

FLUITENBOUW, handleiding voor het maken van houtblaasinstrumenten

In August 2008 I have published my book *FLUITENBOUW, handleiding voor het maken van houtblaasinstrumenten*. It is written in Dutch language and in a Dutch setting, which means that (for instance) I have given addresses of some firms in The Netherlands where you can buy wood or tools. I have also referred to publications in *De Bouwbrief*, the periodical of the *Bouwerskontakt*, the society of woodwind makers in The Netherlands, and other Dutch publications.

For non-Dutch people who are interested in the contents of my 'handleiding' (manual) I have translated the title page and the greater part of the table of contents.

Jan Bouterse

WOODWIND MAKING: manual for making recorders, traversos and baroque oboes

- basic techniques of woodwind making - from simple experiments to full instructions for making copies of historical instruments - detailed information about voicing, tuning and scaling instruments - over 30 drawings with measurements of interesting instruments from renaissance and baroque.

Dutch title: *FLUITENBOUW, handleiding voor het maken van houtblaasinstrumenten* by Jan Bouterse, published by the author in August 2008, no ISBN; 350 p.

About the contents

In my dissertation from 2001 (of which the English translation, *Dutch woodwind instruments and their makers, 1660-1760*, is published in 2005 by the KVM in Utrecht) the results can be found of my scientific research into historic woodwind instruments. The new manual is a much more practical book, in which I have combined the experiences of the above mentioned research with those of making copies of the instruments.

The first chapters of the manual contain information about the technical aspects of woodworking (drilling, reaming, turning, making your own tools), and introductions in measuring techniques and acoustics. In the three instrument chapters (about traversos, recorders and baroque oboes) I have given - in a more or less chronological order - my experiences of making copies (from Dutch, German, French and English originals), but also of making simple instruments and experiments, such as scaling the instruments to other pitches. Many illustrations (the photos are in black & white), graphs and tables give additional information about such items as making windways (for recorders), keys, undercutting fingerholes, fingering tables, tuning instructions, schemes of nodes and antinodes of the sound waves of the various tones, and so on.

I have given drawings with measurements of over 30 historical instruments, many of them from private collections and not published before. I have given summarized data of some instruments of which excellent drawings and measurements have been published (such as from the collections of Frans Brügger and the Gemeentemuseum in Den Haag). Of some of these instruments I have given information of the copies, such as where I made some changes to improve the intonation and other aspects. But I have also written about my difficulties with some instruments, where I had beginners' luck or where I have made mistakes and didn't have success in making a copy: just such mistakes give valuable information for the readers, whether they are beginning with woodwind making or more experienced.

With the drawings and measurements in the manual, the reader might have enough information to make copies with very good qualities. However, I always give the recommendation that each woodwind maker should visit the collections to see (and measuring and playing, if possible) the instruments him- or herself. It is also good to consult the information in the catalogues (such as from the Gemeentemuseum in Den Haag) and my dissertation (in which are many colour photos). To order the dissertation, visit the website www.kvm.nl, go to 'Catalogue' (2x), scrolling down to the page 'Bouwstenen', and their to BN9.

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send me a mail if you want to to order the manual.

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Chapter 1: Introduction (4 p.):

- how the manual was made; - about the woodwind instruments in the manual; - about the empirical way of making woodwinds, information for beginning woodwind makers; - acknowledgements; - safety in the workshop

Chapter 2: Measuring and drawing woodwind instruments (18 p.):

2.1- Observing and measuring: - *introduction*; - *using sliding callipers, rulers, several techniques for measuring bores*; - *introduction in measuring the 'step' in recorder windways and measuring tone holes*

2.2- Making drawings: - *introduction*; - *drawing with pen or pencil*; *drawing using the computer*; *about graphs of the bores of woodwind instruments*

Chapter 3: Techniques of woodwind making (49 p.)

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3.6- Drilling and undercutting of mouthholes and toneholes

3.7- Making and mounting of keys: - *introduction*; - *measuring and copying keys*; - *making a key*; - *key channels and axle holes*; - *key springs*; - *mounting keys and key pads*

Chapter 4: Acoustics for woodwind makers (16 p.)

