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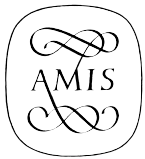

# The Deutsche Schalmeien of Richard Haka[1]

JAN BOUTERSE

A NUMBER OF MUSICAL INSTRUMENT COLLECTIONS all over the world contain examples of a double-reed woodwind instrument known nowadays as the Deutsche Schalmei ("German shawm").[2] Made in Germany and the Netherlands during the late seventeenth and early eighteenth centuries, they exist in two sizes, today usually designated soprano and alto, although the larger has sometimes been referred to as a tenor. Deutsche Schalmeien differ from earlier Renaissance models of shawm in several respects, for example in having a narrower bore and smaller fingerholes. They are also, however, quite distinct in design from the earliest models of so-called baroque oboes which were being built at about the same time (in some cases even by the same makers), and which feature such innovations as three-piece construction, a much less widely flaring bell, and an extra key and some double fingerholes to facilitate the production of chromatic pitches.

Most surviving Deutsche Schalmeien were made by builders who remain nameless to us, since they did not sign their work. However, the group of ten such instruments which is the subject of the present article constitutes a significant exception to this generalization, being marked with the stamp of Richard Haka (1646–1705), one of the most famous makers of baroque woodwinds. In the following pages I shall describe these instruments in detail, focusing primarily on their physical characteristics but also considering important questions of pitch and musical function. In addition to drawing comparisons with instruments by other makers (mostly anonymous), I shall give special attention to the "Treble

1. This article is the product of a larger research project investigating woodwind instruments made in the Netherlands before about 1760, the results of which will be presented in a dissertation for the University of Utrecht, to be completed in the near future. Bruce Haynes provided much help in the preparation of this article, including information about instruments, collections, and literature; he also assisted in preparing the English version of an earlier draft of the text, and Thomas MacCracken did the same for the present version. In addition, I am greatly indebted to the staff of all museums and collections where I have been able to do my work.

2. This term seems to be of modern origin: see the article by Susan Thompson elsewhere in the present volume. My own research has independently led me to similar conclusions.

Schalmey" described and measured by the Englishman James Talbot in about 1690, because his account is one of the very few sources of information about Deutsche Schalmeien from Haka's time.[3]

### *Richard Haka*

Richard Haka was born in London in 1646, the son of Thomas Haka, a *rottingbrander* (walking stick maker) and his wife Agnes Atkins. In about 1652 the family moved to Amsterdam, where Richard lived until his death in 1705.[4] More than three dozen instruments made by Haka are known to have survived, including sixteen recorders (or parts of recorders) in sizes from sopranino in $f^2$ to bass in $f^0$, one traverso, eight oboes in $c^1$, two tenor oboes in $f^0$, ten Deutsche Schalmeien, and one bassoon.[5] Haka was one of the few European woodwind makers who made instruments in the transitional style, mainly one-piece recorders, as well as instruments in the new baroque style, with several sections and more elaborate turning.

We do not know where Haka learned the trade of woodwind making, but he himself trained several apprentices who became well-known woodwind makers: his nephew Coenraad Rijkel (1664–1726), Abraham van Aardenberg (1672–1717), and Jan Steenbergen (1676–17??). In 1698–99 Haka came into conflict with Rijkel, who had not only taken over his uncle's house, shop, and tools but also had made a copy of Haka's marking iron, claiming that he was the official successor of his

3. See Anthony Baines, "James Talbot's Manuscript (Christ Church Library Music MS 1187), I: Wind Instruments," *The Galpin Society Journal* 1 (1948): 9–26. The Schalmey described by Talbot was provided by Martin Wise, who may have been either the maker (or seller) or the owner of the instrument. Talbot's measurements are extremely detailed, even including dimensions of the pirouette, staple, and reed.

4. For more biographical data about Haka and other Dutch woodwind makers see S. A. C. Dudok van Heel and Marieke Teutscher, "Amsterdam als centrum van 'fluytenmakers' in de 17e en 18e eeuw," *Historische blaasinstrumenten* (Den Haag: Haags Gemeentemuseum, 1974), 53–56. See also Rob van Acht, "Dutch Wind Instruments 1670–1820," *Tijdschrift van de Vereniging voor Nederlandse Muziekgeschiedenis* 38 (1988): 99–122; the biographical information in Rob van Acht, Jan Bouterse, and Piet Dhont, *Dutch Double Reed Instruments of the 17th and 18th Centuries* (Laaber: Laaber Verlag, 1997), a catalogue of double reed instruments in the collection of the Gemeentemuseum, The Hague, Netherlands; and William Waterhouse, *The New Langwill Index* (London: Tony Bingham, 1993), 156.

5. Two oboes and five recorders are incomplete, missing one or more joints. The most recent (but still incomplete) published list of Haka's instruments may be found in Rob van Acht, "Nederlandse blaasinstrumenten uit de barok: een rijkdom in veelzijdigheid," *Scrapes* 5/1 (1998): 20–23.

uncle, who, however, was still alive and working. It is interesting that one of the few pictures of a Deutsche Schalmei in Dutch art can be seen (together with other woodwind instruments) on the well-known trade card of Rijkel.[6]

### *Deutsche Schalmeien by Haka*

In the Netherlands, in the seventeenth and eighteenth centuries, the term Deutsche Schalmei was not used. But in two advertisements published in 1691 in the *Amsterdamse Courant,* we find the names *Veltschalmeyen* and *Veltscharmayen* ("field shawms").[7] One of the advertisements was placed by Haka, who announced that he was continuing to make woodwind instruments (specifically including "*Velt-schalmeyen*"); in the other, the widow and sons of Jan van Heerde (1638–1691) announced that they would continue the work of that master, who had died shortly before. Although there are no surviving Deutsche Schalmeien with Van Heerde's stamp, it is likely that his "*Veltscharmayen*" were the same type of instruments as the Deutsche Schalmeien of Haka discussed in this article, despite the slight difference in spellings used by the two makers.

There exist today (at least) ten such instruments bearing Haka's mark, to be found in museums around the world, as shown in Table 1.[8] Those numbered 1–9 are soprano Deutsche Schalmeien ("soprano"

6. The trade card is published in Lyndesay G. Langwill, *An Index of Musical Wind-Instrument Makers* (6th ed., Edinburgh: Langwill, 1980), 146, and as the frontispiece to Adam Carse, *Musical Wind Instruments* (London: Macmillan, 1939; reprint New York: Da Capo, 1965).

7. For the complete Dutch text of the advertisements see A. H. Sijmons and G. Verloop, "Berichten uit de Amsterdamse Courant, 1691–1700," *Mixtuur* 63 (July 1989): 138.

8. A soprano Deutsche Schalmei by Haka, formerly no. 2930 in the Berlin Musikinstrumentenmuseum, was lost or destroyed during World War II; it is described in Curt Sachs, *Sammlung alter Musikinstrumente bei der Staatlichen Hochschule für Musik zu Berlin: Beschreibender Katalog* (Berlin: J. Bard, 1922), 271. It had previously been no. 930 in the collection of César Snoeck in Ghent (Belgium): see C. C. Snoeck, *Catalogue de la collection d'instruments de musique anciens ou curieux formée par C. C. Snoeck* (Gent: Vuylsteker, 1894), 177. Another instrument from Snoeck's collection, no. 932, is described in his catalogue as a (soprano) Schalmei by Haka, and in Sachs's Berlin catalogue (no. 2932, p. 271) as a "Diskantpommer" made of dark palisander and lacking a maker's mark. This instrument is still in the Berlin collection and very closely resembles Haka's Deutsche Schalmeien, for example in having the same profile to its finial and fontanelle. Its metal mounts have lips in the shape of acanthus leaves, as found on several other examples (see below), and are very nicely made; on the other hand, some details are not so finely executed as on the signed instruments, such as the

being a modern indication of the size), while no. 10 is an alto, pitched a fourth lower than the others.[9]

### *Haka's mark*

All the Deutsche Schalmeien listed in Table 1 bear the stamp of Richard Haka, which is always the same shape and size (see fig. 1). It consists of the name R • HAKA in a scroll, below which is a short and wide version of a *fleur de lys* (French lily).[10] The full mark is consistently

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turned rings in the middle of the bell. Another suspect detail is a large plugged hole at an unusual location in the wall of the bell. One is tempted to speculate that perhaps at some point the instrument described in Snoeck's catalogue as no. 932 was damaged and that Berlin no. 2932 might be a replacement copy by an unknown hand, in a different wood (since, as discussed below, all of Haka's surviving, signed Deutsche Schalmeien are made of boxwood) but using the mounts of the original instrument.

Additionally, a Deutsche Schalmei by Haka was loaned by Snoeck to the Royal Military Exhibition in London in 1890, where it was shown as no. 146: see Captain C. R. Day, *A Descriptive Catalogue of the Musical Instruments Recently Exhibited at the Royal Military Exhibition, London, 1890* (London: Eyre & Spottiswoode, 1891), 73, 256, and pl. VI. (I am grateful to Susan Thompson for providing me with photocopies of the relevant pages from this catalogue.) It is described there as being 38 inches long including reed and giving $f^0$ as its lowest note; moreover, "there has been a key . . . [which] has been removed." These characteristics all suggest that this instrument was an alto rather than a soprano; however, no Deutsche Schalmei of that size is described in the 1894 catalogue of Snoeck's collection. The subsequent history of this instrument is unknown, but comparison of the exhibition catalogue photograph with the unique Haka alto now in the Gemeentemuseum at The Hague reveals that these must be two different instruments. In fact, the Deutsche Schalmei in the London exhibition may not have been an alto at all, since Day's Plate VI shows it as being only slightly longer than oboes by Power (c. 1800) and Kusder (late 18th century), the latter described as having a length of 23 inches.

9. This terminology is also used by Rob van Acht in the catalogue of the Haags Gemeentemuseum cited above in note 4. Phillip T. Young uses no supplemental word to indicate the range of Haka's shorter Deutsche Schalmeien, but gives the name "tenor" to the longer instrument in the Haags Gemeentemuseum: see his *4900 Historical Woodwind Instruments* (London: Tony Bingham, 1993), 119. In this he is evidently following the practice of James Talbot who, writing in England during the final decade of the seventeenth century, uses the names *treble* and *tenor schalmey* (also spelled *schalmeye* or *chalmeye*) for two instruments of this type: see Baines, 12–13.

