COMMUNICATIONS

TO THE EDITOR:

At the Musikinstrumentenbau-Symposium at Kloster Michaelstein in November of 1998, I had occasion to speak with Don Smithers about the bore of the coiled instrument made by Johann Wilhelm Haas in 1688 (Figures 1-2). Since that time I have given the matter a great deal of thought. Unfortunately I did not make any sketches or notes while restoring the instrument back in 1978. We must therefore take recourse to photos and X-rays for information about this matter, since the instrument is not presently available for inspection. [It was stolen from the Bad Säckingen Trumpet Museum in January 1997 (translator's note).] My thoughts here are presented in general terms, from the instrument maker's point of view.

The definition most frequently encountered concerning the bore of trumpets and horns undoubtedly has to do with the proportion of conical to cylindrical tubing. For me this criterion is insufficient, because the conical section derives its quality from its shape, which in turn influences the instrument's behavior. Arnold Myers, in his lecture in Amherst in July 1995, suggested using the parameter of the gradient of increase (exponent "m") of the Bessel horn function for the definition of such coiled instruments (for example, corno da caccia). [His thoughts on the matter have since been published; see his article, "The Horn Function and Brass Instrument Character," in *Perspectives in Brass Scholarship*, ed. Stewart Carter (Stuyvesant NY: Pendragon Press, 1997) (Bucina: The Historic Brass Society Series No. 2): 239-262 (translator's note).] My English is unfortunately not the best, so I am not sure whether he actually gave specifications of these bell shapes. If my memory serves me correctly, he was more interested in explaining the context in which the parameter "m" influences the reflection of the sound waves in the area of the bell flare, that is, up to which frequency a standing wave can be formed within the tubing, etc. Since a cone can have various shapes with a given tube length of the same beginning and ending diameters, its effect is dependent on its shape. The parameter of the gradient of increase "m", then, gives us a possibility of determining a cone's effect. Thus, in addition to the proportion of conical to cylindrical tubing, we have a second determining criterion that enables a more subtle differentiation of the various types of instruments.

Assuming that Arnold Myers did not mention a parameter of the gradient of increase, I have investigated the matter and attempted to determine the parameter "m" of the instrument mentioned above by means of the surviving X-rays. I did the same thing using an enlarged photo of the coiled instrument made by Heinrich Pfeifer of Leipzig in 1697.

$$\text{Bessel horn function:} \quad y = B / (x_0 + x)^m$$

With the Bessel horn function, a bell curve can be described mathematically. The curve of a Bessel horn does not correspond to the bell curve of most instruments over its entire length. We are looking for a Bessel horn function whose curve approaches a bell curve

in the area of its flare–in other words, where the highest frequencies are still reflected–as closely as possible. The exponent "m", expressing as it does the gradient of the curve's increase in diameter, gives us the information as to whether we are dealing with a trumpet or a horn bell, etc.

On page 408 of his book *Fundamentals of Musical Acoustics*, Arthur Benade gives the following values for "m":

Trumpets and trombones, approximately	0.5 – 0.65
Horns, approximately	0.7 – 0.9

These values have confirmed themselves in my practical experience. The Haas instrument has an "m" value of 0.616, whereas that of the Pfeifer instrument is 0.534. Both instruments are thus to be considered trumpets.

The Haas instrument, which is in two parts, possesses approximately the following proportions of tube length:

- 2.5 parts (5/7): conical-cylindrical branch, gradually increasing in size (inside diameter from c. 8.2 mm at the narrowest point after the mouthpiece receiver to c. 10.4), and
- 1 part (2/7): bell.

Smithers made the importance of the influence of the mouthpiece quite clear in his lecture in Michaelstein. The photograph of the Haas instrument (then in the Hohenzollern collection in Sigmaringen Castle) on Table VII/2 of Anthony Baines' book, *Brass Instruments,* shows that at the time of the South Kensington Exhibition in 1872 it was provided with a horn mouthpiece. When Ernst W. Buser bought the instrument in 1977, the mouthpiece was already missing. It remains an open question as to whether the Hohenzollern photo shows a contemporary or later mouthpiece. Mr. Buser had both a horn and a trumpet mouthpiece made. Subsequent acoustical tests showed that the instrument's timbre was very strongly influenced by the characteristics of the two mouthpieces.

