to Clerkenwell Road	[no instrument stamped 'Southwark Street']
May 1894	Claim that over 1,500 instruments had been produced	
October 1895	Claim that over 1,750 instruments had been produced	
October 1896	Factory and Trade Department moved to Fortress Road	Highest recorded serial with Clerkenwell Road stamping, 3993
June 1911	New Trade Headquarters opened at Judd Street	Highest recorded serial with Fortress Road stamping, 10707
1914–1918	Wartime suspension of production	
July 1917	Salvationist Publishing and Supplies Ltd incorporated	Highest recorded serial stamped 'Salvation Army Trade Headquarters', 14036
16 December 1925	Factory books: highest numbered in a batch including at least one tuned by end of 1925	18431

inscribed with the Fortress Road address is 10707 while the lowest serial number of an instrument inscribed with the later Judd Street address is 10007. The date of moving from old premises, after which only a new address would be inscribed on an instrument, or an inscribed presentation date, gives the latest possible date at which an instrument was numbered, a *terminus ante quem*. The date when the first instrument in a batch was tuned or despatched is also the latest possible date at which all instruments in the batch will have been numbered.

In constructing a timeline, the points in Table 7 need to be taken into account. For the period covered by the factory workshop books, a 'numbered by' date can be suggested: for each instrument the earliest date (tuned or despatched) for instruments in the batch, or in any subsequent batch.

The following list gives suggested years in which instruments were probably numbered, the estimates adjusted to give plausible annual production figures.

<i>Serial number</i>	<i>Latest possible date</i>
1167	1891 Dec 31 (estimated)
1733	1892 Dec 31 (estimated)
2300	1893 Dec 31 (estimated)
2867	1894 Dec 31 (estimated)
3433	1895 Dec 31 (estimated)
4000	1896 Dec 31 (estimated)
4200	1897 Dec 31 (estimated)
4400	1898 Dec 31 (estimated)
4600	1899 Dec 31 (estimated)
4800	1900 Dec 31 (estimated)
5000	1901 Dec 31 (estimated)
5650	1902 Dec 31 (estimated)
6300	1903 Dec 31 (estimated)
6950	1904 Dec 31 (estimated)
7600	1905 Dec 31 (estimated)
8250	1906 Dec 31 (estimated)
8900	1907 Dec 31 (estimated)
9625	1908 Dec 31 (estimated)
10350	1909 Dec 31 (estimated)
11075	1910 Dec 31 (estimated)
11800	1911 Dec 31 (estimated)
12533	1912 Dec 31 (estimated)
13267	1913 Dec 31 (estimated)
14000	1914 Dec 31 (estimated)
14017	1915 Dec 31 (estimated)
14033	1916 Dec 31 (estimated)
14050	1917 Dec 31 (estimated)
14100	1918 Dec 31 (estimated)
14758	1919 Dec 31 (estimated)
15469	1920 Dec 31 (estimated)
16154	1921 Dec 31 (estimated)
16839	1922 Dec 31 (estimated)
17524	1923 Dec 31 (estimated)
18208	1924 Dec 31 (estimated)
18893	1925 Dec 31
19570	1926 Nov 17
20512	1927 Dec 22
21157	1928 Nov 22
21674	1929 Nov 1
22116	1930 Nov 21
22379	1931 Dec 21
22614	1932 Dec 7
22865	1933 Nov 15
23176	1934 Nov 7
23447	1935 Dec 6
23655	1936 Nov 28
23985	1937 Dec 31
24477	1938 Nov 24
24627	1939 Oct 13
24759	1940 Sep 11
24843	1941 Sep 30
24909	1942 Apr 17
24977	1943 Sep 8
25050	1944 Sep 7
25086	1945 Oct 10
25140	1946 Nov 7
25470	1947 Nov 4
25725	1948 Jun 3
26073	1949 Dec 23
26232	1950 Sep 20
26497	1951 Dec 7
26760	1952 Nov 15
27054	1953 Dec 17
27404	1954 Dec 16
27814	1955 Dec 1
28220	1956 Nov 9
28676	1957 Nov 21
29253	1958 Dec 18
29731	1959 Nov 5
30389	1960 Dec 15
30741	1961 Nov 23
30995	1962 Dec 13
31536	1963 Nov 28
31987	1964 Dec 22
32372	1965 Nov 30
32721	1966 Oct 11
33131	1967 Oct 31
33591	1968 Dec 31
33783	1969 Jul 1
34077	1970 Dec 17
34242	1971 Nov 22
34283	1972 Feb 24

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