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4.5- Sound and sound research: - *harmonics and overtones*; - *noise*; - *the attack of the tone*; - *sound research with your own computer*; - *interpreting the results of sound research*

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Chapter 5: Traversos (72 p.)

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5.2- Renaissance traversos: - *some experiences and tips*; - *research, proportions*; - *traversos made of PVC or acrylic glass*; - *a 'modern' renaissance traverso with double holes*; - *the 'Schweizer Pfeif'*; - *conclusion*

5.3- Baroque traversos: - *introduction, how I started making copies*; - *my first traverso, after R. Wijne*; - *my latest instrument after Van Heerde*; - *the famous traverso by G.A. Rottenburgh*; - *the traversos of August Grenser*; - *Stanesby Junior*; - *early traverso's with one key by Hotteterre, Naust and Haka*; - *the flûte d'amour and other sizes of the baroque traverso*; - *my search for a traverso in a=440 Hz*; - *conclusion: my experiences with historic traverso's, books, articles*

5.4- Technical instructions for making traversos: - *sequence of working*; - *turning the traverso*; - *about caps and corks*; - *types of bore profiles of baroque traversos*; - *cylindrical or slightly conical head bores*; - *about irregular bores of the middle joints*; - *variations in bores of traverso feet*; - *socket sizes*; - *finishing of the bores*; *mouthholes*; - *finger and key holes*; - *mounting keys*; - *tuning the baroque traverso (basic principles, coherence of the tones*; - *fingering tables, scheme of nodes and antinodes, effect of the cork position, the effect of undercutting fingerholes, the effect of bore corrections, etc.)*; - *making corps de rechange*; *conclusion*

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6.2 - Experiences with making copies of recorders: - *introduction*; *a tenor fourth flute by Stanesby*; - *the Ganassi recorder*; - *the voice flute by Denner and a tenor recorder derived from that instrument*; - *the practical use of the voice flute*; - *other voice flutes and 'real tenor recorders'*; - *two alto recorders by Terton*; - *about the thickness of the walls of recorder joints and about curved windways*; - *the relation between the altos by Terton and Van Heerde*; - *the alto recorders by Steenbergen*; - *low pitch altos by other makers*; *an alto recorder in a=440 Hz after Stanesby, and its development*; - *other altos in a=440 Hz*; - *3 soprano recorders by Haka, Steenbergen and R. Wijne*; - *other sopranos*; - *a baroque sopranino recorder*; - *a copy after Loretto*; - *other sopraninos*; *2 early-baroque sopranino recorders*; - *my Van Eyck soprano recorder*; - *a soprano recorder with cylindrical bore*; - *the alto recorder by Stanesby-Junior*; - *the soprano recorder by Terton, a comprehensive description of the instrument and of making a copy*; - *simple recorders and ocarinas*; - *recorders for the future: a sixth flute, a baroque bass recorder, the Tarasov alto*; - *conclusions, tips, books*

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6.4- Drawings and measurements of the recorders

Chapter 7: Baroque oboes (34 p.)

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7.2- My experiences with making copies and investigating original instruments: - *the first copy, after R. Wijne; copies after other makers (Haka, Steenbergen, H. Richters, Van Heerde)*; *about single and double holes on oboes; oboes for playing music in sharp or flat keys; variations in the design of oboe bells; about finger- and keyholes on oboes; - undercutting the holes; the concept of 'resistance'; the relation between length and pitch; what is the best combination of reed and staple*