A further depiction of a coiled instrument, previously unknown, shows that such instruments were originally blown with a horn mouthpiece. I have in mind an oil painting by Paul de Vos (Hulst 1596–Antwerp 1678) and workshop, "Huntsmen Gutting a Boar," 191.5 x 216.5 cm, which was sold at auction by Sotheby's in mid-April 1994. This painting shows a hunting scene in which a boar is being quartered. In the center of the scene a huntsman is blowing on a coiled instrument very closely resembling both the Haas and Pfeifer instruments. It has four and one-half coils and is held horizontally, in a typical horn position. The mouthpiece is unequivocally a horn mouthpiece. (See auction catalogue, p. 213.) [A reproduction of this instrument was shown during my lecture at the "IIIèmes rencontres autour de la trompette et du cor naturels" in Limoges on 8 March 1999 and is intended to accompany a corresponding article prepared for book publication by the Limoges Baroque Ensemble (translator's note).]

Furthermore, the mouthpiece receiver of the Haas instrument was obviously conceived to accommodate a horn mouthpiece. [The inside diameter of the mouthpipe opening was

very small, smaller than to permit even a modern horn mouthpiece to enter (translator's note).] The mouthpipe ferrule does not begin with the bezel, but even projects farther out. The X-ray photos show quite clearly that this projecting piece of tubing was not an adapter; nor was it a sleeve, as postulated by Graham Nicholson in *HBSJ* 7:218.

The plate in *Brass Instruments* also shows that the mouthpipe end of the instrument had already been broken off and repaired with a ferrule. When I restored the instrument, I did away with the ferrule and soldered the two existing pieces of tubing together with hard solder. As can be seen from the instrument's condition before restoration, quite strong forces must have acted on its tubing, so that we may assume that this non-original ferrule must have served the purpose of a repair and not, for instance, of a replacement of the entire mouthpipe. For me it was thus quite clear that this part of the tubing was original and not a later replacement. We therefore have to live with the fact that the inside diameter of the mouthpipe opening was originally just as narrow as in 1996, and that it in no way could have accepted a trumpet mouthpiece of usual dimensions.

Since the original mouthpiece has not survived, we cannot determine precisely what kind of timbre was expected of the instrument at the time of its origin.

Before concluding, I would like to comment on two quotations from Herbert Heyde's book, *Trompeten Posaunen Tuben*, both to be found in the section entitled "Jägertrompete by Heinrich Pfeifer" on p. 117.

> 1) "By building in coiled form, the maker is relieved of the obligation of constructing an instrument with the proportions of 5/7 cyl + 2/7 hyp." Quite obviously, Heyde is thinking of the wish to change the standardized construction of the long natural trumpet. The change mentioned here, however, applies only to Pfeifer's instrument, since Haas retained the usual proportions of 5/7 gradually increasing conical-cylindrical section (termed "branch" above) vs. 2/7 bell section.
> 2) On Reiche's portrait: "The beginning of the tubing has a diameter of less than 9 mm and is conical. These characteristics, which are in no case shared by Pfeifer's trumpet, could have been present in Reiche's instrument." The oil painting, however, shows very clearly that Reiche is not using a horn but a trumpet mouthpiece! Between these two statements of Heyde's and the surviving documentation of the 1688 Haas instrument, parallels exist.

What could have been intended with this construction, and with what kind of mouthpiece (horn or trumpet) the instrument functions best acoustically, would be topics for a lecture.

In conclusion, let me remark that the Haas instrument of 1688 was made of very heavy construction and with thick-walled tubing, facts which decidedly preclude note-bending in the clarino register and suggest that the instrument was intended for signaling purposes in the low register during the hunt.

Sincerely yours,

Rainer Egger
(English translation: Edward H. Tarr)

Figure 1
X-Ray photo of the coiled hunting instrument made in 1688 by J.W. Haas of Nuremberg (before restoration). Note the mouthpipe projecting beyond the bezel (unfortunately slightly cut off in the photo).
Photo: Röntgeninstitut Dr. H.J. Nidecker, Basel.

