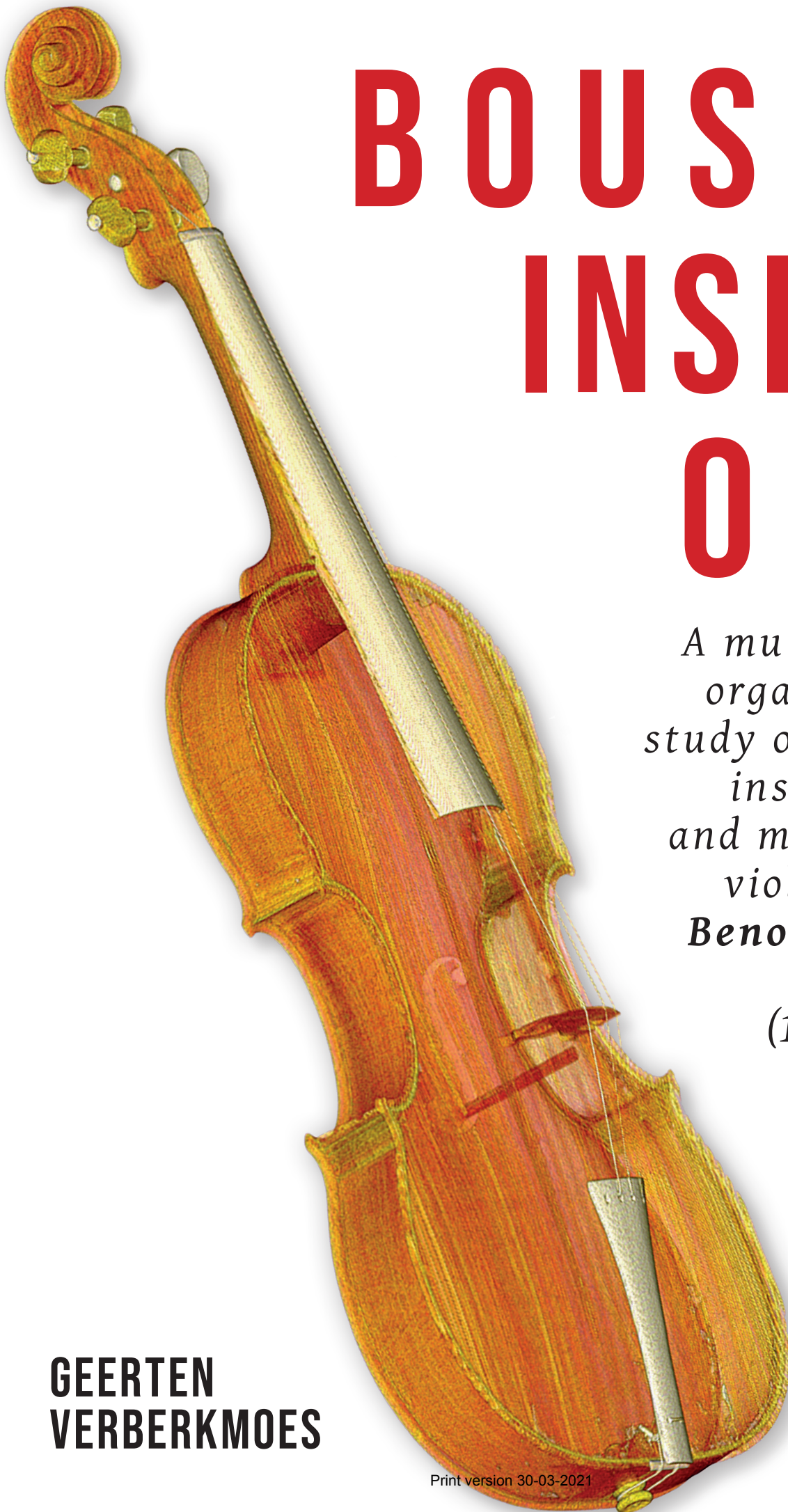


BOUSSU INSIDE OUT

*A multifaceted
organological
study of the life,
instruments
and methods of
violin maker
Benoit Joseph
Boussu
(1703-1773)*

**GEERTEN
VERBERKMOES**



Promotor

Prof. dr. Francis Maes (Department of Art History, Musicology and Theatre Studies)

Doctoral advisory committee

Prof. dr. Anne-Emmanuelle Ceulemans (Musical Instruments Museum, Brussels)

Dr. Geert Dhondt (School of Arts Ghent)

Dean

Prof. dr. Gita Deneckere

Rector

Prof. dr. Rik Van de Walle

Public defence

16 June 2020 (organised entirely online due to the COVID-19 pandemic)

Examination committee

Prof. dr. Marc Leman (Ghent University, Department of Art History, Musicology and Theatre Studies)

Prof. dr. Francis Maes (Ghent University, Department of Art History, Musicology and Theatre Studies)

Prof. dr. Georges Martyn (Ghent University, Department of Interdisciplinary Study of Law, Private Law
and Business Law)

Prof. dr. Berend Stoel (Leiden University, LUMC, Division of Image Processing)

Dr. Christina Linsenmeyer (Yale University, Yale Collection of Musical Instruments)

Dr. Panagiotis Pouloupoulos (Deutsches Museum, Forschungsinstitut für Wissenschafts- und
Technikgeschichte)

Dr. Annelies Van Assche (Ghent University, Department of Art History, Musicology and Theatre Studies)

Dr. Edith Van Dyck (Ghent University, Department of Art History, Musicology and Theatre Studies)

Boussu Inside Out

A multifaceted organological study of the life,
instruments and methods of violin maker Benoit
Joseph Boussu (1703-1773)

Geerten Verberkmoes

Dissertation submitted to obtain the degree of Doctor of Art Science
2020

ISBN 978-94-6332-753-4

Front cover illustration: 3D volume render of CT scan data for a violin by Benoit Joseph Boussu dated 1750 (MIM inv. no. 2781; database code BJB5001vn).

Back cover illustration: signature of Benoit Joseph Boussu, on a notarial act drafted by him on 28 January 1735 (Archives départementales du Nord, Lille, France, inv. no. 2E39/81: Archives des tabellions d'Avesnes, notary B.J. Boussu, Avesnes-sur-Helpe).

Copyright © 2020 Geerten Verberkmoes

All rights reserved. No portion of this publication may be reproduced, stored in an automated database, or made public in any form or by any means, either electronic, mechanical, by photocopying, recordings, or otherwise, without the prior permission of the author.

Alle rechten voorbehouden. Niets uit deze uitgave mag worden verveelvoudigd, opgeslagen in een geautomatiseerd gegevensbestand, of openbaar gemaakt, in enige vorm of op enige wijze, hetzij elektronisch, mechanisch, door fotokopieën, opnamen, of enige andere manier, zonder voorafgaande toestemming van de auteur.

Acknowledgements

The text presented in this thesis is the result of a multifaceted research project. The associated interdisciplinary approach could only be successful thanks to the participation of many people from various different fields of expertise. I am deeply grateful to all of you for your knowledgeable and generous cooperation, support and advice received during the Boussu project, and I can't thank you all enough. Also, it was a pleasure to get to know so many new people and exchange ideas. I just hope that I did not forget to mention anyone!

First, I want to thank my promotor, Prof. dr. Francis Maes, and the two members of the doctoral advisory committee, Prof. dr. Anne-Emmanuelle Ceulemans and Dr. Geert Dhondt. Your advice and guidance kept me on track during the doctorate process. I am additionally grateful to Prof. dr. Ceulemans in her role as curator of the bowed string instruments in the collection of the Musical Instruments Museum in Brussels. Without your permission and cooperation it would not have been possible to study Boussu's instruments from the MIM collection and take them outside the walls of the museum for a CT scan. I also want to thank the further MIM staff, especially Joris De Valck (for his assistance at the MIM workshop), Simon Egan (for instrument photography), Anja Van Lerberghe and former staff members Guy Buyse and Manu Frederickx. I would also like to acknowledge the staff of the Musée de la musique (Paris, France), Dai-Ting Chung of the Chimei Museum (Tainan, Taiwan) and Kazuhiko Shima of the Hamamatsu Museum of Musical Instruments (Hamamatsu, Japan).

Karel Moens recommended me that I study the violin by Boussu with MIM inv. no. 2781 in 2008, which marked the beginning of my quest for its maker's biography and instruments, and for that, I thank him very much.

I am greatly indebted to the many private owners - musicians as well as collectors who will not be named here for privacy reasons - and the dealers Jaap Bolink, Hieronymus Köstler, Adam Lynch, Gert Schrijvers and Jan Strick for kindly welcoming me and allowing

me to study their Boussu instruments. It would not have been possible to examine so many instruments without your confidence and willingness. Thank you all so much!

CT scanning and data interpretation were made possible through the cooperation, expertise and support of emeritus Prof. dr. Danielle Balériaux, Prof. dr. Berend Stoel, Prof. dr. Tom Van Hoof, Prof. dr. Emmanuel Coche, Prof. dr. Etienne Danse and their hospital staffs. I am truly grateful to the Erasmus, Saint-Luc, Ghent University and Leiden University Medical Center hospitals for generously making available their CT equipment for the research of the unusual ‘musical patients’. These valuable collaborations made a huge contribution to the project. A very special thanks goes out to Prof. dr. Berend Stoel, who invested many hours in the analysis of the CT data and the production of illuminative instrument maps... thank you so much for those ‘instrumental insights’!