10. Young (*4900*, p. 117, n. 3) notes that this mark has sometimes been interpreted as a sheaf of wheat rather than a lily. But the heraldic sheaf of wheat has a quite different (asymmetrical) shape, and there is no reason why Haka's device should not be a lily, especially since lilies of much the same type can be seen on instruments made by Rijkel, Beukers, and some by van Heerde. Moreover, an inventory from the year 1700 lists a box with sixteen recorders by Haka belonging to *Serenissimo sig. principe Ferdinando di Toscana,* a member of the Medici court in Florence. In the description the figure under the scroll is explicitly indicated as a lily (*giglio*): see Vinicio Gai, *Gli strumenti musicali della Corte Medicea* (Firenze: Licosa, 1969), 20.

TABLE 1. Deutsche Schalmeien by Haka.

| *No.* | *Location* | *Collection* | *Inventory no.* | *Provenance* | *Young no.* |
|---|---|---|---|---|---|
| 1 | The Hague, Netherlands | Haags Gemeentemuseum | Ea 18-x-1952 | ex-Boers | 2 |
| 2 | The Hague, Netherlands | Haags Gemeentemuseum | Ea 21-x-1952 | ex-Boers | 1 |
| 3 | Vermillion, S.D., USA | America's Shrine to Music Museum | 4545 | ex-de Vries, ex-Mengelberg | 9 |
| 4 | New Haven, Conn., USA | Yale University Collection of Musical Instruments | 3410.68 | ex-Galpin | 4 |
| 5 | Stockholm, Sweden | Musik Museet | 145 | | 3 |
| 6 | Copenhagen, Denmark | Musikhistorisk Museum | E 27 | | 6 |
| 7 | Berlin, Germany | Musikinstrumentenmuseum, Staatliches Institut für Musikforschung Preussischer Kulturbesitz | 2929 | ex-Snoeck | 11 |
| 8 | St. Petersburg, Russia | Museum of Musical Instruments, Theatre, and Cinematography | 1492 | | — |
| 9 | Hamamatsu City, Japan | Municipal Museum | A.0268 R | ex-Rosenbaum, ex-van Tricht | 8 |
| 10 | The Hague, Netherlands | Haags Gemeentemuseum | Ea 19-x-1952 | ex-Boers | 7 |

*Notes:*

For Young numbers, see Phillip T. Young, *4900 Historical Woodwind Instruments* (London: Tony Bingham, 1993), 119.

Nos. 1, 2, and 10: Since 1952, these instruments have been on permanent loan to the Haags Gemeentemuseum from the Rijksmuseum, Amsterdam, which acquired them in 1899 as part of the collection of the Dutch musician Johan Coenradus Boers (1812–1896).

No. 3: The collection of the Dutch conductor Willem Mengelberg (1871–1951) was sold in 1952 in Amsterdam. This instrument was purchased by the Shrine to Music Museum in 1988; for at least some of the intervening 36 years it was owned by the Dutch oboist Han de Vries.

No. 4: This instrument was purchased by Yale University in 1968; according to the London dealer Tony Bingham, it is the same instrument as the one sold in 1946 from the collection of the English organologist Francis W. Galpin (1858–1945), which between those dates was owned by a certain Rev. C. Sharp. (I am grateful to Phillip T. Young for obtaining this information from Mr. Bingham and sharing it with me.)

No. 7: See César Charles Snoeck, *Catalogue de la collection d'instruments de musique anciens ou curieux formée par C. C. Snoeck* (Gent: Vuylsteker, 1894).

No. 9: The collection of Robert and Dorothy Rosenbaum, of Scarsdale, New York, USA, was sold to the city of Hamamatsu, Japan, in 1991.

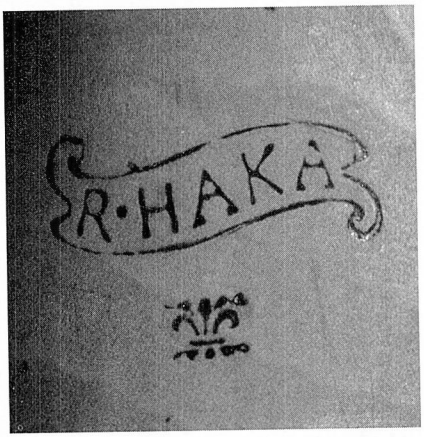



FIGURE 1. Haka's maker's mark, on the bell of no. 5 (Stockholm, Musik Museet, no. 145). Photo: Jan Bouterse.

located in two places on each instrument: in the center of the upper joint, between tone holes 3 and 4, and on the flare of the bell. On nos. 1 and 2 the bell stamp is not visible, possibly as a result of repair work (sanding and restaining). In addition, Haka often stamped a single lily in other places on his instruments, for instance on the top of the finial of oboes or on the bottom of the lower foot ring on his recorders. On his Deutsche Schalmeien there are single lilies on the flare of the finial of the upper joint and below the sixth fingerhole. The fontanelles of nos. 3, 4, 5, and 8 are also stamped with a lily. The unique alto Deutsche Schalmei even has a lily stamped close to the seventh hole, at a place originally covered by the fontanelle.

### *Design and Construction*

Haka's soprano Deutsche Schalmeien are all made in the same way, with surprisingly little variation in details and profile (see fig. 2). Each instrument consists of two parts, the upper joint and the bell. The upper joint has a tenon that fits into a socket on the bell. An ornamental fontanelle covers the top section of the bell where the seventh tone hole is drilled, but normally (on sopranos) there is no key to close this hole.[11]

11. The key presently found on no. 4 is probably not original, while the one on Haka's only alto (no. 10) may or may not be original (see below).

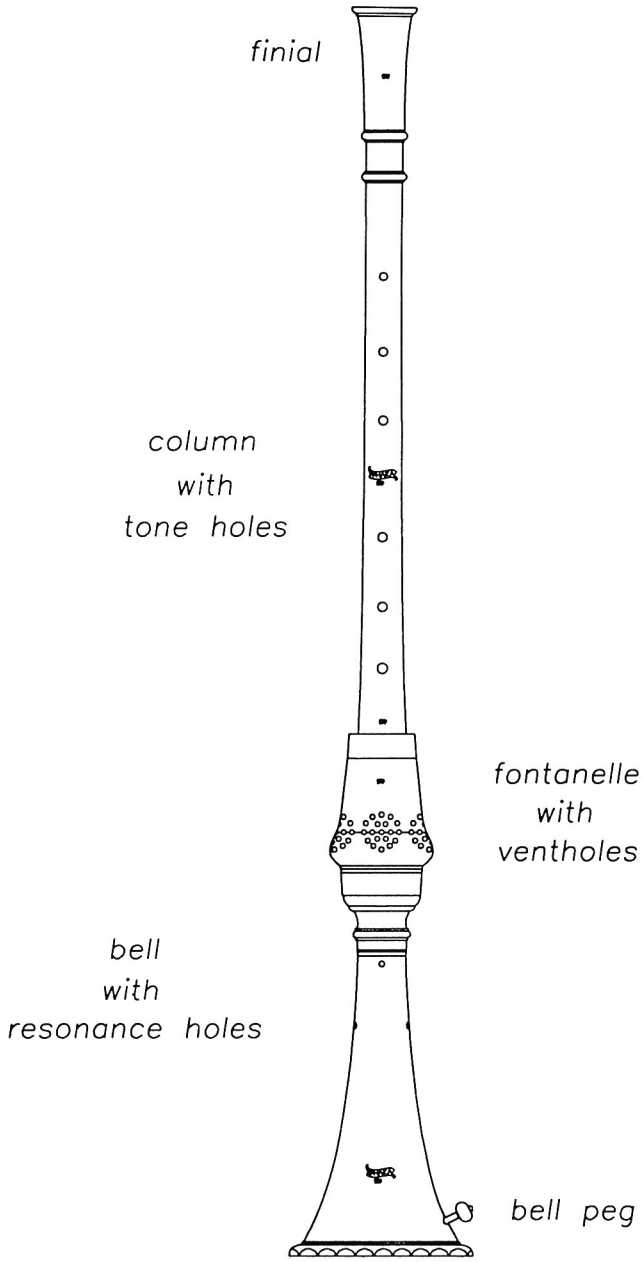



FIGURE 2. Drawing of a Deutsche Schalmei by Haka, showing the names of some parts and position of maker's marks.

The upper joint is turned with a finial at the top. The finial flare leads to the waist, a short column bordered by two small ornamental ring groups found on all of Haka's soprano Deutsche Schalmeien. The upper joint of the alto (no. 10) has a more elaborate finial, beautifully turned of a separate piece of wood that is mounted on a simple ferrule (see fig. 3).

At the top of the upper joint, inside the finial, is the staple bore (or counterbore), where the staple holding the reed is inserted. This counterbore is slightly conical in shape, with a small seat at the end which is visible as a small but distinct step in the bore. At the lower end of the staple bore is the narrowest point of the main bore of the upper joint (the "interstice"). Beyond this point the main bore gradually widens to the lower end of the upper joint.

The bells of Haka's Deutsche Schalmeien consist of two parts, the body of the bell and the removable fontanelle.[12] Like the rest of the instruments, these fontanelles are very uniform in size and shape (see fig. 4). The interior is turned in such a way that the shape of the bore is more or less identical to the profile of the exterior. The internal dimension is slightly wider at the lower end; thus, there is only one way to put the fontanelle on the bell. Between the fontanelle and the body of the bell there is no lapping (such as cotton thread or cork), but on two instruments (nos. 3 and 8) oblique incisions have been made in the wood, perhaps meant to provide some friction and to ensure a tight fit (see figs. 4 and 5).[13] The fontanelles have small perforations, in five separate circular groups of nineteen vent holes (see figs. 2 and 4). On all fontanelles, a small groove or scribe line is turned through the center of the circles.