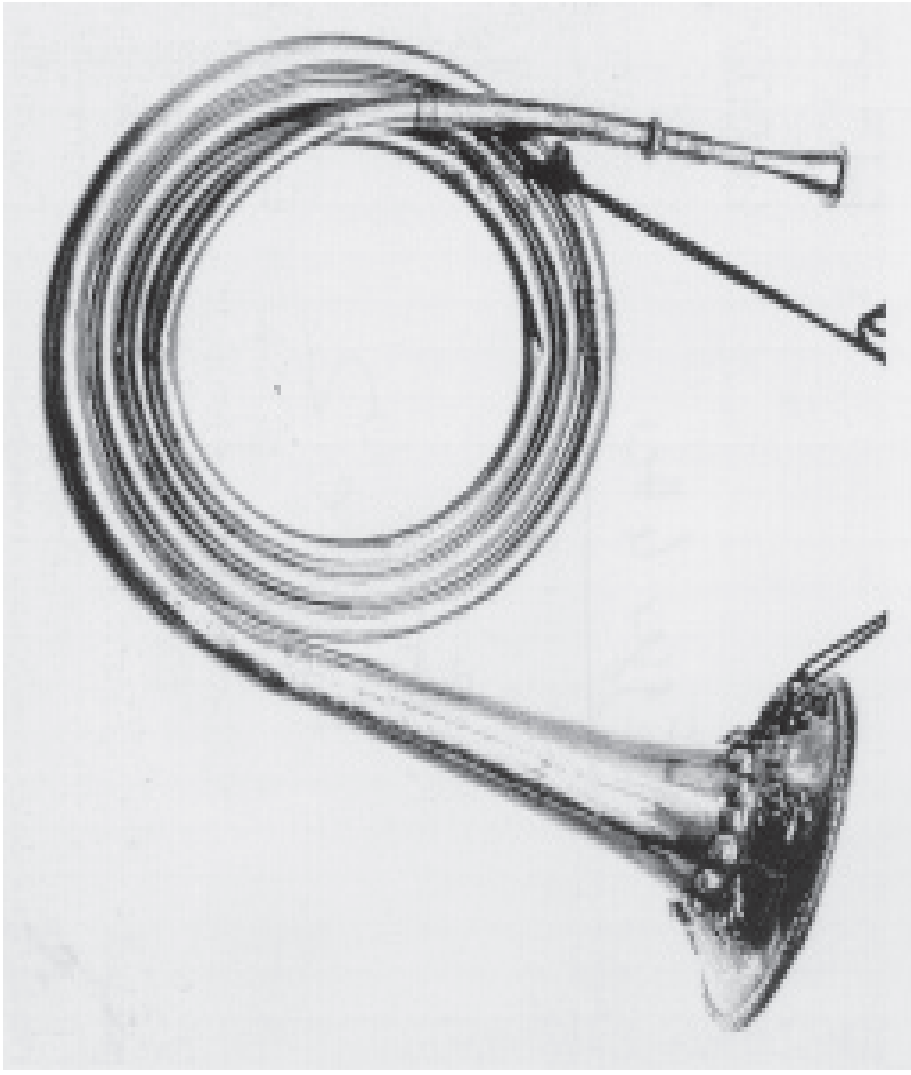


Figure 2
Coiled hunting instrument made by J.W. Haas, Nuremberg, 1688 (after restoration).
Bad Säckingen Trumpet Museum, Inventory no. 21401.
Photo: Hans Brell, Bad Säckingen.

ERRATA FOR VOLUME 10

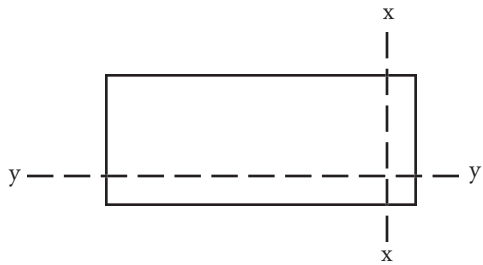
Several errors found their way into Karl Hachenberg's article, "The Compliant of the Markneukirchen Brass-Instrument Makers about the Poor Quality of Brass from the Rodewisch Foundry, 1787-1795," in *Historic Brass Society Journal* 10 (1998): 116-145. In particular, the superscript numbers of area and volume mesurements in endnotes 14, 16, and 29 were sometimes not printed superscript. Moreover, the scale drawing of a material sample is missing completely from endnote 16. For the sake of clarity, the entire endnote is reproduced below:

[16] Since Klotzsch does not tell us which side of sample "B" he shortened, there are two possibilities for calculating the difference in thickness:

1 Saxon inch	=	23.599 mm
3/4 Saxon inch	=	17.7 mm
7/4 Saxon inch	=	41.3 mm

Sample size = original area = 17.7 mm x 41.3 mm = 731 mm^2
Sample size after "shortening" along the lines x - x or y - y:

Scale 1:1



Shortening by 3/16 inch = -4.425 mm
This results in A_x = 17.7 mm x 36.875 mm = 652.7 mm^2
or A_y = 13.275 mm x 41.3 mm = 548.2 mm^2

Based on the original surface area of 731 mm^2, this results in a surface-area difference = thickness difference of 10.7% for A_x and 25% for A_y. Both values clearly deviate from the 32% that Schubert ascertained. In any case, however, Klotzsch too confirms that the Rodewisch brass is significantly thicker.

In Howard Weiner's review, "The Trombone in the new MGG," in *Historic Brass Society Journal* 10 (1998): 164-168, the sentence beginning six lines from the top of page 167 should be corrected as follows:

He would have seen there, in Mozart's own hand, trombone parts labeled *trombone 1mo, trombone 2do,* and *trombone 3tio* in alto, tenor, and bass clefs, respectively, and corresponding to the alto, tenor, and bass vocal parts.

GUIDELINES FOR CONTRIBUTORS

The Historic Brass Society invites submissions of articles for its annual *HBS Newsletter* and annual *HBS Journal*.

1. The HBS publishes articles based on research into any aspect of brass instruments of the past. They may range chronologically from Antiquity and the Biblical period through the nineteenth century. The Journal also publishes English translations of important articles, treatises, methods, in-depth bibliographies, and reviews of material on early brass subjects. Articles submitted to the Journal will be read by at least two expert referees who will help decide whether the material is appropriate for publication. Contributors should aim for a concise, fluid, and easily readable style of writing and presentation. The HBS stands strongly behind the goal of clear, concise writing and reserves the right to edit submissions in order to achieve it.

2. The *HBS Newsletter* seeks material of a more informal and practical nature, but the HBS holds the same goal of clear, concise, writing for its *Newsletter* as it does for its *Journal*. Material appropriate for the Newsletter includes: interviews with leading people in the field, instrument collections, instrument making, performance techniques, organizing ensembles, reports on early brass instrument makers, news of the early brass field such as symposia, workshops, concerts, recordings, instrument collections, teaching activities, and reviews of early brass books, music publications, and recordings.

3. Authors submitting Journal articles should submit six copies of their article along with a 3.5 inch floppy disk in Microsoft Word® for Macintosh®, DOS, or Windows®, or in ASCII format. Authors submitting material for the HBS Newsletter should include three copies of their article along with a 3.5 inch floppy disk in IBM PC Microsoft Word® or in ASCII. Authors from countries in which access to reproduction facilities is severely limited may submit a single copy.

4. Accompanying graphics such as photographs, line drawings, etc. must be submitted as camera-ready artwork or graphic files on disks. Musical examples must be either computer-typeset, engraved, or submitted as Finale® files on a 3.5 inch Macintosh or IBM-compatible disk. The number and size of graphics will be limited by our space requirements.

5. Material should be double spaced on 8.5" X 11" paper. Authors are requested to place only one character space after every sentence and punctuation mark. Endnotes and bibliographic formats should conform to the guidelines given in *The Chicago Manual of Style*, 14th ed. (Chicago and London: University of Chicago Press, 1993).

6. Musical pitch names and designations should conform to the system given in the *New Harvard Dictionary of Music* (Cambridge: Harvard University Press, 1986), p. 640.

7. Upon acceptance of the article, authors will be assigned an editor who may suggest revisions based in part on the referee's reports and in part on consideration of style. All revisions and changes should result from the ensuing dialogue between author and editor. When they have reached agreement on all revisions, the editor will send the author a revised version of the article. At this time any last-minute corrections should be made in consultation with the editor. Later the author will receive proofs in type, but the only changes allowable at this point will be corrections of any mistakes made during the typesetting process itself.

8. The HBS Newsletter is published in July and submissions are due March 1. The *HBS Journal* is published in December and submissions are due April 1.

9. Material should be sent to: The Historic Brass Society, 148 West 23rd Street #2A, New York, NY 10011 USA. FAX/TEL (212)627-3820, E-mail: president@historicbrass.org