During the biographical and socio-economic research, emeritus Prof. dr. Véronique Demars-Sion and Prof. dr. Georges Martyn kind-heartedly provided their invaluable help and advice in the analysis of the identified French notarial and municipal council acts. Emeritus Prof. dr. Demars-Sion carefully corrected my first batch of (80!) transcriptions, which greatly advanced my understanding of the old French legal language. The various sessions with Prof. dr. Martyn were especially helpful in understanding the legal system from eighteenth-century Hainaut and the content of the found acts. Many thanks for this ‘crash course’ in historical French private law! Alexis Donetzkoff and Romain Le Gendre were very supportive during the research in the Archives départementales du Nord in Lille, where most of the archival field work took place, *merci beaucoup!* WoodMusICK COST Action FP1302 provided a STSM (Short Term Scientific Mission) grant to support part of the research at the archive in Lille, for which I am most thankful. I also thank the staffs of the other archives I visited for their assistance.

To the following editors of the various publications that included my writings, I’m much obliged: Dr. Lance Whitehead and Dr. Michael Fleming (*The Galpin Society Journal*), Dr. Alan Howard (*Early Music*), Christian Lloyd (*The Strad*), Dr. Sandie Le Conte, Dr. Marco A. Pérez and Emanuele Marconi (WoodMusICK COST Action FP1302), and Prof. dr. Brigitte Van Wymeersch and Dr. Fañch Thoraval (UCLouvain/Brepols).

My gratitude further goes out to Dr. Bruno Forment and especially to the musicians Dr. Ann Cnop, Shiho Ono, Mathilde Wolfs and Martine Beernaert for their wonderful contributions to the associated two-year research project ‘The sound of Brussels anno 1760’, in which the replica instruments built during the currently presented study were used for musical performances and recordings. I thoroughly enjoyed the musicianship of ‘Ensemble Boussu’ during the various concerts, *bravo!* Thank you very much, Korneel Bernolet, for making the CD-recordings. This spin-off project received generous funding

from the research fund of the School of Arts in Ghent, which made it possible to organise several public concerts and the CD-recording. Many thanks also to Mr. Willy Van Rompaey for his advice and for allowing access to his personal sheet music library, which provided part of the repertoire for the ensemble.

I acknowledge the staffs of the Faculty of Arts and Philosophy and the Doctoral Schools of Ghent University for facilitating the doctorate process. Appreciation also goes to Wim De Temmerman, Lars Kwakkenbos and Dr. Katrien Vuylsteke-Vanfleiteren from the School of Arts Ghent, for their support of my doctorate. I especially thank my former colleague Jan Boon, for his wise advice and for giving me the opportunity to work at the School of Arts Ghent. Jan Stragier and Patrick Alliët from the Photography department of the same institution made wonderful photos of the Boussu cittern for an article in *Early Music*. It was nice to exchange experiences with my fellow PhD-candidate and instrument maker Tim Duerinck. I further thank the present and former colleagues and students (Gorik, thanks for the pegs!) at the department of Musical Instrument Making at the School of Arts Ghent, for their ongoing interest, encouragement and support for my project.

Dr. Claudia Fritz invited me to her lab in Paris, to perform acoustical measurements on the three replica violins. This gave insight in their sonic behaviour, and the results provided good suggestions for future research. Your expertise and time is much appreciated!

Further thanks to the following people and organisations for their support, encouragement, help, information and advice: Ben De Wulf (nice cittern!), Jelma van Amersfoort, Dr. Martine Zoeteman-Van Pelt, Stephen Freeman, Esther Visser, Alain Delfosse, Yolande Kortlever, Ir. Jan Weyts, Dr. Johan Eeckeloo, Antoine Jassogne, Dr. Klaus Martius, Dr. Marie-Françoise Limon-Bonnet, Dr. Isabelle Foucher, Dr. France-Odile des Mazery, Dr. Harald Deceulaer, Dirk de Greef and Roman Jans (Etcetera Records), Dr. Micheline Lesaffre, Jan Dewilde (Studiecentrum voor Vlaamse Muziek), Dr. Marie Cornaz, Els Goffings and Kris De Baerdemacker (Royal Library of Belgium), Lynn Marcoen and Yann Gyssels (KADE Podiumkunsten), Dr. Timothy De Paepe and Marleen Maes (Museum Vleeshuis | Klank van de Stad), Veerle Deknopper and Ad Musters, Dr. Marie Kent, Mirjam Drenth, Jolien Paeshuys, Anouk Goosen, Ms. A.E. Smit and Annie Maas.

Particular appreciation goes out to Dr. Christina Linsenmeyer and Dr. Panagiotis Pouloupoulos for their commitment to this project, and their insightful advice and recommendations on the thesis text.

Many thanks to my friend Pieter van Broekhoven, now living in China, for donating – many years ago – the workbench on which the replica instruments were all made. It's the best tool in the workshop!

I thank my parents Cobie and Bert, for supporting my personal and professional choices and for always being there for me, and my father for reading and commenting on the draft of this thesis. I hope you enjoyed Boussu's story! Also a hug to my brothers Ronald and Rutger, and their families, for encouragement and sharing an interest in music. I further am grateful to both my grandmothers, Thea and Joop, for passing on their respective fondness for music and history.

To my soulmate Claudia Lemette and our son Daan... a very big and loving thank you for your patience, care and understanding while I had to work yet another day, especially during the final writing stages. I hereby make the promise to spend more time with you both now 'operation Boussu' has been completed! Thank you for your love!

During the course of this doctorate study, much-needed diversion was offered by recurring and long-anticipated reunions with my brother Ronald and our mutual life-long friends Marco and Merijn. Those were fantastic and memorable weekends. The four of us shared a great friendship since our primary school days. Very sadly, Merijn passed away in October 2018. I dedicate this thesis to him, something he surely would have appreciated since he had a great love and talent for music.

Finally, I thank *le Sieur* Benoit Joseph Boussu for having made his beautiful instruments and for having lived an extraordinary life. These two conditions were the prerequisites for the remarkable discoveries made during the current study.

Bergen op Zoom, June 2020.

List of Abbreviations

ACA	Amsterdam City Archives, Amsterdam, The Netherlands
ACB	Archives of the City of Brussels, Brussels, Belgium
ADA	Archives départementales de l'Aisne, Laon, France
ADN	Archives départementales du Nord, Lille, France
AMA	Archives municipales, Avesnes-sur-Helpe, France
ANF	Archives nationales de France, Paris, France
AP	Archives de Paris, Paris, France
BIO	Boussu Inside Out
BMS	<i>Baptême, mariage, sépulture</i> (baptism, marriage, burial)
CD	Compact disc
CT	Computed tomography
DICOM	Digital imaging and communications in medicine
GNM	Germanisches Nationalmuseum, Nuremberg, Germany
inv. no.	inventory number
IR	Infrared
LUA	Leiden University Archives, Leiden, The Netherlands
LUMC	Leiden University Medical Center, Leiden, The Netherlands
MdlM	Musée de la musique, Paris, France
MIM	Musical Instruments Museum, Brussels, Belgium
NAN	National Archives of The Netherlands, The Hague, The Netherlands
SAB	State Archives of Belgium
SAB-An	State Archives in Antwerp-Beveren, Beveren, Belgium
SAB-Br	State Archives in Brussels, Forest, Belgium
SAB-Li	State Archives in Liège, Liège, Belgium
SAB-NAB	National Archives of Belgium, Brussels, Belgium
UV	Ultraviolet

Abstract in English

The instruments of the violin maker Benoit Joseph Boussu are among the most remarkable examples ever made within the area that is now enclosed by the borders of Belgium. The Musical Instruments Museum (MIM) in Brussels preserves nine instruments by Boussu, including a unique violin and cello in near-unchanged structural state. Furthermore, a substantial number of violins, violas and cellos is currently in use by musicians. Nevertheless, Boussu's biography remained largely unknown for a long time, despite attempts by various musicologists to clarify his life path.

The research presented here demonstrates that Boussu was born in Fourmies (in the north of France) in 1703 from a family of notaries, and that he himself also practised this profession until 1748. He then made a remarkable career switch to become a musical instrument maker, and worked as such in Liège, Etterbeek, Brussels, possibly Leiden, and ultimately Amsterdam. In the last year of his life, he returned to his native region, where he died in September 1773.

Through investigations into the notarial and municipal council archives from the region of Avesnes-sur-Helpe, it became possible to gain insight in the social and economic circumstances of Boussu's life. He had a modest notarial practice in Avesnes and supplemented his income with a side job as *procureur*. In addition, during his entire professional life, also during his time as an instrument maker, he was involved in the common financial transactions of his time, such as providing money to third parties and renting out land. These activities provided additional sources of income. Some aspects of Boussu's life, in particular his initiation into violin making, remain unclear despite the present research. The clarification of his remarkable course of life, however, allows us to place some prevailing preconceptions concerning violin makers (and other craftsmen) of the past, including those regarding the widely assumed career path through the 'master-apprentice' and guild systems, in a different light.