Where the body of the bell is covered by the fontanelle, the wood lacks the smoothly finished surface of the visible parts. The wood around the seventh tone hole is cut away to create a flat platform, visible in figs. 4 and 5. Lower down on the body of the bell and just under the fontanelle Haka turned a middle ring group with an elegant profile, the most elaborate part of the wood turning of the Deutsche Schalmei. Then follows the flaring slope to the bell ring, which has a much wider diameter than the bells of his oboes. Below the socket the bell bore follows the profile of the surface flare, gradually widening to the lower end, without any lip or rim at the end where the bore is narrower, such

12. The fontanelle of the alto (no. 10) is missing.

13. The shape of the incisions is different on the two instruments, suggesting that they may have been made by the player and not originally by Haka.

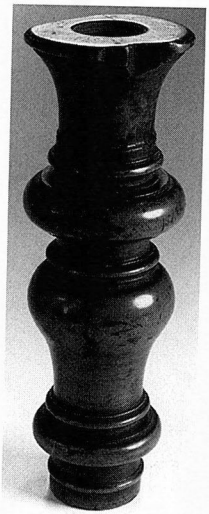


FIGURE 3. Finial of no. 10 (The Hague, Gemeentemuseum, no. Ea 19-x-1952). Photo: Haags Gemeentemuseum.

as we find on the oboe. In the flaring wall of the bell three resonance holes are drilled, one small hole on the front and two slightly larger lateral holes, positioned somewhat lower on the flare.[14] Finally, on all Deutsche Schalmeien by Haka we find a small hole near the lower end of the flare. This hole is (or was) used for fitting a bell peg, a device that will be discussed later.

### *Choice and Use of Wood*

Haka always used European boxwood for his Deutsche Schalmeien. This wood was preferred by many baroque woodwind makers because it gives a good sound to the instruments and it can be turned with fine details. Boxwood has one important disadvantage, however: when it dries it shrinks much more than most other kinds of wood used for historical woodwind instruments, and hence it must be seasoned very carefully. Over the years some joints of Haka's Deutsche Schalmeien have become

14. These are sometimes called "vent holes"; the Talbot manuscript uses the term "soundhole" (see Baines, 13).

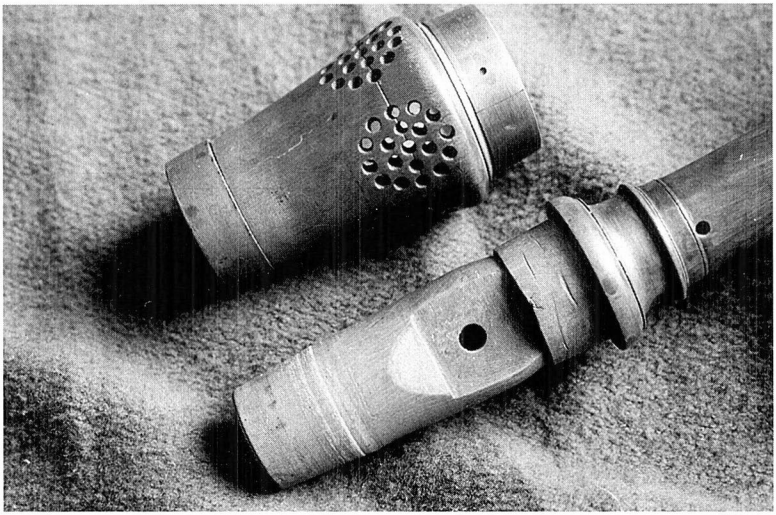


FIGURE 4. Upper end of bell joint and fontanelle of no. 8 (St. Petersburg, Museum of Musical Instruments, Theatre, and Cinematography, no. 1492). Photo: Jan Bouterse.

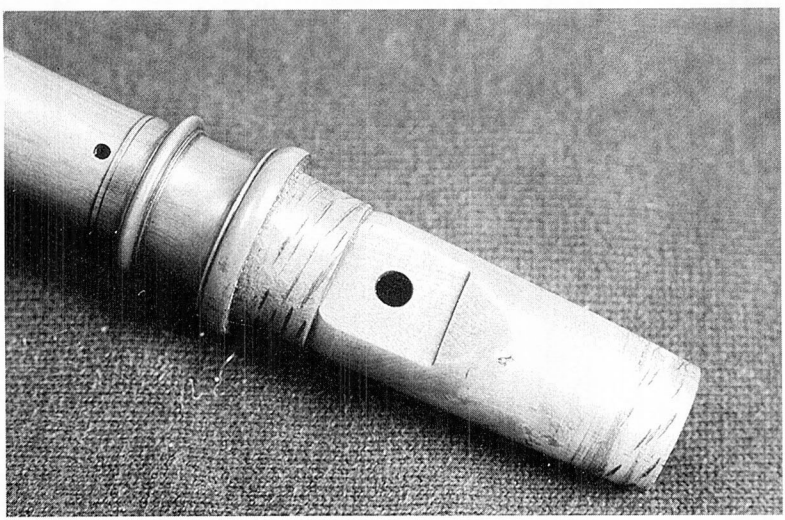


FIGURE 5. Upper end of bell joint of no. 3 (Vermillion, S.D., America's Shrine to Music Museum, no. 4545). Photo: Jan Bouterse.

very warped, including the bells of nos. 6 and 7 and especially the relatively thin and long upper joint of the alto (no. 10).[15]

On most upper joints the radial face of the wood is on the front (with the tone holes), but on at least two instruments (nos. 2 and 10) the tangential face of the wood is visible on the front. For the bells Haka did not split the boxwood into segments, but drilled the central hole through—or more likely just next to—the heart of the unsplit piece. On the bells of nos. 1 and 2 the heart of the wood can be seen as a knot somewhere in the middle of the bell flare. Such use of unsplit pieces of boxwood is not common, although it can also be seen, for instance, on the foot joint of Haka's bass recorder in Sweden (Göteborg, Historiska Museet, GM 3894). This observation provides an indication of the thickness of the boxwood trees used by woodwind makers around 1700: since the outer diameter of a soprano Deutsche Schalmei's bell rim is about 90 mm, the unprocessed wood was apparently less than about 180 mm in cross section.[16]

Many bells have knots or other irregular spots, for instance on the alto (no. 10), where Haka cleverly drilled the hole for the bell peg through a knot. He also used this technique on other instruments, for instance the sixth tone hole of one of his oboes (Stockholm, Musik Museet, no. 155).[17]

Most of Haka's Deutsche Schalmeien are light yellow-brown, suggesting that he did not stain the wood, or that he treated it only with a diluted solution of nitric acid. But it is very possible that the present color of the wood is a result of exposure to sunlight and/or impregnating oil. Nos. 1, 7 and 8 are darker; because traces of repairs are visible on these instruments, it is likely that at some point they were (re-)stained. The wood surface of most of Haka's Deutsche Schalmeien shows many small scratches and dents, an indication that the instruments were played intensively and perhaps under adverse conditions.

15. See the photograph of no. 10 published in van Acht, Bouterse, and Dhont, 119.

16. The position of the heart of the wood about halfway down the slope of the bell suggests that the original log may have had a diameter of 130–140 mm.

17. Knots can cause leakage if there is a crack in the center; drilling a hole through a knot means that the crack is neutralized. But this is not easy to do: the maker has to predict precisely what the position of the knot will be after a thicker piece of wood has been turned down to the correct size for the finished joint.

### *Keys and Metal Mounts*

Haka's alto Deutsche Schalmei (no. 10) has a two-part key (see fig. 6). The lower part, with the pad, appears to be mounted wrongly (the side which normally faces toward the wood is now facing away from it) and the spring is missing. Two small holes in the wood next to the lower part of the key may indicate the place where the spring was fastened. Because of all these changes, it is not easy to determine whether the whole key construction is original.

No. 4 also has a key which, although surely old, is probably not original. The key groove in the wood of the body of the bell, made to allow the upper part of the key to move under the fontanelle, is crudely made. On both instruments the keys are made of brass and have a simple shape, not uncommon for earlier shawms, but quite unlike the more elaborate keys of contemporary oboes.

All Deutsche Schalmeien by Haka have one or more metal mounts.[18] Bands are found at the top and bottom of the fontanelles, attached to the wood with three small nails. Rings appear at the finial rim (including a brass plate covering the face of the finial, with an opening in the middle to insert the staple) and on the bell rim, in both cases attached by bending the lips over the wood rim. Sometimes, as on nos. 1, 3, and 8, these lips are smaller and have the shape of acanthus leaves (see fig. 7), but on most instruments the lips are simply semicircular, as shown in fig. 6. The number of lips is always a multiple of twelve (those with acanthus-leaf mounts have thirty-six lips on the finial and forty-eight on the bell rim).

It appears that these bands and rings were consistently made by the same person, perhaps Haka himself. The bands on the fontanelles have very smooth seams and almost invisible nailheads. Some mounts on the Deutsche Schalmeien have not survived, especially those on the finials. Because the wood under the mounts has shrunk somewhat over the centuries, some mounts are loose now: for example, on the bell rim of no. 2 there is a gap of 1.6 mm between the wood and the metal.[19]

18. I distinguish two types of mounts: round rings, made of one piece of brass without a seam; and bands, made of one strip of brass, bent and soldered to form a round ring, with a seam.

19. The width of the bell rim is about 90 mm, suggesting a wood shrinkage of at most 1.8%. But it is also possible that the brass ring never fitted perfectly in all directions, so that the relatively large gap seen today could be the result of a much more modest wood shrinkage.

FIGURE 6. Bell of no. 10 (The Hague, Gemeentemuseum, no. Ea 19-x-1952), showing key and metal rim mount with semicircular lips. Photo: Haags Gemeentemuseum.

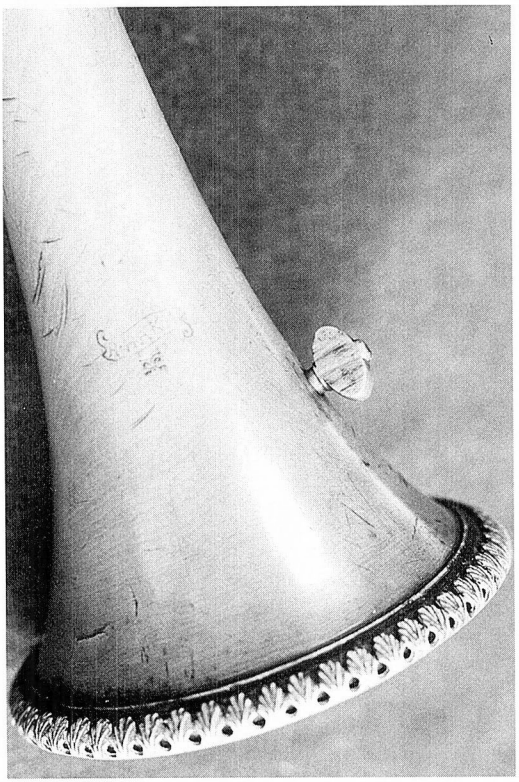


FIGURE 7. Bell of no. 3 (Vermillion, S.D., America's Shrine to Music Museum, no. 4545), showing bell peg and metal rim mount with acanthus leaves. Photo: Jan Bouterse.