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- PVC-traverso in b/g, Schweizer Pfeif in d2: own design
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- R. Wijne, traverso in d1: Gemeentemuseum Den Haag (Ea 11-1935)
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- R. Wijne, traverso in d1: Stichting Ehrenfeld Utrecht
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- Van Heerde, traverso in d1 (ebony): private collection in The Netherlands
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- Van Heerde, traverso in d1 (boxwood): private collection in The Netherlands
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- Godfroid Adrien Rottenburgh, traverso in d1, collection Barthold Kuyken (Belgium)
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- August Grenser, traverso in d1: Gemeentemuseum Den Haag (Ea 14-1935)
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- Stanesby-Junior, traverso in d1 (African blackwood), ex-Brüggen collection (now in Japan)
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- F.G.A. Kirst, traverso in d1 (a=440 Hz), with 3 *corps de rechange*, private collection (The Netherlands?)
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- Alto recorder in f1 by Terton (boxwood, ivory rings, a=415 Hz), private collection The Netherlands *photos, measurements and drawings; see the dissertation for more photos and description*
- Van Heerde, alto recorder in f1, Gemeentemuseum Den Haag (Ea 33-x-1952) *summarized measurements after the museum catalogue (1991), with additional data of the original foot (not in museum catalogue)*
- Van Heerde, alto recorder in f1 in a=415 Hz, in ebony, Museu da Musica, Lisboa, Portugal (MIC 204) *full description, measurements and photos; for more photos see my dissertation*
- Steenbergen, alto recorder in f1 (a=410 Hz), collection Frans Brügger *summarized data after a drawing by Fred Morgan (1981), with additional information for two middle joints in a=415 en a=392 Hz*
- Steenbergen, alto recorder in f1 in ivory, with double fingerholes on 6 and 7, former private collection The Netherlands, now in Vermillion, SD USA *drawing, photos and measurements; see the dissertation for more photos and full description*
- alto recorder in f1, a=440 Hz, own design *measurements of two different models; additional data of the Rippert alto recorder in Paris (in g1, low French pitch), summarized from a drawing by J.F. Beaudin*
- R. Wijne, soprano recorder in c2, a= 405/408 Hz collection Frans Brügger *measurements (after a drawing by Morgan, 1981 and after own research) and photo; additional information of my copy in a=415 Hz*
- W. Beukers, soprano recorder in c2, private collection (ex-Vellekoop) *photos and measurements; see the dissertation for more photos and description*
- R. Haka, 3 soprano recorders in c2, collection Frans Brügger and in museums in Leipzig and Vermillion USA - *drawings and measurements, after own research*
- Sopranino recorder in f2 in a=415 Hz, after a copy by Alec Loretto *measurements after a drawing by Beaudin, new measurements after a copy based upon (but much changed) the Beaudin drawing*
- Oberlender, soprano recorder in f2 in ivory, a=415 Hz, Gemeentemuseum Den Haag (Ea 277-1933) *drawing and summarized measurements*
- IVH (Jan van Heerde), soprano recorder in f2, a= 466 Hz, in one joint, Museum Het Admiraliteitshuis in Dokkum *summarized measurements; see the dissertation for photos and description*
- Anonymous, soprano recorder in f2, a= 440+ Hz, in one joint. 't Huys Dever, Lisse *summarized measurements; see the dissertation for photos and description*
- R. Haka, soprano recorder in f2, a= 440 Hz, in ivory, in one joint, Potsdam Museum Germany *drawing, measurements and photos; see the dissertation for more photos and description*
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- Square soprano recorder in c2, a=440 Hz, after a design by Alec Loretto, but changed *photos, description and measurements*
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- R. Haka, oboe in boxwood, Gemeentemuseum Den Haag (Ea 6-1952) *summarized measurements after the museum catalogue (2004) and photos; see the dissertation for more photos and additional information*
- H. Richters, oboe in boxwood, Gemeentemuseum Den Haag (Ea 1-x-1996) *drawing, measurements and photos (this instrument is not in the museum catalogue from 2004)*
- J. Steenbergen, oboe in ebony with ivory rings, private collection Japan *drawing, measurements and photos*
- Van Heerde, oboe in boxwood, Musik Museet, Stockholm (No. 152) *drawing, measurements and photos*
- J. Denner, oboe in boxwood, private collection (ex Willy Burger, Zürich) *drawing, measurements and photos*
- R. Haka, short oboe (a=440 Hz possible), Musik Museet, Stockholm (No. 155) *summarized measurements after a museum drawing*