In addition to the biographical part, the currently presented study focuses on the extant instruments by Boussu. A total of 52 instruments was identified, investigated and

documented in a newly created database. Boussu's evolution as a maker was followed by identifying and comparing constructional and stylistic characteristics of his instruments over time, using state-of-the-art methods such as digital endoscopy and CT scanning. This in-depth organological study has led to new insights into the instrument-making practices of the former notary. He probably ran a small workshop in Brussels with a few employees, where instruments were being built in a modular way, which could ensure a steady and high-quality output. The production process remained grounded on the one hand in a local tradition of working without a full mould and a neck that extends inside the sound box. Other features in the preserved instruments, such as the use of corner blocks and specially shaped garland inner lining strips, suggest, however, the application of individual methods in addition to the traditional local habits, which enabled serial production. Based on the observations made, the present author proposed a hypothesis regarding the construction methods and workshop organisation employed by Boussu.

In order to test this hypothesis in practice, and at the same time to refine it, several replica instruments were built, namely three violins and a cello, based on the CT scans of the well-preserved violin and cello of Boussu from the collection of the Musical Instruments Museum in Brussels. During the construction – 'workbench research' – the efficiency of the process and the product specifications obtained were closely monitored to see whether the hypothetical construction sequence followed yielded the desired results and workflow. Further validation of the built replicas was achieved by analysing their construction on the basis of CT scans, and also by comparing some of their important physical and material properties to those of the original instruments. Finally, these replica instruments were handed over to professional Baroque musicians, who used them to perform and explore Brussels trio sonata repertoire from Boussu's time and place.

During the presented study, an interdisciplinary approach was pursued, with a strong experimental component. This innovative way of research, to be described as 'experimental organology', requires both theoretical and practical expertise from the researcher(s). As is hopefully demonstrated throughout this thesis, the practice-led activities functioned as an initiator, as well as a connecting nexus, for the performance of various types of complementary research. Starting with a biographical study, but soon followed by excursions to radiological instrument research, social history of the eighteenth century, musicology and historically informed musical performance practice. The author hopes that the holistic strategy of this 'case study' can serve as an example and inspiration for studying the life and work of other instrument makers, preferably not only for the big names, but also for the 'lesser gods'. In this way, the canon of instrument-making history can be enriched with deeper and more balanced forms of knowledge. In addition, this initiative is the first finished research project associated with the Musical

Instrument Making department of the School of Arts Ghent, which on completion has simultaneously produced academic publications, playable instruments, online video documentation, concerts and a label-released album. It may be hoped that this outcome will play an inspiring and pioneering role within the department.

Abstract in Dutch

De strijkinstrumenten van de bouwer Benoit Joseph Boussu behoren tot de meest opmerkelijke voorbeelden ooit gemaakt binnen het gebied dat nu wordt omsloten door de landsgrenzen van België. Het Muziekinstrumentenmuseum (MIM) in Brussel bewaart negen instrumenten van zijn hand, waaronder een unieke viool en cello in nagenoeg onveranderde structurele toestand. Verder is een substantieel aantal violen, altviolen en cello's momenteel in gebruik bij musici. Toch bleef Boussu's biografie lange tijd grotendeels onbekend, ondanks de pogingen van diverse musicologen om helderheid te scheppen in zijn levensloop.

Het hier gepresenteerde onderzoek toont aan dat Boussu werd geboren in Fourmies (Noord-Frankrijk) in 1703 uit een familie van notarissen, en dat hij dit beroep zelf ook uitoefende tot 1748. Aansluitend maakte hij een opmerkelijke 'career switch' tot muziekinstrumentenbouwer, en werkte als zodanig in Luik, Etterbeek, Brussel, mogelijk Leiden, en uiteindelijk Amsterdam. In zijn laatste levensjaar keerde hij terug naar zijn geboortestreek, waar hij overleed in september 1773.

Middels onderzoek in archieven van notarissen en lokale autoriteiten uit de streek van Avesnes-sur-Helpe werd het mogelijk om inzicht te krijgen in de sociale en economische omstandigheden van het leven van Boussu. Hij had een bescheiden notariskantoor in Avesnes, en vulde zijn inkomen aan met een nevenfunctie als *procureur*. Daarnaast was hij gedurende zijn gehele professionele leven, ook tijdens zijn periode als instrumentenbouwer, betrokken bij de gangbare financiële transacties van zijn tijd, zoals het verstrekken van geld aan derden en het verpachten van grond. Hiermee bracht hij zijn inkomsten verder op peil. Sommige aspecten van Boussu's levenswandel, met name zijn initiatie in de vioolbouw, blijven ondanks het huidige onderzoek nog onopgehelderd. De opklaring van zijn opmerkelijke levensloop laat ons echter wel toe enkele heersende stereotypen rond vioolbouwers (en andere ambachtslieden) uit het verleden, waaronder die over de alom veronderstelde carrière via de 'meester-leerling' en gilde systemen, in een ander licht te plaatsen.

Naast het biografische luik richt de hier gepresenteerde studie zich op de overgebleven instrumenten van Boussu. In totaal werden 52 instrumenten getraceerd, onderzocht en gedocumenteerd in een nieuw opgezette database. Boussu's ontwikkeling als bouwer werd gevolgd door het identificeren en vergelijken van bouwtechnische en stilistische kenmerken van zijn instrumenten door de tijd heen, waarbij ook *state-of-the-art* methoden werden gebruikt zoals digitale endoscopie en CT scannen. Deze intensieve organologische studie heeft geleid tot nieuwe inzichten in de instrumentenbouwpraktijken van de voormalige notaris. Waarschijnlijk bestierde hij in Brussel een klein atelier met enkele medewerkers, waarin werd gebouwd op een modulaire wijze, hetgeen een gestage en hoogwaardige productie kon garanderen. In ieder geval bleef het productieproces met één been gegrond in een lokale traditie van het werken zonder volledige mal en een in de klankkast doorlopende hals. Andere kenmerken in de bewaarde instrumenten, zoals het gebruik van hoekblokjes en specifiek gevormde interne lijmreepjes, suggereren echter de aanwending van eigen methoden in aanvulling op de traditionele lokale gewoonten, waardoor een seriematige productie mogelijk werd. Vanuit de gemaakte observaties stelde de auteur een hypothese op over de door Boussu gebruikte bouwwijze en werkplaatsorganisatie.

Om de aldus voorgestelde hypothese in praktijk te testen, en tegelijk om deze te kunnen verfijnen, werden enkele replica-instrumenten gebouwd, te weten drie violen en een cello, gebaseerd op de CT scans van de in nagenoeg onveranderde staat verkerende viool en cello van Boussu uit de collectie van het Muziekinstrumentenmuseum te Brussel. Gedurende de bouw – ‘werkbank onderzoek’ – werden de efficiëntie van het proces en de verkregen productspecificaties nauwlettend gecontroleerd, om te zien of de gevolgde hypothetische bouwwijze de gewenste resultaten gaf. Verdere validatie van de gebouwde replica's werd bereikt door hun constructie te analyseren op basis van CT scans, en tevens door enkele van hun belangrijke fysische en materiaalkundige eigenschappen te vergelijken met die van de originele instrumenten. Uiteindelijk zijn deze replica-instrumenten overhandigd aan professionele barokmusici, die ze gebruikten voor het uitvoeren en exploreren van Brussels trio sonate repertoire uit de tijd van Boussu.

Tijdens de gepresenteerde studie werd een interdisciplinaire aanpak nagestreefd, met bovendien een sterke experimentele component. Deze vernieuwende onderzoeksbenadering, te benoemen als ‘experimentele organologie’, vraagt van de onderzoeker(s) zowel theoretische als praktische expertise. Zoals in dit proefschrift hopelijk wordt aangetoond, fungeerden de praktijk-georiënteerde activiteiten als initiator en als verbindende factor voor de uitvoering van verschillende soorten complementair onderzoek. Beginnend met een biografische studie, maar al snel gevolgd door excursies naar radiologisch instrumentonderzoek, sociale geschiedenis van de achttiende eeuw, musicologie en historisch geïnformeerde muzikale uitvoeringspraktijk.

De auteur hoopt dat de holistische strategie van deze ‘*case study*’ kan dienen als voorbeeld en inspiratie voor het bestuderen van het leven en werk van andere instrumentenbouwers, en dan niet enkel voor de grote namen, maar ook voor de ‘mindere goden’. Zo kan de canon van de instrumentenbouwgeschiedenis worden verrijkt met diepere en meer evenwichtige vormen van kennis. Daarbij is dit initiatief het eerste afgeronde onderzoeksproject geassocieerd met de afdeling Instrumentenbouw van de School of Arts Gent, dat bij voltooiing gelijktijdig zowel academische publicaties, bespeelbare instrumenten, online videodocumentatie, concerten en een door een label uitgebracht album heeft opgeleverd. Er mag gehoopt worden dat deze uitkomst een inspirerende en pionierende rol speelt binnen de afdeling.