### *Pirouettes and Bell Pegs*

A pirouette is a device that covers and protects the longer part of the staple and reed and gives support to the player's lips, with the top of the reed protruding from a cup on the top of the piroutte. Only one pirouette survives on a Haka Deutsche Schalmei, namely no. 4 at Yale (see fig. 8a–b). This pirouette is old, but it is uncertain whether it was made by Haka himself: it is not made of boxwood, the finishing is poor, the bore is not exactly in the center, and so on. It is possible that the

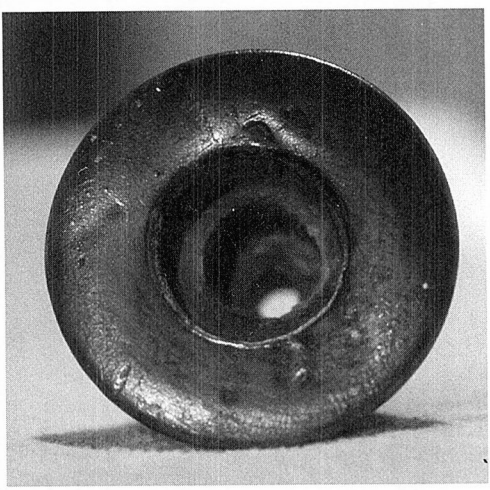
pirouette was a very personal thing, made by the player himself, as the reed would have been.[20]

On three of Haka's Deutsche Schalmeien we find a so-called bell peg. The best examples are on nos. 3 and 6, where it is made of boxwood (see figs. 7 and 9); on no. 5 the peg is smaller and darker in color, evidently made of another kind of wood, and may not be original. Each peg fits into a hole drilled in the wall of the bell near the bottom of the instrument, and once in place can be moved in and out over the distance of about a centimeter. The lower portion of the peg has a conical flare such that, while it is possible to insert the peg with some force, the sharp edge of the rim, which is shaped like a barbed hook, makes it difficult to remove.

Cary Karp, the former curator of the Musik Museet in Stockholm, has suggested that these pegs were used to lock the pirouette (with reed) in the bore of the bell and thus to protect them when the instrument was not being played.[21] Indeed, the pirouette currently found with no. 4 fits perfectly in the bell bore, although (as mentioned above) this pirouette may not have been made by Haka himself. In certain other Deutsche Schalmei bells, marks are visible just above the peg hole which may have been made by pirouette rims.

20. Both the pirouette and the staple on the instrument described by Talbot are clearly longer (the former by about 10 mm, the latter about twice as long) than the corresponding items currently found with Haka no. 4, a strong indication that the latter are indeed not original. See Baines, 13.

21. Personal communication, September 1994. Karp's idea is more convincing than another theory proposed by Martin Kirnbauer to explain the bell peg in the Deutsche Schalmei by Christian Schlegel, in the Historisches Museum in Basel (no. 1879.98a). In an unpublished description kept in the museum's file on that instrument Kirnbauer claims that this piece of wood is a *Schnarrstift,* in other words a piece of wood that makes rattling sound when the instrument is played. In connection with another Deutsche Schalmei in Basel (no. 1878.20, anonymous), however, he suggests that the purpose of the hole in the bell wall is "to receive a *Schnarrstift* or a protective pirouette holder [*Pirouettensicherung*]?" More than a century ago César Snoeck made the implausible suggestion that the bell peg on his Schalmei no. 932 was intended to be used to attach some kind of mute (see his 1894 *Catalogue,* 177).



FIGURES 8a–b. Pirouette of no. 4 (New Haven, Conn., Yale University Collection of Musical Instruments, no. 3410.68). Photos: Jan Bouterse.

### *Dimensions*[22]

**Bore and length.** The shape of the bore of the upper joints of these Deutsche Schalmeien is rather simple. They are more or less straight

22. All measurements given here are my own, except for two instruments where I checked unpublished measurements by Friedrich von Huene (no. 4, made about 1970 and given to me by Mr. von Huene himself in 1991) and Linsey Pollak (no. 6, made in 1976, provided by the museum in Copenhagen). The dimensions of bores and lengths are given in millimeters; information on measuring techniques may be found in the introduction to the catalogue of double reed instruments of the Haags Gemeentemuseum by Van Acht, Bouterse, and Dhont, cited in note 4 above.


FIGURE 9. Lower end of bell joint of no. 6, showing bell peg (Copenhagen, Musikhistorisk Museum, no. E 27). Photo: Jan Bouterse.

cones, almost without the typical parabolic-shaped sections visible in the bores of many oboes (see fig. 10). The bores were therefore probably made with a single reamer for the whole length. Small differences in the bore from one instrument to another may be due to variation in shrinkage of the wood over time (see Table 2). However, the bore of no. 4 is distinctly smaller (by 0.5 to 1 mm) over its entire length.

The narrowest point of the bore (the so-called "interstice") ranges from 4.0 to 4.6 mm on all of Haka's Deutsche Schalmeien, making it considerably smaller than the corresponding point on his oboes (6.0 to 6.5 mm). On the alto (no. 10), the narrowest point of the bore is only 4.6 mm, which is very narrow for such a long instrument. But since the upper 400 mm of its bore has the same size and shape as the whole bore of the upper joint of Haka's soprano Deutsche Schalmeien, it is obvious that he used the same reamer for both sizes of instrument.

The bell bores of Haka's Deutsche Schalmeien are completely different from those of his oboes. Near the socket, the Deutsche Schalmeien are much narrower (13.9–15.2 mm, compared to 18–20 mm for a typical oboe), but they increase to a much wider diameter at the bottom of the instrument, with the flare occurring over the whole length of the bell, though more sharply in its lower half. In an oboe bell, by contrast, the

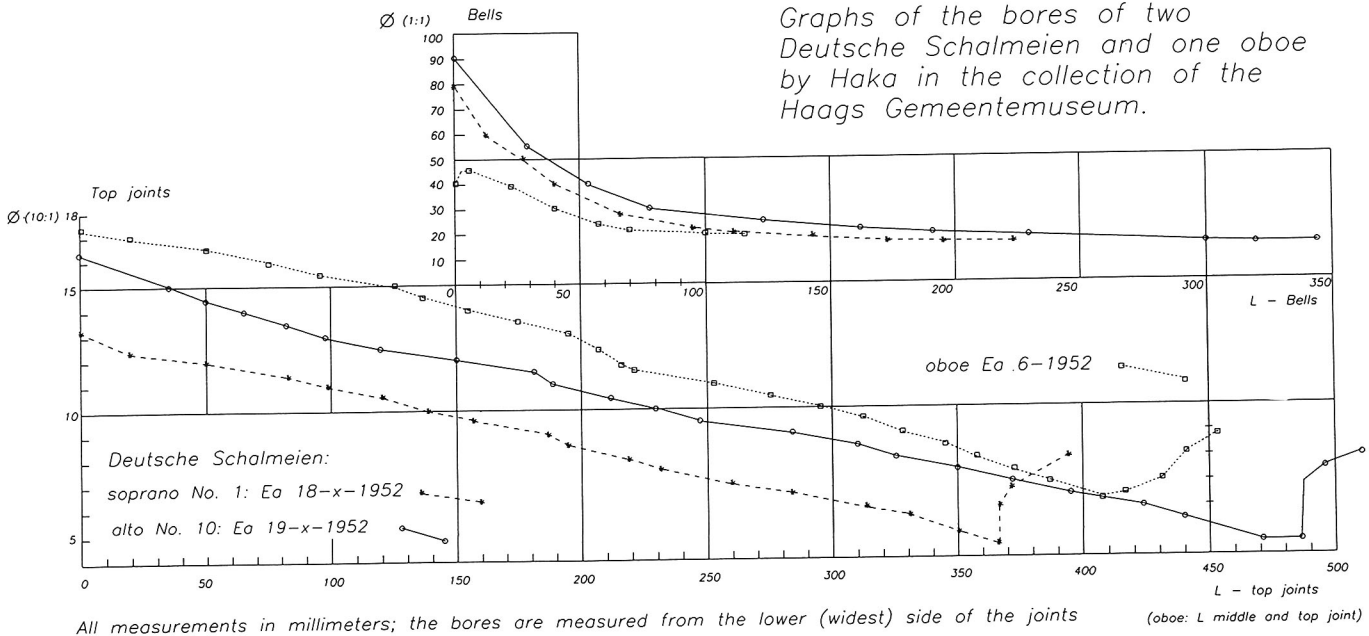



FIGURE 10. Bore dimensions of three instruments by Haka (The Hague, Haags Gemeentemuseum): soprano (Ea 18-x-1952) and alto (Ea 19-x-1952) Deutsche Schalmeien, and baroque oboe (Ea 6-1952).

Table 2. Bore dimensions of Deutsche Schalmeien by Haka (in mm).

| | Upper joint | | Bell joint | |
|---|---|---|---|---|
| no. | narrowest/widest | at tone hole 4 | narrowest/widest | at lateral resonance holes |
| 1 | 4.3 – 13.2 | 10.3 | 15.2 – 76.2 | 20.3 |
| 2 | 4.6 – 13.9 | 10.1 | 14.7 – 71.0 | 20.0 |
| 3 | 4.4 – 13.9 | 10.5 | 14.2 – 70.6 | c. 18.5 |
| 4 | 4.0 – 12.2 | 9.3 | 13.9 – 67.5 | c. 18.5 |
| 6 | 4.6 – 13 5 | c. 10.3 | 14.9 – 76.5 | 20.5 |
| 7 | nm – 13.4 | nm | nm – 75.1 | nm |
| 8 | 4.6– 14.1 | c. 10.4 | 13.6 – 71.3 | c. 19.6 |
| 10 (alto) | 4.6 – 15.5/16.3 | c. 11.7 | 14.1 – 90 | c. 20 |

nm = not measured; no bore measurements were available for nos. 5 and 9, and only limited measurements for no. 6.

bore widens only slightly above the resonance holes, then more rapidly between there and the lip.