Table of contents

Acknowledgements v

List of abbreviations ix

Abstract in English xi

Abstract in Dutch xv

Table of contents xix

Chapter 1. Introduction 1

1.1. Project introduction and background 1

1.2. Research scope and questions 5

1.3. Methodology 9

1.3.1. Methodology of the biographical, socio-economic and juridical study 9

1.3.2. Methodology of the organological study 18

1.3.3. Methodology of the instrument replication 28

1.4. Some considerations regarding biographical research 33

1.4.1. The biographical turn 33

1.4.2. Object biography 39

1.5. Structure of the thesis 42

Chapter 2. The biography of Benoit Joseph Boussu 45

2.1. Introduction 45

2.2. Existing biographical sources 45

2.3. Initial archive research 49

2.4. The period 1703-1749 50

2.5. Life in Etterbeek and Brussels 57

2.6. A Dutch connection 61

End note 70

Chapter 3. The social, economic and juridical conditions under which Boussu lived and worked 71

- 3.1. Introduction 71
- 3.2. A short history of Avesnes until the eighteenth century 77
- 3.3. Boussu's youth: witness and novice in his father's notary practice 82
- 3.4. Early 1725 to mid-1729: the 'lost years' 84
- 3.5. The French eighteenth-century notary 86
 - 3.5.1. The notary in eighteenth-century France, and Hainaut in particular 86
 - 3.5.2. The social and economic status of the eighteenth-century French notary 92
 - 3.5.3. How to become a (royal) notary? 99
- 3.6. Boussu's activities as a notary 102
- 3.7. Additional income: '*rentes constituées*' and '*rentes d'héritage*' 116
- 3.8. Acts concerning Boussu's marriages 120
- 3.9. Boussu's house(s) in Avesnes 123
- 3.10. The termination of Boussu's notarial activities and transfer of the *office* 127
- 3.11. Boussu's lawsuits 130
 - 3.11.1. Boussu's lawsuit against the mayor and aldermen of Fourmies 130
 - 3.11.2. Boussu's lawsuit against his sons 132
- 3.12. Boussu's economic legacy 135
 - 3.12.1. Boussu's testaments and *rappports* 135
 - 3.12.2. After Boussu's death: partition of property 140

Chapter 4. Boussu's oeuvre: comparative analysis of all identified instruments 145

- 4.1. Introduction and instrument database 145
- 4.2. Label types 148
- 4.3. Internal signing inscriptions 152
- 4.4. Branding marks 155
- 4.5. Instrument numbering and production rate 156
- 4.6. Soundpost and bridge markings 161
- 4.7. Scribe marks 163
- 4.8. Wood selection 166
- 4.9. Instrument dimensions and proportions 174
- 4.10. Plate thickness 182
- 4.11. Plate archings 191
- 4.12. Rib structure 198
- 4.13. Internal construction 201
- 4.14. Bass bar 210
- 4.15. Neck 216
- 4.16. Fingerboard 222
- 4.17. Scroll, f-holes, purfling and edgework: stylistic development 225

- 4.18. Channel below button 231
- 4.19. Varnish 233
- 4.20. Fittings 244
- 4.21. Instrument mass and wood density 249
- 4.22. A cittern by Boussu 255
- 4.23. Fake 'Boussu' instruments 261

Chapter 5. The luthier Boussu: his formation, construction methods and workshop organisation 263

- 5.1. Boussu's formation as a violin maker 263
- 5.2. Music and instrument making in Brussels in the eighteenth century 269
- 5.3. Boussu's construction methods 276
- 5.4. The organisation of Boussu's workshop 284

Chapter 6. Replication of a violin and cello after Boussu 299

- 6.1. Introduction 299
- 6.2. Instrument (re-)construction as a catalyst for organological research 300
- 6.3. Workbench research - the replication process 310
 - 6.3.1. State and condition of the original examples 310
 - 6.3.2. The actual replication 315
- 6.4. Evaluation of the making process 333
- 6.5. Characterisation of the replicas 335
- 6.6. Musical use of the replicas 351

Chapter 7. Conclusions 357

- 7.1. Conclusions regarding the biographical research 357
- 7.2. Conclusions regarding the organological research 362
- 7.3. Conclusions regarding the workbench research 365
- 7.4. Final conclusions 368

Bibliography 373

Appendices

- Appendix I. Family tree for the Boussu family 395
- Appendix II. Overview of identified parish registration and other civil status records 397
- Appendix III. Overview of identified notarial, local council and court of justice acts 405
- Appendix IV. Overview of financial transactions involving Benoit Joseph Boussu 427
- Appendix V. Instrument database 435
- Appendix VI. Overview of instruments not examined or fully documented 489
- Appendix VII. Axial plane reconstructions of CT data for six instruments by Boussu 493

Appendix VIII. Instrument documentation form 501

Appendix IX. Content of the videos documenting the violin and cello replication 511

Chapter 1

Introduction

1.1. Project introduction and background

The name of the violin maker Benoit Joseph Boussu first came to my attention in the autumn of 2008, when I wanted to make a copy of a ‘Baroque’ violin still in a well-preserved constructional state. Preferably, the original instrument had to be available at a nearby geographic location, making access to it easier. To find a suitable candidate instrument, Karel Moens – at that time curator at the Vleeshuis museum in Antwerp – was consulted, since he is considered a leading expert in the field of historical bowed string instruments.¹ Mr. Moens did not have to think long about my question, he suggested the instrument with inventory number 2781 from the Musical Instruments Museum (MIM) collection in Brussels, made by Benoit Joseph Boussu in 1750² (see Figure 1.1), one of the few reliable, unmodified eighteenth-century violins in Belgium, if not in the whole of Europe. Following the advice of Moens, I soon started a first investigation of the recommended violin, under the guidance of then MIM staff member Guy Buyse. This research yielded the required information to start the replication process. Already on 28 March 2010, I wrote on the Maestronet violin forum: “Right now, I’ve scaled the [Boussu] project up and plan to build a string trio (two violins and a cello), which was a common ensemble in mid-eighteen[th] century music from the Southern Low Countries. Goal is to have this kind of music (trio sonatas by Van Maldere, de Croes etc.) performed on my Boussu copies. The first violin copy of the trio is finished, the second one is half way [...]”.³ However, due to several reasons, this first string trio did not fully materialise.

¹ Selected publications by Moens: Karel Moens, ‘Vioolbouw in de Oostenrijkse Nederlanden’, *Arca Lovaniensis*, vol. 10/b, Jaarboek 1981 (Leuven: Depret, 1983), pp.135-156; Karel Moens, ‘De viool in de 16de en 17e eeuw - Oorsprong en ontwikkeling van haar vorm- en bouwkenmerken - Deel III: Reminiscenties aan de speelmannen-instrumentenbouw in de 17de-eeuwse vioolbouw’, *Musica Antiqua*, vol. 2, no. 3 (1985), pp.85-90; Karel Moens, ‘De vroege viool in Brussel’, *Musica Antiqua*, vol. 11, no. 2 (1994), pp.53-59.

² Carmentis, violin by B.J. Boussu, 1750, MIM inv. no. 2781, <https://carmentis.kmkg-mrah.be/443/eMP/eMuseumPlus?service=ExternalInterface&module=collection&objectId=109786&viewType=detailView> (accessed July 2019).

³ Maestronet, ‘Boussu project update’, <https://maestronet.com/forum/index.php?/topic/321458-boussu-project-update/> (accessed May 2020).

Chapter 1

Meanwhile, my interest in the life and background of the maker was sparked, especially since very little information on him was available. The existing encyclopaedias and reference books on violin makers contained only a few lines regarding Boussu – mostly repeating each other – citing that he worked around Brussels between 1750 and 1780 and built after Amati.⁴ The date and place of his birth and death were unknown, as were his personal life and background. For me, that tiny bit of biographical data triggered my curiosity, instead of satisfying it, laying the foundation for an extensive quest into the life, instruments and working methods of this maker. Between 2009 and 2012, both archival research as well as an initial study of Boussu's instruments in the collection of the Musical Instruments Museum in Brussels was performed. The results were published in *The Galpin Society Journal* of 2013.⁵ This article contains a biographical section, as well as an in-depth analysis of seven extant violins built by Boussu. Although this article was published before the official start of the currently presented PhD project, its text is considered the fundament for the project, and therefore parts of the text are included in this thesis as Chapter 2.

In early 2015, the currently presented PhD project was started, with the aim to complement the information found and published earlier. Initially, the project was intended as a Doctorate in the Arts. According to this initial scheme, the research had to have an extensive artistic component (besides the biographical and organological parts), which in this case would have to be the replication of a bowed string instrument ensemble after Boussu's originals, and the performance of music on these replicas. As the project started according to this underlying concept, four distinct areas of research began taking shape. First, there was the biographical part, which consisted largely of additional archival research in order to further clarify the life path of Boussu. Next, the area of organological investigations comprised the examination of what would become a pool of several dozens of Boussu originals, including explorations of several of these instruments using CT scanning and digital endoscopy. Thirdly, with the obtained knowledge of the organological phase, between 2017 and 2019, three (additional) violin replicas and one cello replica were produced, closely copied after original violin and cello examples in a largely unmodified constructional state. Finally, the fourth research stage aimed at the performance of geographically and chronologically matching music using this second batch of replica instruments, in order to assess their sonic and playing qualities, and to explore this Brussels trio sonata repertoire while using them, as was envisioned in 2010.

⁴ Antoine Vidal, *La lutherie et les luthiers* (Paris: Maison Quantin, 1889), p.162; Cecie Stainer, *A dictionary of violin makers* (London: Novello, 1896), p.12; Max Möller, *The violin-makers of the Low Countries* (Amsterdam: Max Möller N.V., 1955), p.18, 135; William Henley, *Universal dictionary of violin and bow makers*, vol. 1 (Brighton: Amati Publishing, 1959), p.156; Willibald Leo Freiherr von Lütgendorff, *Die Geigen- und Lautenmacher vom Mittelalter bis zur Gegenwart*, vol. 2 (Tutzing: Hans Schneider, 1975), p.55; René Vannes, *Dictionnaire universel des luthiers* (Brussels: Les Amis de la Musique, 1979), p.40.

⁵ Geerten Verberkmoes, 'Benoit Joseph Boussu (1703-1773): violin maker and notary', *The Galpin Society Journal*, vol. 66 (2013), pp.117-138, 262-264.

Introduction



Figure 1.1. Violin made by Benoit Joseph Boussu in 1750 (Musical Instruments Museum, Brussels, inv. no. 2781). Left to right: (a) front view, (b) side view. Photos: Musical Instruments Museum, Brussels, © MIM, Brussels.

While the project progressed between 2015 and 2018, the first two ‘theoretical’ research stages – the biographical and organological studies – had already produced a considerable amount of new data, eventually leading to four additional publications.⁶ In addition, I realised more and more that my efforts in replicating the original violin and the cello could not be classified under the denominator ‘Art’, since this work involved the exact reproduction of original pieces of art, not the creation of new, original artworks. The aspects of ‘transformation of artistic consensus’ and ‘subjectivation’, both put forward by Opsomer⁷ as characteristics of artistic research – as opposed to the ideals of what he calls ‘strictly scientific research’ – were largely absent from my approach. In contrast, the replication work was more in line with the activities of experimental archaeology, thus to “reach back and experience some parts of ancient life [...] through attempts to reproduce former conditions and circumstances”.⁸ Therefore, the team of supervisors and myself decided during the course of 2018 that a Doctorate in Art Science would better fit the performed research activities and achieved output, and accordingly, a change of doctorate title was requested at the Faculty of Arts and Philosophy. This request was accepted by the Faculty Board, resulting in the current thesis being submitted for a Doctorate in Art Science.

As a result of the change from a Doctorate in the Arts to a Doctorate in Art Science, the fourth research aspect, that of musical performance on the replica instruments, will no longer be fully explored under the flag of the currently presented project. This thesis will thus discuss three distinct research facets: a biographical study, an organological study and an experimental study into Boussu’s construction methods. The aspect of musical performance has found its way into a separate two-year research project, funded by the School of Arts Ghent and entitled ‘The sound of Brussels anno 1760’. This project ran from January 2018 until March 2020. The present thesis will only briefly summarise the aims and output of this spin-off project.

The following two sections will discuss the research questions and methodology for each of the three main research phases of the PhD project respectively.

⁶ Geerten Verberkmoes, Anne-Emmanuelle Ceulemans, Danielle Balériaux, Berend Stoel, ‘An inside look at four historical violins by Brussels makers’, *The Galpin Society Journal*, vol. 69 (2016), pp.109-136, 159-165; Geerten Verberkmoes, ‘Made in Amsterdam: a 1771 cittern by Benoit Joseph Boussu’, *Early Music*, vol. 44, no. 4 (2016), pp.627-641; Geerten Verberkmoes, ‘Instrument (re-)construction as a catalyst for organological research’, in Marco A. Pérez, Emanuele Marconi, ed., *Wooden musical instruments - Different forms of knowledge - Book of end of WoodMusICK COST Action FP1302* (Paris: COST/Cité de la musique - Philharmonie de Paris, 2018), pp.9-33; Geerten Verberkmoes, ‘Benoît Joseph Boussu: la carrière singulière d’un notaire hainuyer devenu luthier’, in Brigitte Van Wymeersch, Fañch Thoraval, ed., *La musique dans l’ancien comté de Hainaut (XVII^e-XVIII^e)* [tentative title] (Turnhout: Brepols Publishers, accepted, in preparation).

⁷ Geert Opsomer, ‘Ja, maar niet zo!’ (2012). Available from: <https://www.apache.be/2012/06/04/ja-maar-niet-zo/> (accessed March 2020).

⁸ John Coles, *Experimental archaeology* (London: Academic Press, 1979), p.1.

1.2. Research scope and questions

The Musical Instruments Museum (MIM) in Brussels preserves two special instruments by the eighteenth-century violin maker Benoit Joseph Boussu. These are a violin (with MIM inv. no 2781) and a cello (with MIM inv. no. 1372) which have remained in a state still very close to the one they each were in when they first left Boussu's workshop. These instruments have thus maintained their original configuration (with unchanged neck, internal construction and bass bar, as will be discussed in Section 6.3.1), which can be characterised as a transitional configuration between 'late-Baroque' and 'early-Classical'. In contrast to these two instruments, the vast majority of antique bowed string instruments have been repeatedly modified in the course of time in conjunction with evolving musical requirements and playing techniques. The Boussu violin and cello from the MIM collection, on the contrary, are part of a small group of pre-nineteenth-century bowed string instruments having retained their (near-)unaltered construction, which – from an organological point of view – makes them unique and important historical artefacts. Beyond doubt, this violin and cello must be considered important exponents of the Belgian cultural heritage. Because of this extraordinary status, and their fragility, these instruments are no longer allowed to be tuned to pitch nor to be played, to preserve their current state and condition.⁹ As a compromise, their sound remains unheard today and their playability cannot be assessed. Making replicas, based on extensive research of the originals, could partially overcome these restrictions.

In addition to these two exceptional instruments, other instruments by Boussu (including violins, violas and cellos) have been preserved, in the Musical Instruments Museum in Brussels, as well as in other museum collections and in private ownership of musicians, collectors and dealers. Unlike the aforementioned violin and cello, all these instruments have undergone, to a lesser or greater extent, constructional changes in the course of time.

The project presented here aimed at studying as many extant instruments by Boussu as possible, in order to document these objects, to collect and consolidate information on the characteristics of their original design and construction, and to be able to understand the technical and stylistic evolution of their maker. In the end, this information should facilitate the third main objective of the currently presented PhD study, namely an optimal realisation of the idea of 'informed instrument making', whereby eventually instrument replicas are built on the basis of very broad and extensive investigations into instruments, working methods and the circumstances of a certain maker – in this case

⁹ Robert Barclay, *The preservation and use of historic musical instruments - Display case and concert hall* (London: Earthscan, 2004), pp.49-58.

Boussu – not least in function of the musical performance practice. The intended instrument replication should also be perceived as an experimental study on the working methods possibly employed by the maker of the original instruments.

Previously, research has already been carried out on the instruments of Boussu (and his Brussels contemporaries),¹⁰ but not yet from the point of view of a researcher with instrument-making experience, nor with currently available state-of-the-art research techniques such as digital endoscopy and CT scanning. By performing an organological study from such unconventional, practice-oriented perspective, and armed with updated methodologies, it is expected that new insights will be gained and research strategies developed.

As mentioned earlier, in 2013, the results of the initial study into Boussu's life and work were published.¹¹ This article presented new and extensive information on this maker's biography, demonstrating that Boussu was born in 1703 in Fourmies (in the north of France) and that he worked as a violin maker in the Brussels region in the period c1750-c1762. Furthermore, it became evident that, before he became an instrument maker, he worked for almost 20 years as a notary in his native region. Nevertheless, several questions regarding his whereabouts remained pending. Therefore, as part of the currently presented project, an additional aim was set to fill in these voids through systematic additional archival research.

In order to achieve the above stated goals, the following research questions have been formulated:

(1) Which additional biographical information regarding Boussu can be found, especially regarding his activities during the unknown periods 1725-1729 and 1763-1773?

Although Boussu's life course was already described to a considerable extent prior to the start of this PhD project,¹² still voids remained. This missing information mainly concerns two periods from his life, respectively his years prior to becoming a notary (1725-1729, when he received a formation, presumably in the notarial profession), and the last phase of his life, following the end of his activities as a violin maker in Brussels (c1763-1773). Archival research should result in more insight into these phases of Boussu's life.

¹⁰ Lutgart Moens, *De familie Snoeck, vioolbouwers aan het hof te Brussel in de 18^{de} eeuw* (unpublished licentiate thesis, University of Leuven, 1976); Moens (1983); Malou Haine, Nicolas Meeùs, ed., *Instruments de musique anciens à Bruxelles et en Wallonie - 17^e-20^e siècles* (Liège/Brussels: Mardaga, 1985); Malou Haine, Nicolas Meeùs, ed., *Dictionnaire des facteurs d'instruments de musique en Wallonie et à Bruxelles du 9^e siècle à nos jours* (Liège/Brussels: Mardaga, 1986); Moens (1994).