Normally there is a small but distinct step between the widest bore of the upper joint and the smallest bore of the bell, but at 0.5 to 2.0 mm this step is smaller than on oboes, where it is usually more than 2.0 mm.[23] On the alto Deutsche Schalmei (no. 10) the beginning of the bore of the bell is even smaller (15.5 mm) than the widest bore of the upper joint (16.3 mm).

There is a small amount of variation (on the order of 1–2%) in the lengths of Haka's soprano Deutsche Schalmeien: the upper joints range from 356 to 363 mm, not counting the tenon (see Table 3), while the length of the bell varies from 257.5 to 270 mm (see Table 4).[24] The total length of the instruments is between 619 and 626 mm.

**Tone holes and resonance holes.** Most of the tone holes on Haka's Deutsche Schalmeien are drilled at a slight angle, either upward (so that the hole meets the bore closer to the reed than the point where it emerges to be covered by the player's finger) or downward (where the opposite is true). On all nine sopranos, hole 1 is drilled upwards, holes 2

23. So far as I know, nobody has given an explanation for the steps in the bore of the oboe.

24. In the case of a few badly warped joints (the bells of nos. 6 and 7, and the upper joint of no. 10) the longest length was measured, along the outside of the curve.

TABLE 3. Position (L) and size (Ø) of tone holes on Deutsche Schalmeien by Haka (in mm).

| No. | | Hole 1 | Hole 2 | Hole 3 | Hole 4 | Hole 5 | Hole 6 | Total length of upper joint (corpus + tenon) |
|---|---|---|---|---|---|---|---|---|
| 1 | L | 132.8 | 170.8 | 205.3 | 267.1 | 301.7 | 334.6 | 361.8 + 33.3 |
| | Ø | 2.8 | 3.1 | 3.1 | 4.0 | 4.2 | 4.2 | |
| 2 | L | 131.9 | 169.7 | 203.6 | 261.6 | 296 | 327 | 359 + 33.2 |
| | Ø | 3.1 | 3.2 | 3.8 | 3.9 | 4.4 | 4.7 | |
| 3 | L | 130.5 | 168 | 205.5 | 259.5 | 299 | 333 | 361 + 32.7 |
| | Ø | 2.8 | 3.3 | 3.5 | 4.2 | 4.8 | 4.4 | |
| 4 | L | 130.5 | 167.5 | 206 | 267.2 | 304.2 | 335 | 360 + 33.9 |
| | Ø | 2.7 | 3.1 | 3.3 | 3.7 | 4.7 | 4.1 | |
| 5 | L | [no measurements of toneholes] | | | | | | 363 + 33.9 |
| 6 | L | 132 | 168.5 | 203.5 | 267.5 | 302 | 333.8 | 362 + 34.8 |
| | Ø | 2.8 | 3.2 | 3.2 | 4.1 | 4.2 | 4.1 | |
| 7 | L | 133.5 | 171.5 | 206.5 | 267.9 | 302.6 | 335.7 | 360 + 33.8 |
| | Ø | 3.5 | 3.9 | 4.0 | 4.6 | 4.6 | 4.9 | |
| 8 | L | 132 | 170.5 | 205.5 | 267 | 302 | 336.5 | 362 + 32.9 |
| | Ø | 3.0 | 3.1 | 3.3 | 4.3 | 4.6 | 4.8 | |
| 9 | L | [no measurements of toneholes] | | | | | | 356 + 33 |
| 10 | L | 181 | 221 | 256.5 | 346.5 | 388.5 | 425 | 474 + 36.4 |
| | Ø | 4.2 | 3.8 | 3.5 | 4.6 | 4.6 | 4.6 | |

The position of each tonehole is measured from the top corner of the joint to the center of the hole, on the outside of the instrument. (Because some holes are drilled at an oblique angle, the point where a given hole meets the bore may be slightly higher or lower.) Only the smallest dimension of the hole is given.

and 3 downwards, hole 4 slightly upwards, and holes 5 and 6 are drilled straight. On the alto the same pattern holds for holes 1–4, but holes 5 and 6 are drilled downwards. The tone holes on the upper joints are normally not undercut, although some are slightly undercut. Of the holes on the bell the seventh tone hole (covered by the fontanelle) and

TABLE 4. Position (L) and size (Ø) of holes on bell joints of Deutsche Schalmeien by Haka (in mm).

| no. | | Hole 7 | Resonance holes Small | Large | | Length of bell | Total length | Bell as percent of total length |
|---|---|---|---|---|---|---|---|---|
| 1 | L | 55.8 | 110.6 | 141.1 | 142.0 | 257.5 | 619.3 | 41.6 |
| | Ø | 8.0 | 4.0 | 6.0 | 8.0 | | | |
| 2 | L | 54.2 | 110.5 | 139.8 | 140.0 | 260.5 | 619.5 | 42.0 |
| | Ø | 9.0 | 3.0 | 6.0 | 6.0 | | | |
| 3 | L | 56.5 | 116 | 143 | 143 | 263 | 624 | 42.1 |
| | Ø | 6.5 | 2.9 | 5.5 | 5.5 | | | |
| 4 | L | 54 | 109.5 | 145.5 | 145.5 | 260.9 | 620.9 | 42.0 |
| | Ø | 6.5 | 2.8 | 5.0 | 5.0 | | | |
| 5 | [no measurements of tone or resonance holes] | | | | | 259 | 622 | 41.6 |
| 6 | L | 53 | 110.5 | 137.5* | 140 | 259 | 621 | 41.7 |
| | Ø | 6.8 | 2.8 | 5.0 | 5.0 | | | |
| 7 | L | 54.2 | 107.8 | 141.3 | 141.8 | 259 | 619 | 41.8 |
| | Ø | 6.5 | 3.4 | 5.6 | 5.7 | | | |
| 8 | L | 54.6 | 109.7 | 140.5 | 140.5 | 261 | 623 | 41.9 |
| | Ø | 5.8 | 2.9 | 5.3 | 5.3 | | | |
| 9 | [no measurements of tone or resonance holes] | | | | | 270 | 626 | 43.1 |
| 10 | L | 71 | 141.7 | 190.7 | 190.7 | 380 | 854 | 44.5 |
| | Ø | 6.9 | 3.2 | 6.1 | 6.3 | | | |

The position of each tonehole is measured from the top of the joint to the center of the hole. Only the smallest dimension of the hole is given.

*This may be a misreading, as it would be unusual for the two larger resonance holes to be at such different heights.

the two large lateral vent holes are usually slightly undercut, sometimes moderately undercut.

From the measurements presented in Table 3 it is obvious that Haka varied the position and size of the tone holes considerably from instrument to instrument, even on joints with exactly the same length. On no. 2, tone holes 4, 5, and 6 are positioned significantly higher (closer to the

reed) than on the other sopranos, and on no. 7 most holes of the upper joint are even larger than the corresponding holes on the alto (no. 10). The holes on the bell joints also vary significantly in size, though very little in their placement (see Table 4). (On no. 3 the small frontal resonance hole is placed about 6 mm lower than normal on the bell, but that is acoustically unimportant.)

The variation in length of the joints of Haka's Deutsche Schalmeien is therefore relatively small, and can partly be explained by differences in the shrinkage of the wood throughout the years. (Inaccuracies in measuring and/or rounding off of exact values may also explain some of the discrepancies.) But because the instruments' bores and the positions and sizes of their fingerholes vary by relatively larger amounts we must conclude that Haka never made just simple copies of a single prototype. Rather, he appears to have modified his basic design with each new instrument, perhaps to meet the wishes of individual players, or in response to his own changing insights.

### *Pitch*

During the course of his career Haka clearly made instruments to several different pitch standards: at one extreme, his only surviving bassoon (Schlossmuseum Sondershausen, Germany) plays best with a long crook at about $a^1$ = 392 Hz, the early French baroque pitch,[25] while on the other hand some of his oboes play as high as about $a^1$ = 440 Hz (for example, the instrument in the Musik Museet in Stockholm). Other oboes play at about $a^1$ = 410 Hz (The Hague, Gemeentemuseum Ea 6-1952) or even at $a^1$ = 415 Hz (the one owned by the Belgian oboist Paul Dombrecht).[26]

For some of Haka's Deutsche Schalmeien pitch data is available from modern playing trials. Because these were done at different times and by different people, using reeds and staples varying considerably in size and shape (with a correspondingly great effect on pitch and tone quality), we must of course be cautious in drawing conclusions about the absolute

25. Personal communication from the German bassoon maker Guntram Wolf, October 1995. See also William Waterhouse, "A Newly Discovered 17th-century Bassoon by Haka," *Early Music* 16 (1988): 407–10.

26. The pitch of these two oboes was measured as played by the author. Each joint of the Dombrecht oboe is 4–6 mm shorter than the corresponding section of Ea 6-1952, which explains its slightly higher pitch.

pitch of the instruments.[27] Most recently, the three instruments in the Haags Gemeentemuseum were played by Piet Dhont during preparations for the new catalogue of Dutch baroque double reed instruments of that museum. Best results were obtained with the two sopranos when they were played at a pitch of 30 to 60 cents under $a^1$ = 415 Hz, using a relatively wide reed intended for a baroque oboe (see Table 5).[28] (This assumes that the note produced with all six fingerholes closed is $d^1$, an issue to be discussed further below.) With a reed from a tenor oboe in $f^0$ the alto (no. 10) played at a pitch close to $a^1$ = 415 Hz and gave $a^0$ with all six fingerholes closed; using the key (to close hole 7) produced a low $g^0$. The larger instrument is thus pitched (about) a fourth lower than the smaller ones, the same interval given by Talbot for the treble and tenor Schalmeys he examined.[29]

Haka's no. 3 was played (by the present author, on 5 October 1991) with a new but rather thick reed that happened to be in the museum's collection at the time. Only one tone, the lowest (with six fingerholes closed), was playable with that reed, giving a very low pitch which could be called either $d^1$ at $a^1$ = 392 Hz, or $c^1$ at $a^1$ = 440 Hz. However, when Bruce Haynes played this instrument in 1996, with a classical oboe reed, he measured a much sharper pitch of $a^1$ = 416 Hz (assuming that the

27. No original reeds or staples survive with any of Haka's Deutsche Schalmeien. In his manuscript Talbot gives dimensions for the reeds of both oboe and Schalmey (see Baines, 13–14). The reed for the latter had a width of $^5/_{16}$ of an inch (7.9 mm), while that for Talbot's French *hautbois* (made by Bressan; note that no such instrument survives) was a little wider ($^3/_8$ of an inch, or 9.5 mm). Thus, players of Talbot's time played their narrow-bored Schalmeys with narrower reeds than their wider-bored French oboes. Modern players have established a similar practice for baroque and classical oboes: the latter have a narrower bore, and are played with a narrower reed (personal communication from Piet Dhont).