¹¹ Verberkmoes (2013).

¹² Verberkmoes (2013).

(2) How and where did Boussu learn to make musical instruments?

Related to the first research question is the current absence of information concerning the formation of Boussu as a violin maker. He was initially trained and working as a notary and practised this profession until the age of 45.¹³ No musical instruments of his hand can be associated with certainty to the years of his notarial career. After resigning from this initial occupation, he worked a relatively short but intensive period as a full-time luthier, between c1749 and c1762, in which he found his individual style and working methods from the very beginning. It is still unknown whether he learned this ‘second profession’ as an apprentice, or whether he was self-taught. Further investigating the life path of Boussu will possibly enable us to clarify this issue.

(3) What were the social, economic and juridical conditions under which Boussu lived and worked, both as a notary and a violin maker?

By studying hitherto largely unexamined archival sources, such as notarial archives and the archives from local municipal councils and courts of justice, new information on the social, economic and juridical aspects of Boussu’s entire adult life span should become available. This data should allow us to depict his position in society, his earnings, the quality of his life and the relationship with his family members. It has been decided to attempt to reconstruct Boussu’s biography as thorough and broad as possible, not just limited to his violin making years. This should allow for a better understanding of the human being Boussu, his way of thinking and acting, and therefore this approach should enable us to better put in perspective his personal and professional choices, and provide us with insights in the conditions under which his existence took place.

(4) Which new information can be obtained regarding the style, design concepts, material selection and constructional features of Boussu’s instruments, from studying as many extant examples as possible?

By studying as many surviving instruments by Boussu as possible, and by systematically documenting, analysing and comparing the characteristics of their aesthetics, design, materials and construction, it should become possible to recognise recurring patterns and evolution in this maker’s work. How do the instruments by Boussu relate to the stylistic conventions and musical requirements of the time in which they were made?

¹³ Verberkmoes (2013), pp.127-129; Verberkmoes (Turnhout: Brepols Publishers, accepted, in preparation).

Furthermore, it should become possible to identify the extent to which the instruments were modified and repaired. The establishment of an instrument database is part of this research domain.

(5) Which successive construction steps, specific methods and what kind of workshop organisation did Boussu employ while making bowed string instruments, and how does his approach relate to the working habits of his Brussels predecessors and contemporaries?

Boussu's instruments, as well as those of a number of his preceding and contemporary colleagues from Brussels, contain constructive elements that differ significantly from those found in instruments by Italian seventeenth- and eighteenth-century makers such as Stradivari and the Guarneri family. Whereas it is widely assumed that these Cremonese makers worked with an inner (interior) mould,¹⁴ their Brussels contemporaries supposedly worked without this aid,¹⁵ which had major consequences for the construction techniques and working order of their making process. The presented research aims to carry out a thorough study of the constructive characteristics of the instruments of Boussu, using investigation methods that have never been applied before on instruments of this origin. Subsequently, the results will be interpreted from the perspective and expertise of an organological researcher with an actual instrument-making background, which is another distinctive aspect of the present study.

Ultimately, the results and conclusions that follow will have to lead to a hypothesis on the working methods and construction steps employed by Boussu, which should be more detailed and specific compared to the description of the construction process as provided by previous scholars. This updated hypothesis will be applied and at the same time practically assessed during the construction of several replica instruments, as stated under research question (6). Furthermore, it is intended to situate Boussu's production methods and workshop organisation within the context of the violin practices employed by several makers from the late-seventeenth and entire eighteenth century, and eventually within a broader perspective of developments in object manufacturing of that era.

¹⁴ See for example: Annette Otterstedt, Hans Reiners, 'What old fiddles can teach us...', *The Galpin Society Journal*, vol. 52 (1999), pp.219-242, at p.230; Benjamin Ruth, 'New light on old ways', *The Strad*, vol. 113, no. 1345 (2002), pp.530-537, at p.530; Stewart Pollens, *Stradivari* (Cambridge: Cambridge University Press, 2010), p.67; Roger Graham Hargrave, 'The working methods of Guarneri del Gesù and their influence upon his stylistic development - The mould and the rib structure', pp.9-18, at p.9. Available from: https://www.roger-hargrave.de/PDF/Book/Chap_02_The_Mould_PRN.pdf (accessed January 2020).

¹⁵ Moens (1983), pp.139, 149.

(6) What insights can be gained if replica instruments are built, following the construction hypothesis as formulated based on the findings related to research question (5), and how can such performative methods catalyse and enrich organological research?

Making replica instruments based on the well-preserved examples by Boussu, and following the construction hypothesis formulated as a result of the outcome of the investigations performed in the context of research question (5), should lead to empirical understanding regarding the way the maker of the original examples worked. During and after the replication process, continuous evaluation will be undertaken in order to assess whether the methods, techniques and working steps applied are plausible, practically feasible, effective and resulting in the expected specifications of the end-product. By actually performing the proposed steps of the making hypothesis, the aim is set to generate – through practical experimentation – fresh and previously unnoticed insights and evidence regarding the forgotten violin making practices of Boussu and possibly others amongst his contemporaries. This hands-on work may even yield further understanding on how Boussu’s workshop was operated and organised.

Methodologies and strategies developed and employed during this ‘workbench research’, and documented both in written form and as video recordings, could enrich the repertoire of organological research practices. I thus hope to demonstrate the value of the ‘craftsman/scientist’ approach in the field of musical instrument study.

1.3. Methodology

In order to provide answers to the above-stated research questions, various methods and techniques will have to be employed. Each of the three main facets of study will ask for its own methodologies, therefore this section will be divided into three subsections, each describing the methodologies of one of the main research scopes.

1.3.1. Methodology of the biographical, socio-economic and juridical study

The main sources of information used in studying the life of Benoit Joseph Boussu and the lives of his direct ancestors and descendants are written documents from the eighteenth century preserved at various archives. During the initial biographical study, published in 2013, the documents consulted to shed light on Boussu’s main life events and family composition were almost exclusively found in the parish registers of baptism (birth), marriage and burial (death), from the various areas where the Boussu family lived. Since it was unknown at that stage of the study that the Boussu family had lived in Holland, the

investigations focused on the parish registers of Boussu's birth area in the north of France, and parish registers from Liège, Etterbeek and Brussels, where the family lived consecutively.

Since October 2011, the parish registers for Fourmies, where Boussu was born in 1703, and Avesnes(-sur-Helpe), where he lived until 1748, are available online on the website of the Archives départementales du Nord.¹⁶ These registers are presented as series of integral scans or photographs of the original parish register books, which can be browsed online. Searching for relevant entries takes place by either consulting the alphabetical index lists on family name sometimes included in these books, or when these are absent, by checking all consecutive scans, page by page. At the moment of writing, no form of digital indexing on names – which would allow using an online search engine – is present for all parish registers conserved at the Archives départementales du Nord (Lille, France). Therefore, no methods for quickly searching for relevant records was available during the currently presented study. In addition to manually browsing the parish registers as described above, a few entries have been found by searching online family trees and other genealogical websites.¹⁷ In case such information appeared to be promising, the validity was checked by confirmation against the corresponding parish register entry.

As for the parish registers of Liège, Etterbeek and Brussels, these have been made available online only very recently (2018),¹⁸ during the final stages of this study. Therefore, most investigations in the parish registers for these three Belgian cities have been done by browsing through the registers on either analogue microfilms or digital scans, available at the study rooms of the State Archives of Belgium (locations Brussels-Forest and Antwerp-Beveren, Belgium) or at the Archives of the City of Brussels (Brussels, Belgium). Since the structure and organisation of these registers is basically the same as for the parish registers available at the Archives départementales du Nord (Lille, France), the search methods are similar.

During a later stage of the study, after the publication of the initial biographical results in 2013,¹⁹ it slowly became clear that Boussu and several of his children had lived in Amsterdam from the mid-1760s. Research in the eighteenth-century registers for baptism, marriage and burial (preserved at the Amsterdam City Archives, Amsterdam, The Netherlands) progressed much faster and easier compared to the searches in their French and Belgian counterparts, since both the Amsterdam registers and, more

¹⁶ Archives départementales du Nord, Lille, France, <https://archivesdepartementales.lenord.fr> (accessed July 2019).

¹⁷ For example: FamilySearch, <https://www.familysearch.org/en/> (accessed May 2020).

¹⁸ The State Archives of Belgium, <https://search.arch.be/nl/tips/98-parochieregisters> (accessed July 2019).

¹⁹ Verberkmoes (2013).

importantly, their digital indexes, have been made available online since 2008.²⁰ Searching can be done by name, using a search engine, thereby considering different spelling variations (e.g. Boussu, Boussus, Bossu, Bossus, Bousu, etc.), which returns entries for baptised child, parent, godparent, bride, groom, witness, deceased and so on.

All identified parish records have been included in an overview in Appendix II. In order to complement the basic family composition information as retrieved from the parish registers (and published in 2013²¹), and to obtain insight in the social, economic and juridical conditions of Boussu's life, other archive types were considered for examination. Amongst these additional sources, the following archives proved to provide the most relevant information:

(1) Notarial archives, for notaries in Avesnes (and surroundings), Brussels and Amsterdam

As is the case today, in the past people visited a notary in order to obtain a written proof of a certain transaction or agreement between two parties. Historical notarial archives contain collections of acts *en minute* of individual notaries, the so-called protocols, which are the originals of the duplicate acts given to the clients. A notary was obliged to archive these acts *en minute* at his office or to hand them in at a local depot. In France, and other countries as well, a notary (or the appointed local archiver) also had to keep a register in which all the contracts he had drafted were listed chronologically in summarised form. The French term for such a register is '*répertoire*'.

A notarial protocol may contain many types of acts.²² A first category is formed by acts concerning family and inheritance matters, such as marriage contracts, custody arrangements, testaments, estate inventories and property partitions. Acts regarding financial or real-estate transactions form a second category, including sale and renting contracts, obligations, annuities and pledges. Finally, there is the group of acts involving procedural matters, such as testimonies, protests and procurations.

All these acts give information on various levels. Of course we can obtain personal information regarding the parties mentioned in an act, such as profession, place of residence, marital status and offspring. This kind of information may directly

²⁰ Amsterdam City Archives, Amsterdam, The Netherlands, <https://archieff.amsterdam/indexen/persons> (accessed January 2020).

²¹ Verberkmoes (2013).

²² Antoon Florentijn Gehlen, 'Het notariaat der Lage Landen in historisch perspectief', in Elisabeth M. van der Marck et al., ed., *Ars Notariatus*, vol. 42 - Atlas du notariat, atlas van het notariaat (Deventer: Kluwer, 1989), pp.477-492, at p.489; Claude Bruneel, 'De uitoefening van het ambt', in Claude Bruneel et al., ed., *Het notariaat in België - Van Middeleeuwen tot heden* (Brussels: Gemeentekrediet, 1998), pp.118-140, at p.128.

complement the genealogical data obtained from the parish registers. On a deeper level, a notarial act describes in detail a certain transaction or agreement the parties made, which informs us about the kind of business affairs they were involved in, how they earned their income, what their degree of prosperity was, what kind of relationships they maintained with family members, business partners or local authorities and so on. The information extracted from the notarial acts can thus help to gain a better understanding about the social, economic or juridical situation and the activities of individuals from the past.

Although Boussu had been a notary himself for almost 20 years, he had to visit his colleagues as a client to arrange his ongoing affairs in his native area, both during his active years as a notary and afterwards. In order to find acts concerning his transactions, those of his father (involving son Benoit Joseph) and those concerning his heritage after his demise, the archives of all notaries based in Avesnes and the nearby villages (Fourmies, Wignehies, Féron), were examined for the period of c1710-c1780. Around 20 notaries were active in this area during the given period.²³ Their original *répertoires* and protocols of chronologically ordered, handwritten acts *en minute* are preserved at the Archives départementales du Nord (Lille, France) within the series 2E39/1-525.²⁴ Given this vast amount of archive material, it was decided – during the initial stages of researching these documents – to first perform targeted searches, instead of sifting out all bundles of acts and *répertoire* books. The focus was directed at periods around important life events of Boussu (his marriages, relocations, births and deaths of relatives), in order to identify possible acts relating to these events (marriage contracts, testaments, *formortures*, *rappports*²⁵). This work was performed during several one-week periods of continuous archival research at the reading room of the Archives départementales du Nord in Lille. Searching the collections of acts (see Figure 1.2) took place by systematically inspecting the individual acts for the names of the persons appearing in the acts and their signatures. Fortunately, Benoit Joseph Boussu's signature is easily recognisable and eye-catching (see Figure 2.4(b)), which facilitated the search. In case a relevant act was identified, the entire act was photographed, as well as its corresponding entry in the notary's *répertoire*. The photographs of an identified act were later combined in a single pdf file, representing a documentation of the act, available for subsequent analysis.

In a later stage of research, to ensure a more exhaustive search, all relevant notarial *répertoires* were entirely photographed for the period of interest (c1700-c1780). Subsequently, these photographs were inspected at home, in search for registrations of

²³ Alexis Cordonnier, *Sûrement et depuis longtemps - Tableaux des études notariales du département du Nord (XVI^e-XXI^e siècles)* (Lille: Archives départementales du Nord, 2015), pp.22-41.

²⁴ Archives départementales du Nord, Lille, France, *Tabellion d'Avesnes-sur-Helpe (1662-1950)*, 2E39/1-525, 51.37 linear meters of archive documents. These series were previously identified by the code J792/1-525.

²⁵ The terms *formorture* and *rapport* will be explained in Chapter 3.

acts that may have been overlooked during the first round of (targeted) search. In case a reference to a relevant act was found in the photographs of the *répertoire* of a certain notary, the act itself could be retrieved from the collection of acts *en minute* of that notary during a follow-up visit to the archive. Table 1.1 gives an overview of the notaries whose *répertoire* was examined in this manner.



Figure 1.2. Two complete sets of acts *en minute* of the notary Benoit Joseph Boussu for the years 1733 and 1734 (Archives départementales du Nord, Lille, France, inv. no. 2E39/80: Archives des tabellions d’Avesnes, notary B.J. Boussu, Avesnes-sur-Helpe).

Archive item	Period	Archive	Archive inv. nos.
<i>Répertoires</i> of notaries active in and near Avesnes, Fourmies and Wignehies, for the notaries: T. Beviere, B.J. Boussu, R. Boussu, J. Carniaux, J.B. Cornet, H.L. de Renly, F. Diesmes, J. Fontaine, C.L. Gossuin, C. Hallet, J.F. Lahanier, A. Lebeau, T.(J.) Lebeau, T. Leclercq, P.L. Lenseigne, F. Lermigeau, J.B. Michel, S.I. Pidou, L. Pinson, N.J. Prissette, J.J. Renaut.	c1700- c1780	Archives départementales du Nord, Lille, France	2E39/496-514

Table 1.1. Overview of the notarial *répertoires* examined.

During the currently presented study, in total 80 acts from notaries of the area of Avesnes have been found concerning activities and transactions of Benoit Joseph Boussu or his direct predecessors or heirs. An overview of the identified acts is given in Appendix III. From all these acts, primary information was extracted, such as the occupation and place of domicile of Boussu or his family members at the time of issue of the act, and the nature of the agreement or transaction described in the act. This information has been used to further validate and expand the biographical information regarding Boussu and his family. In order to better understand the content of the documents, the process of transcription and interpretation of these acts has been undertaken, with the invaluable

help and advice of emeritus Prof. dr. Véronique Demars-Sion (Centre d'Histoire Judiciaire, Université Lille 2), who corrected many of the transcriptions, and Prof. dr. Georges Martyn (Department of Interdisciplinary Study of Law, Private Law and Business Law, Faculty of Law and Criminology, Ghent University). During several afternoon-long sessions with Prof. Martyn, a large number of documents were discussed and interpreted, while Prof. Martyn also explained the legal theory behind them. Currently, 49 out of the 80 found French notarial acts have been completely transcribed, while for 25 of the transcribed acts, a written interpretation was added. This transcription and interpretation process yielded a lot of insight in the formal language used in the acts, as well as in the content and purport of the various act types. Since the transcription and interpretation process proved very time consuming, complete transcription of all acts was considered to be outside the scope of this doctorate. However, the process of transcription and interpretation led to a better comprehension of the juridical formulations and types of contracts and transactions described, thus allowing other acts to be understood upon directly reading them (without performing a written-out analysis).

As mentioned before, Benoit Joseph Boussu worked as a notary himself between 1729 and 1748. In order to obtain more insight in the frequency with which he notarised acts during that period, an analysis was performed on his *répertoire* and protocols. The frequency with which he drafted acts over the entire range of his notarial career was investigated, and the results were graphically displayed. Other related analyses have been performed on Boussu's *répertoire*, concerning the distribution of acts over the months of the year, days of the week and the categories of act-types. Prior to becoming a notary, Boussu appeared as a witness in acts drafted by his father, notary Robert Boussu, between January 1718 and March 1725. In order to discover patterns in Boussu junior's appearance as a witness, an analysis was performed on the *répertoire* and the protocols of acts *en minute* of Robert Boussu. On a monthly basis, the number of acts in which the son appeared as witness has been graphically displayed.