28. With a narrower reed meant for a classical oboe the pitch was somewhat sharper, 5 to 20 Cents under $a^1$ = 415 Hz. The scale of both instruments was just under two octaves, from $d^1$ to $c^3$; on both instruments the $d^3$ would not speak. The relatively narrow intervals D–F♯ and G–B (in both octaves) could be an indication that the instruments were designed to be played in an unequal temperament with some pure thirds.

29. Talbot gives the same interval of a fourth between his *treble hautbois* and *tenor hautbois* (both by Bressan), which is remarkable because surviving instruments by Haka in these same sizes are pitched a fifth apart. Talbot's observations may be in error here, because his *tenor hautbois* is no shorter than the two surviving tenor oboes by Haka (Vienna, Gesellschaft der Musikfreunde, nos. 151 and 152, exhibited at the Kunsthistorisches Museum in Vienna), and is moreover exactly 50% longer than the dimension he gives for a *treble hautbois* in $c^1$. This ratio of lengths (exactly 3:2) is an indication that the difference in pitch was more likely a fifth than a fourth.

TABLE 5. Pitches of Individual Notes on a Deutsche Schalmei by Haka (Haags Gemeentemuseum, Ea 18-x-1952)

| Note | Fingering* | | | | | | Cents below $a^1 = 415$ Hz** |
|---|---|---|---|---|---|---|---|
| $d^1$ | 1 | 2 | 3 | 4 | 5 | 6 | 30–35 |
| $e^1$ | 1 | 2 | 3 | 4 | 5 | – | 30–35 |
| $f^1$ | 1 | 2 | 3 | 4 | – | 6 | 25–30 |
| $f\sharp^1$ | 1 | 2 | 3 | 4 | – | – | 55–60 |
| $g^1$ | 1 | 2 | 3 | – | – | – | 45 |
| $g\sharp^1$ | 1 | 2 | – | 4 | 5 | – | 35–45 |
| $a^1$ | 1 | 2 | – | – | – | – | 30–40 |
| $b\flat^1$ | 1 | – | 3 | – | – | – | 60 |
| $b^1$ | 1 | – | – | – | – | – | 65 |
| $c^2$ | – | 2 | – | – | – | – | 40 |
| $c\sharp^2$ | – | – | 3 | 4 | – | – | 65 |

| Note | Fingering | | | | | | Cents below $a^1 = 415$ Hz |
|---|---|---|---|---|---|---|---|
| $d^2$ | – | 2 | 3 | 4 | 5 | 6 | 45–50 |
| $e^2$ | 1 | 2 | 3 | 4 | 5 | – | 20–25 |
| $f^2$ | 1 | 2 | 3 | 4 | – | 6 | 10–20 |
| $f\sharp^2$ | 1 | 2 | 3 | 4 | – | – | 50–60† |
| $g^2$ | 1 | 2 | 3 | – | – | – | 25–35 |
| $g\sharp^2$ | | | | | | | ‡ |
| $a^2$ | 1 | 2 | – | – | – | – | 15–25 |
| $b\flat^2$ | | | | | | | § |
| $b^2$ | 1 | – | 3 | 4 | 5 | 6 | 45–50 |
| $c^3$ | h | 2 | 3 | 4 | 5 | – | 15–25 |
| | | | | | | | (difficult) |

*– = fingerhole open, h = half open

**With a somewhat narrower reed the pitch of most notes was clearly sharper, about 5 to 20 Cents under $a^1 = 415$ Hz.

†$f\sharp^2$ was not possible with 1 2 3 – 5 6

‡$g\sharp^2$ was not possible with 1 2 – 4 – –

§$b\flat^2$ was not possible with 1 – 3 – – –

note produced with all six fingerholes closed is $d^1$). No. 4 was played (about 1970) by Friedrich von Huene at a very low pitch: with six holes covered he, too, produced a note identifiable either as $d^1$ at $a^1 = 392$ Hz, or $c^1$ at $a^1 = 440$ Hz.[30]

30. A $b\flat^0$ was measured (at $a^1 = 440$ Hz) when the key on this instrument was used to close hole 7. Von Huene's remarks, written on a drawing of this instrument which he kindly gave me during my visit to his home in 1991, are as follows: "Pommer by Richard Haka; very good instrument, lowest note b♭ (a = 440 Hz) with Kenneth Roth's shawm reed (which is 9.5 mm wide), placed on 'original' staple; the instrument has more resistance than the same reed placed on modern oboe staple and is perhaps a little softer also. Comparing this instrument to a Steinkopf shawm in C this instrument feels like a shawm but is much more refined in tone. [Otto Steinkopf worked for the Moeck factories in Celle, Germany, during the 1960s and made mainly woodwinds based on original instruments from the Middle Ages and Renaissance.—*J.B.*]

"Cross fingerings are unusally clear. Thinking as instrument in c, f♯ 1 2 3 . 5 6 is a little weak or unstable; f♯ 1 2 3 4 is flat unless 1 2 3 4h [half-holed]. Good range from c′ to a″. High b is difficult, c‴ and d‴ possible but not practical. Good middle c♯″; no low e♭ except by half holing. High e♭ is possible with half holing and easier than low e♭." Von Huene's experiences were about the same as those of Piet Dhont on instruments in The Hague: $f\sharp^1$ and $f\sharp^2$ were rather flat when fingered with 1 2 3 4 – –, the fork-fingerings for $f^1$ (1 2 3 4 – 6) and for $b\flat^1$ (1 – 3 – – –) were good, and the highest notes ($b^2$ and up) were difficult or impossible.

These experiences with instruments nos. 3 and 4 reveal a specific point of confusion about the pitch of Deutsche Schalmeien: what was the name of the note played with six fingerholes closed? On oboes (and transverse flutes) of the late seventeenth century this fingering produces a note normally identified as $d^1$, so it is natural to assume that a (soprano) Deutsche Schalmei by Haka would also give $d^1$ when all six tone holes of the upper joint are closed. However, the tablature given in the Talbot manuscript for a *Chalmeye treble* shows the lowest note as $c^1$ (played with six fingerholes closed)—in marked contrast to the Bressan oboe described next, whose tablature shows a six-finger $d^1$ (with a bottom note of $c^1$ when the key is used to close the lowest hole).[31]

Because the total length of Talbot's Schalmey is 24 1/8 inches (612.8 mm),[32] only about 1.5% shorter than the average of all nine Haka sopranos (621.6 mm),[33] in absolute terms its lowest note must have been very nearly identical in pitch to the same note on any of Haka's instruments. The problem is thus one of terminology rather than acoustics, namely whether that lowest note should be identified as $c^1$ (according to Talbot) —presumably at a relatively high pitch standard—or $d^1$ (in conformity with virtually all other treble woodwinds of the period) at a lower pitch standard.[34] The latter view results in a basic scale of $d^1$–$e^1$–$f\sharp^1$–$g^1$–$a^1$–

31. See Baines, 13–14. Talbot's tablature for the *Chalmeye treble* has a low $b^0$ penned in dots, presumably indicating this as the note that would be produced if there were a key to stop the seventh hole. (One wonders if he really meant to specify it as sounding only a semitone below the six-finger note, or whether this is a mistake for $b\flat^0$ which would give the usual whole-tone difference in pitch.) For the bottom note of a tenor he gives the pitches $g^0$ and $f^0$, again apparently indicating the notes produced without and with the key, respectively.

32. Talbot's length measurements for this instrument appear to contain an error of arithmetic (or possibly of transcription). As with all other wind instruments, he gives its dimensions using three units—feet, inches, and eighths of an inch—set forth in separate columns, stating that the "1st Joynt" is *1f. 2′ 1/2″* (that is, 1 foot 2 1/16 inches) and the second is *10[′] 1/2 [″]* (10 1/16 inches). However, Talbot then gives the sum of these two measurements as *2 1 0* (that is, 2 feet 1 inch), evidently a mistake for *2 0 1* (or 2 feet 1/8 inch), the correct total (see Baines, 12). Based on the erroneous length for the entire instrument, Baines presented (p. 21) a drawing which shows the Schalmey described by Talbot as being a little longer than a similar instrument by Haka (not further identified, but perhaps the one sold only two years earlier from the collection of the late Canon Francis Galpin). However, using the correct total length of 2 feet 1/8 inch results in the opposite conclusion, namely that Talbot's instrument was very slightly shorter than any of Haka's soprano Deutsche Schalmeien.

33. As shown in Table 4, above, these instruments are all essentially the same size, ranging in length from 619 to 626 mm.

34. Talbot gives no information about the absolute level of the pitches he names, here or elsewhere.

$b^1$–$c\sharp^2$–$d^2$, with easy fork fingerings for $f^1$, $b\flat^1$, and $c^2$, making pieces in the keys of C, D, F, and G major and d, e, a, and b minor playable without difficulties, just as on the oboe. The C system, on the other hand, would provide a basic scale of $c^1$–$d^1$–$e^1$–$f^1$–$g^1$–$a^1$–$b^1$–$c^2$, with easy fork fingerings for $e\flat^1$, $a\flat^1$, and $b\flat^1$, which would make playing in sharp keys such as D and G major and b and e minor much more difficult, and only pieces with one to three flats easier. For most music of the period, therefore, the D system seems to be more convenient, and would in addition have made it easier for a player to switch back and forth between the Deutsche Schalmei and other treble woodwind instruments.

Thus, if we accept that the lowest note on Haka's soprano Deutsche Schalmeien was thought of (by the maker and his customers) as $d^1$, we can conclude from playing tests—using the best combinations of reed and staple, including narrow reeds matching the dimensions of the one Talbot measured—that these instruments were built to a pitch standard of $a^1$ = 415 Hz or a little lower.[35]

### *Surviving Deutsche Schalmeien by Other Makers*

Deutsche Schalmeien by other makers are preserved in collections in Nuremberg, Eisenach, Berlin, Salzburg, Linz, Basel, and Brussels, most of them with no maker's name, or only with initials. Catalogues with detailed descriptions, pictures, and measurements of these instruments have recently been published for the collections in Nuremberg and Linz, and the Salzburg catalogue also gives measurements of the Deutsche Schalmeien in that collection.[36] It is not possible to describe all these other Deutsche Schalmeien fully within the scope of this article, but it is worth making a few remarks about some interesting details, the possible relationship of these instruments to those of Haka, and the question of which among them might be the oldest, and therefore closest to the origin of the Deutsche Schalmei as a distinct type of instrument.

35. This agrees with the pitch of Haka's longer baroque oboes and most of his recorders built in two or three joints, which also play at about $a^1$ = 410–415 Hz.

36. Martin Kirnbauer, *Verzeichnis der europäischen Musikinstrumente im Germanischen Nationalmuseum Nürnberg, Band 2: Flöten- und Rohrblattinstrumente bis 1750* (Wilhelmshafen: Heinrichshofen / Florian Noetzel Verlag, 1994), 119–24; Phillip T. Young, *Die Holzblasinstrumente im Oberösterreichischen Landesmuseum* (Kataloge des OÖ. Landemuseums, Neue Folge, Nr. 113, Linz: [The Museum], 1997), 106–09; and Kurt Birsak, *Die Holzblasinstrumente im Salzburger Museum Carolino Augusteum* (Publikationen des Instituts für Musikwissenschaft der Universität Salzburg, 9; Museum Carolino Augusteum, Jahresschrift vol. 18 [1972], Salzburg: [The Museum], 1973), 108–09. Older catalogues from museums in Brussels (1893ff.), Basel (1906), and Berlin (1922) give only limited information about such instruments in their collections.

Only for three instruments can the name of the maker be deduced. The first, no. A 12.5 in the Museum Carolino Augusteum in Salzburg, is stamped with the name "L. Walch" (see fig. 11).[37] A Deutsche Schalmei in the Historisches Museum of Basel (no. 1879.98a) is stamped "Christian S," and was probably made by the Swiss woodwind maker Christian Schlegel (1667–1746) (see fig. 12a–b).[38] The third instrument by an identifiable maker is currently on loan to the Bach-Haus in Eisenach (no. L 13) and is marked "H.F.K.," probably the stamp of Hieronimus Franciscus Kynsecker (or Kynseker), a woodwind maker who lived from 1636 to 1686 in Nuremberg.[39]

Several Deutsche Schalmeien in various sizes are preserved in Nuremberg, all anonymous or stamped only with initials of unknown makers. Two instruments (MIR 364 and 366) are stamped "PP" and have original pirouettes, with the staples still inserted in their bores. These pirouettes are surprisingly long and have a small wooden pin, attached to the pirouette with a short piece of thread. According to Martin Kirnbauer, these pins were used as tuning pins (*Stimmstift*) for removing or fine tuning of wax in the finger or resonance holes of the Deutsche Schalmeien.[40] Dr. Klaus-Peter Brenner, of the Musikwissenschaftliches Seminar at the University of Göttingen, has a different theory, however,

37. About fifty woodwind makers with the name Walch were active in the area of Berchtesgaden (South Germany), between 1581 and 1870; see Waterhouse, 419–20. The maker of this instrument could have been Lorenz (I) Walch (1735–1809); if so, this would mean that Deutsche Schalmeien were made (and used) at least as late as the third quarter of the eighteenth century. Two unstamped instruments in the same collection (nos. A 12.2 and 12.4) are made in the same style. On all three, the finger-holes have fairly large deepened coves, rather crudely made, perhaps by a player seeking a better grip when he had to use the instruments in cold conditions.

38. Martin Kirnbauer, "Die Rohrblattinstrumente in der Musikinstrumenten-Sammlung des Historischen Museums Basel," *Historisches Museum Basel, Jahresbericht 1994*, 62–75, pp. 62–63. Young (*4900*, p. 211) mentions a second Deutsche Schalmei by "Christian S" which was formerly in the collection of Willi Burger in Zurich, and before that no. 1879b in the Historisches Museum, Basel. Because the Burger collection has been dispersed, the current location of this instrument is unknown.

39. This Deutsche Schalmei came orginally from Schloss Elisabethenburg in Meiningen (Germany) and it was Herbert Heyde who discovered the instrument and its stamp "HFK": see his *Musikinstrumentenbau 15.–19. Jahrhundert: Kunst, Handwerk, Entwurf* (Leipzig: VEB Deutscher Verlag für Musik, 1986), 81 and plate 71a.

40. Kirnbauer apparently came to this conclusion because some remnants of wax were found in the resonance holes. In his description of MIR 364 Kirnbauer also says that he has seen pictures of Deutsche Schalmeien where the resonance holes were closed with small wooden pegs, for reasons of tuning, but I doubt very much if this is true. I have done some experiments on a copy of a Haka Deutsche Schalmei and the only effect of plugging the resonance holes was a minor change in the tone quality; the pitch of the tones did not change.

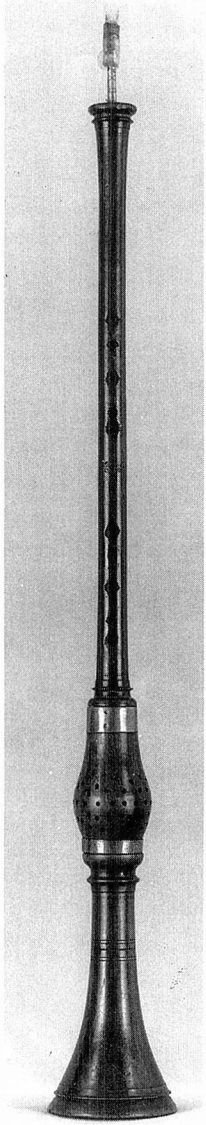
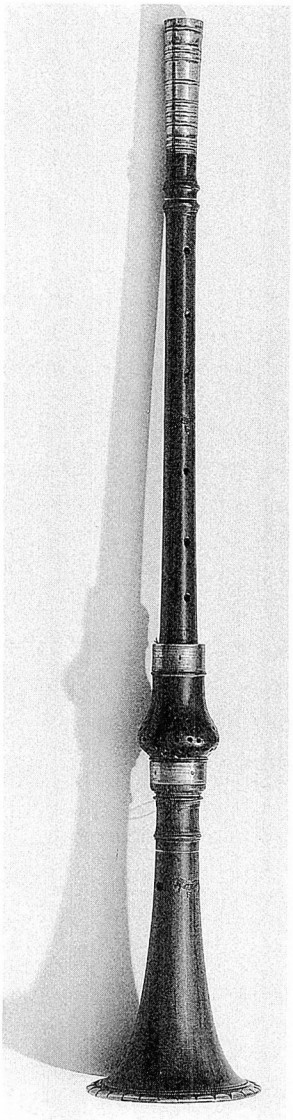


FIGURE 11. Deutsche Schalmei by L. Walch (Salzburg, Museum Carolino Augusteum, no. A 12.5). Photo: Museum Carolino Augusteum.



FIGURES 12a–b. Deutsche Schalmei by Christian Schlegel (Basel, Historisches Museum, no. 1879.98a): complete instrument and detail showing maker's mark. Photos: Historisches Museum Basel.

namely that these pins were used to open the reed from below, through the staple.[41]

### *Comparisons*

The first observation to be made is that whereas Haka always used boxwood, all Deutsche Schalmeien by other makers that I have examined (in museums in Nuremberg, Salzburg, Basel, and Linz) are made of plumwood or a related fruitwood. The reason for this clear distinction is unknown; it may have to do with which kinds of wood were most easily (and cheaply) available in different parts of Europe, although we know that South German makers also made other instruments in boxwood.

It is also noteworthy that these other Deutsche Schalmeien show rather large variations in length, both of the individual joints and overall, with total lengths ranging from 570 mm (Salzburg A 12.2) all the way to 723.5 mm (Basel 1956.623) (see Table 6). As a result, the pitches of these instruments must vary considerably, certainly by more than enough to raise the question of whether they all were intended to produce the same nominal bottom note, at whatever pitch standard.

In addition, these Deutsche Schalmeien by makers other than Haka vary considerably in their physical proportions. For example, whereas on Haka's sopranos the bell joint is fairly accurately five-twelfths, or 41.7%, of the total length (as it is also on Salzburg A 12.2, Linz Mu 255, the Kynsecker at Eisenach, and Talbot's Schalmey), on other instruments this proportion varies from 39.4% to 45%.[42] Another relevant proportion is the distance between the first and sixth fingerholes, which Heyde has called the "*Grifflochspanne.*"[43] As shown in Table 6, this is usually just a little less than one-third of the total length; here the instruments

41. Personal communication, April 1996. Similar devices are known on shawms in Nepal and India.

42. For Haka, actual values range from 41.6 to 42.0%, with one instrument (no. 9) falling significantly outside these bounds at 43.1%, as shown in Table 4. Table 6 reveals that this same proportion is 41.6% for both Salzburg A 12.2 and Linz Mu 255, while Kynsecker and Talbot are both 41.7%. (Because the upper joint of Linz Mu 182 has been shortened, its present bell-to-total-length ratio is an anomalous 50.0%.)

43. See Heyde, *Musikinstrumentenbau,* 173. This is likely to be a better indication of an instrument's pitch than its total length, since the latter includes the acoustically less important dimensions of the finial and the lower end of the bell. Other factors significantly influencing the overall pitch include the dimensions of the staple and reed, and the position and size of the resonance holes in the bell.

TABLE 6. Comparison of Selected Deutsche Schalmeien by Haka and Other Makers (Dimensions in mm).

| Museum location | Instrument No. (Maker) | Length of upper joint* | Length of bell | Total length | *Grifflochspanne*† | *Grifflochspanne* as percentage of total length |
|---|---|---|---|---|---|---|
| The Hague | Ea 18-x-1952 (Haka) | 361.8 | 257.5 | 619.3 | 201.8 | 32.6% |
| | Ea 19-x-1952 (Haka) | 474 | 380 | 854 | 244 | 28.6% |
| Salzburg | A 12.2 (Anon.) | 333 | 237.2 | 570.2 | 177 | 31.0% |
| | A 12.4 (Anon.) | 408.5 | 268.5 | 677 | 216 | 31.9% |
| | A 12.5 (Walch) | 407 | 270 | 677 | 217 | 32.0% |
| Linz | Mu 255 (Anon.) | 368 | 262 | 630 | [n/a] | – |
| | Mu 182 (Anon.) | 268‡ | 268.7 | 536.7 | [n/a] | – |
| Nuremberg | MIR 364 ("PP") | 327 | 264 | 591 | 180 | 30.4% |
| | MIR 366 ("PP") | 393 | 322 | 715 | 210 | 29.3% |
| | MI 146 (Anon.) | 380 | 283 | 663 | 217.5 | 32.8% |
| Basel | 1879.98a (Schlegel) | 356.5 | 257 | 613.5 | 198.5 | 32.4% |
| | 1878.20 (Anon.) | 355 | 249 | 604 | 195 | 32.3% |
| | 1956.623 ("FH") | 438.5 | 285 | 723.5 | 229 | 31.7% |
| Eisenach | L. 13 (Kynsecker) | 354.5 | 253.2 | 607.7 | 202.5 | 33.3% |
| [Talbot MS] | – (Wise?)§ | 357.2 | 255.6 | 612.8 | 203.2 | 33.2% |

*without tenon
†*Grifflochspanne* is the distance between fingerholes 1 and 6 (see text)
‡this joint has been shortened
§Talbot's measurements converted from inches (see also note 32 in text)

which come closest to Haka's practice (for example, 32.6% for no. 1) include those by Schlegel (32.4%) and Kynsecker (33.3%), as well as the one in the Talbot manuscript (32.6%). On longer instruments (Nuremberg MIR 366 and Haka no. 10), however, we can see that the makers moved the holes closer together (respectively 29.3% and 28.6% of total length) in order to avoid too long a stretch for the players' fingers.

Of all the Deutsche Schalmeien by other makers listed in Table 6, it is those by Schlegel and Kynsecker which are most similar to Haka's, in respect to the length and proportions of the joints, the shape of the bell, and even the metal mounts. (Unfortunately, the finials on the instruments by Schlegel and Kynsecker are damaged and have been repaired with metal mounts, so we cannot compare them with Haka's, which have

such a characteristic profile.) In addition, Kynseker drilled the finger-holes on his Deutsche Schalmei in the same pattern of angles as Haka did (from top to bottom, up-down-down, up-straight-straight: see the section on tone and resonance holes, above). Because Schlegel was about twenty years younger than Haka and Kynseker ten years older, is is more likely that Haka was influenced by the latter than by the former maker. However, nothing is known about Haka's apprenticeship period, including whether he went abroad or had an opportunity to study instruments imported from other countries.[44]

There are of course also similaritites between Deutsche Schalmeien of various makers, known and unknown. These have to do with the slender profile of the upper joint, the bore (narrow at the top, widely flaring at the bell rim), and the staple bore (which on most instruments has a ledge at the lower end). All fingerholes are drilled single, and there is (or was originally) always a fontanelle, though without a key except on the larger sizes. Likewise, all Deutsche Schalmeien have two large lateral resonance holes on the bell, though some instruments lack a smaller resonance hole at the front, an indication that this hole was no longer very important.[45] Several instruments besides Haka's have bell peg holes, and one (Salzburg A 12.5) even has two such holes.

### *Conclusions*

**Instruments by Haka.** Of all baroque woodwind makers, Haka is the only one from whom more than one or two Deutsche Schalmeien have survived. He made all ten instruments of this type in boxwood (which he also used for his other woodwind instruments, in addition to the more luxurious materials of ebony and ivory) and turned them with a characteristic but not very complex profile, especially for the finials and the fontanelles. The brass bands and rings are not very luxurious but they are solid and are consistently made, showing great experience. These

44. The last will of Cornelis Graswinckel, a beer brewer from Delft who died in 1653, mentions a set of recorders from Nuremberg ("accord Norenburger fluiten"). This means that woodwind instruments from Nuremberg were played in the Netherlands at least a decade before Haka could have begun his career as an independent maker. See Willem de Ruiter, "Het codicil van Cornelis Graswinckel (1653)," *Tijdschrift van de Vereniging voor Nederlandse Muziekgeschiedenis* 31 (1981): 73–81, p. 74.

45. On older types of shawms, with a key for hole 7, the small resonance hole may have functioned as tuning hole.

details may be not so important for acoustical matters, but they demonstrate the great care Haka took in building his Deutsche Schalmeien. The relatively small variations in length, bore dimensions, and the placement and size of fingerholes must be seen as individual adaptations by Haka and as a proof of his craftmanship.

Because Haka's surviving instruments are so uniform, it is not possible to say which of his Deutsche Schalmeien is the oldest. There is neither visible development in their design nor variation in pitches, such as can be found on his oboes and recorders.[46] Haka's oboes, in particular, show great variation in design and acoustical properties, which suggests that he was involved in the development of this type of instrument. In contrast, the uniformity of Haka's Deutsche Schalmeien gives us no reason to believe that he was the inventor of that instrument. It is, however, possible that Haka developed the model of his Deutsche Schalmei by himself; certainly he did not copy exactly a Deutsche Schalmei by any other maker—or, if he did, no examples of such matching instruments have survived. The greatest similarity, and therefore the most plausible connection, is with the instrument of the slightly older Kynsecker, although we know nothing about the relations between Haka and the woodwind makers of Nuremberg, nor about his connections with the makers of musical instruments in England, his native country. (Talbot's general description of a "treble Schalmeye" could almost fit Haka's Deutsche Schalmeien, and their dimensions are not very different.) Further, Talbot's statement that the sound of the Schalmeye he knew was "Sweeter than Hautbois" corresponds to the results of playing tests of instruments of both these kinds made by Haka and currently in the collection of the Haags Gemeentemuseum.

**The Deutsche Schalmei in general.** Writing in *The New Grove Dictionary of Musical Instruments,* Anthony Baines suggested that the Deutsche Schalmei, "made in Germany and the Netherlands from the latter part of the 17th century until after 1710," had the misfortune to arrive "too late in musical history to assume an important role, for oboes were becoming the fashion throughout western Europe."[47] It thus seems likely

46. See Jan Bouterse, "Three Baroque Soprano Recorders by Richard Haka," *The Woodwind Quarterly* 1 (1993): 120–33.

47. Anthony C. Baines, "Shawm," *The New Grove Dictionary of Musical Instruments* (London: Macmillan Press Limited, 1984), 3:364–71, p. 367.

that this instrument represents the end rather than the beginning of an era. Compared with the older shawm or pommer, the only advantages offered by the Deutsche Schalmei were a narrower bore and a sweeter sound, giving exactly the result that the baroque double-reed player wanted to hear. The even newer oboe, on the other hand, offered not only these same features (compared to shawms)[48] but also more interesting developments such as double-drilled holes and an added key for D♯, both of which facilitate playing in a wider range of keys. (There were also some advantages for makers: the oboe is in some respects also easier to make, because the pieces of wood are shorter, and for the bell also less thick.)

Talbot remarks that the Deutsche Schalmei was "used much in [the] German Army," a statement subsequently confirmed by Hans Friedrich von Fleming (1726), who wrote:

> Regimental pipers were formerly also called *Schallmeypfeiffer* [shawm pipers], because at that time such instruments . . . were played in front of the [marching] regiment . . . When shawms were still in fashion, we had only four men, namely two discants, an alto, and a dulcian. Now that the oboe has replaced them we have six oboists, because the oboe sounds less loud, but much sweeter, than the shawms. In order to make the wind band that much more pleasant we now have two discants, two tailles, and two bassoons.[49]

It is interesting that this new type of sound, softer and more sophisticated, came into fashion not only in chamber music, but also in military bands of the period, which suggests that the new instruments were introduced and accepted within a very short time span. In Germany there was a strong tradition of military wind bands,[50] but unfortunately there exists

48. For the greater part of its length the baroque oboe has wider bore dimensions than most Deutsche Schalmeien, and should therefore sound louder; but because the bell flares less and has a rim that contracts the bore at the end, the sound of the oboe is instead considerably softened.

49. Hans Friedrich von Fleming, *Der vollkommene teutsche Soldat* (Leipzig, 1726), chapter 35, p. 181, a passage taken over almost verbatim by Johann Heinrich Zedler for the entry on "Regimentspfeiffer" in his *Grosses vollständiges Universal-Lexicon aller Wissenschafften und Künste* 30 (Leipzig and Halle, 1741): cols. 1844–45. For the full texts by both authors in the original German, and a discussion of the relationship between them, see Susan Thompson's article elsewhere in this volume.

50. David Whitwell, *The Baroque Wind Band and Wind Ensemble,* The History and Literature of the Wind Band and Wind Ensemble, 3 (Northridge, Calif.: Winds, 1983) includes a chapter about military wind bands in German-speaking countries.

almost no information about the music and musical instruments used in such bands in the Netherlands. We do know that Haka supplied the Swedish Navy with woodwind instruments;[51] perhaps his Deutsche Schalmeien which are found today in Stockholm and nearby Copenhagen are in some way related to this sale. Haka is in fact the only Dutch woodwind maker known to have sold instruments to other countries than his own. This emphasizes his importance in the field of musical instrument making generally, and adds to the interest of the Deutsche Schalmeien he produced.

51. Waterhouse states (p. 156) that "the sale between 1682 and 1686 of many M[usical] I[nstruments] to the Swedish navy has been reported by [Otto] Thulin." Unfortunately, Thulin's correspondence gives no more detailed information on this point, and nobody in Sweden could tell me about his research or the documents on which he might have based this statement.