Since Boussu and his family had also lived for a longer time in Brussels, the archives of notaries in Brussels were searched as well. This was done by consulting a register with indexes for the seventeenth- and eighteenth-century notarial archives of the city of Brussels, produced by Fernand de Jonghe d'Ardoye (1911-1989).²⁶ The original register consists of handwritten notes, referring to 73.913 notarial acts, and compiled by De Jonghe d'Ardoye during several decades of processing thousands of bundles of acts *en minute*. Indexes are included on name, address and profession. Since 2015, a reproduced

²⁶ The State Archives of Belgium, <http://arch.arch.be/index.php?l=nl&m=nieuws&r=alle-nieuwsberichten&a=2015-12-14-het-notariaat-van-brussel-ontsloten-voor-de-17de-en-18de-eeuw> (accessed July 2019).

version of this register, consisting of eleven bound volumes, is consultable in the State Archives in Brussels.²⁷ The register was searched, and this returned two acts concerning the children from Boussu's first marriage, which are included in the overview of Appendix III. The degree of completeness of the register of De Jonghe d'Ardoye is currently unknown, according to the chief archivist at the State Archives in Brussels, Dr. Harald Deceulaer.²⁸

My initial study, published in 2013, already provided the first evidence that Benoit Joseph Boussu lived in Amsterdam in the final years of his life. Therefore, the notarial archives of that city may contain relevant information as well. In 2016, the City Archives of Amsterdam started to digitise and index their entire notarial archive for the period 1578-1915, which consists of 3.5 km of documents. The project is expected to take at least ten years to complete. At the moment of writing (March 2020), only less than a third (32.2 %) of this archive is available online and searchable on names.²⁹ Searching on the name 'Boussu' (or variations) has not yet led to the identification of relevant acts. Since a full, online searchable index is expected to be available within the foreseeable time of about five to ten years, it was decided to exclude an extensive and time-consuming manual search of the Amsterdam notarial archives from the currently presented doctorate study, and to continue searching these archives after the completed online index is available. However, an initial manual search in eighteenth-century handwritten protocols from certain Amsterdam notaries, known to have issued acts in French, has led to the identification of one "*procuratie*" act concerning Boussu and three relevant acts involving his Amsterdam-based children, related to property transactions and the inheritance of goods of their father (see Appendix III).

Finally, since Boussu may have lived for a short time in Leiden, Holland, a search in the eighteenth-century Leiden notarial archives has been conducted as well. Integral scans of the protocols have been made available online in 2013,³⁰ including their contemporary alphabetical indexes by name. Searching these indexes has not led to identification of acts concerning the Boussu family.

²⁷ State Archives in Brussels, Forest, Belgium, Relevé d'actes, Fonds du notariat general du Brabant, Les notes de Fernand de Jonghe d'Ardoye.

²⁸ Dr. Deceulaer states on 15 May 2019 in an email to the author: "Eén van de belangrijkste vragen die ik me zelf al lange tijd stel, is inderdaad de kwestie wat de Jonghe d'Ardoye precies heeft gezien en wat niet. In de notities geeft hij vooraan vaak een lijst van de notarissen die hij heeft doorgenomen, maar ik heb die nog niet kunnen vergelijken met de lijst van notarissen waarvan de protocollen bewaard zijn. Als ik het me goed herinner, geeft de Jonghe d'Ardoye referenties naar zo'n 73.000 akten. Een kunsthistoricus [name known to the author] zei me wel onlangs dat er volgens hem nog veel meer is in het Notariaat van Brussel, dat de Jonghe d'Ardoye niet heeft gezien".

²⁹ VeleHanden, https://velehanden.nl/projecten/bekijk/details/project/amsterdam_notarieel_2 (accessed March 2020).

³⁰ Erfgoed Leiden en Omstreken, 0506 Inventaris van de oude notariële archieven van Leiden 1564-1811, <https://www.erfgoedleiden.nl/collecties/archieven/archievenoverzicht/details/NL-LdnRAL-0506/path/41/section/fond> (accessed December 2020).

(2) Local town councils of Avesnes, Fourmies and Wignehies

In Hainaut (the area in the north of France where Boussu lived for the first 45 years of his life), during the *Ancien Régime*, inhabitants were not solely reliant on a notary to have their agreements or transactions written down. Other local officers, such as the *homme de fief* (feudal official) and the *greffier* (registrar) could provide writing services as well.³¹ Even more so, certain types of notarial acts, involving transactions of immovable property, had to be ‘realised’ – through the procedures of *déshéritance* (‘expropriation’) and subsequent *adhéritance* (‘appropriation’) – by the council of the mayor and the aldermen (*mayeur et échevins*) or the feudal court (*pairie*). In practice, this implied that the parties involved in such a transaction first had to visit the notary, and within a few days had to have the notarial act copied and ‘realised’ by the counsel of the town’s magistrates. Therefore, in archives, for one single transaction involving immovable property, one almost always expects to find two related acts, one by a notary and one by a council or court. This circumstance also helps to validate of the robustness of our search efforts.

For the current study, a focus was set on the acts of local municipal councils relating to property in Avesnes and surrounding villages, issued between c1710 and c1775 and conserved under the series 11B in the Archives départementales du Nord in Lille.³² This collection contains the original handwritten acts – in this case named *embrefs* – chronologically bound together in books. These books typically cover one- to five-year periods. Searching these sources was performed by manually browsing through entire books of acts.

In search for relevant *embrefs*, the archives of the following local authorities were examined: *pairie d’Avesnes*, *mayeur et échevins d’Avesnes*, *mayeur et échevins de Fourmies* and *mayeur et échevins de Wignehies*. For these entities, the continuous series of *embrefs* for the period between c1710 and c1775 have been investigated. As a double check, the corresponding *répertoires* for the same authorities have been investigated as well, between c1700 and c1780, with a focus on the locations Avesnes, Fourmies and Wignehies. The search returned over 100 acts concerning Benoit Joseph Boussu or his direct predecessors or heirs. These acts were processed in a similar manner as the above-mentioned notarial acts: photographs have been taken, primary information (occupation, residence, subject of act) has been extracted and 30 acts have been transcribed entirely so far. All found acts are included in the overview in Appendix III.

³¹ Albert Cacheux, ‘Les notaries dans le ressort de la coutume de Mons en Hainaut français aux XVII^e et XVIII^e siècles’, *Tijdschrift voor Rechtsgeschiedenis / Revue d’Histoire du Droit / The Legal History Review*, vol. 28, no. 1 (1960), pp.42-58, at pp.52-54.

³² Archives départementales du Nord, Lille, France, series 11B: Fonds du Bailliage royal d’Avesnes.

(3) Various other archives and sources

In the course of the biographical study, several other archival sources provided information on the Boussu family as well. The most important of these are given in Table 1.2. In most cases, searching in these archival sources was facilitated by the presence of indexes, as part of a searchable computer database, or an index or inventory in printed form.

Archival source	Archive location
Archive of the court of the <i>bailliage d'Avesnes</i> (Avesnes)	Archives départementales du Nord, Lille
Archive of the <i>Parlement de Flandre</i> (Douay)	Archives départementales du Nord, Lille
Archive of the <i>Grande Chancellerie</i> (Paris)	National Archives of France, Paris
Archive of the <i>État civil de Paris</i>	Archives de Paris, Paris
Archive of the <i>métiers de Liège</i> (Liège)	State Archives in Liège, Liège
Archive of the <i>Staten van Brabant</i> (Brussels)	State Archives in Brussels, Forest
Archive of the magistracy of Brussels	Archives of the City of Brussels, Brussels
Archive of the University of Leiden	Archives of the University of Leiden, Leiden
Archive of the <i>Vereenigde Oostindische Compagnie</i> (Dutch East India Company)	National Archives of The Netherlands, The Hague

Table 1.2. Overview of additional archival sources consulted during the biographical study.

These additional archival sources mainly provided a single, or a small amount of relevant records per archive. Types of documents retrieved from these sources include court trial documentation, licenses for the execution of a notary office, census registrations and a university enrolment. Transcription of the documents was performed where applicable. All records found in these supplemental sources have been included in the overview of either Appendix II or Appendix III, depending on the type of record.

In addition, many online sources have been consulted, such as library collections,³³ newspaper archives,³⁴ digitised book collections³⁵ and, as already mentioned above, genealogy websites.³⁶ Obviously, a wide range of printed contextual sources has been reviewed and cited as well, not only for the biographical, socio-economic and juridical framework, but also for the organological, historical and performative perspectives of this study (introduced in Sections 1.3.2 and 1.3.3). This literature is included in the bibliography section at the end of this thesis.

³³ For example: Bibliothèque nationale de France, Catalogue général, <https://www.bnf.fr/en/bibliotheque-nationale-de-france-catalogue-general> (accessed May 2020).

³⁴ For example: Delpher, <https://www.delpher.nl/> (accessed May 2020).

³⁵ For example: Google Books, <https://books.google.com/> (accessed May 2020).

³⁶ For example: FamilySearch, <https://www.familysearch.org/en/> (accessed May 2020).

1.3.2. Methodology of the organological study

In order to gain a better understanding of the instruments of Boussu, both regarding their structural features as well as regarding their stylistic and maker-specific details, the currently presented research project has attempted to identify and document as many surviving instruments as possible. Obviously, the pool of nine³⁷ instruments preserved at the Musical Instruments Museum (MIM) in Brussels – the largest single collection of Boussu instruments in the world – was an ideal starting point during the initial, pre-PhD stages of this research (2009-2014). This group of instruments is available for study by organological researchers and makers due to the philosophy of openness and cooperativity of the MIM's scientific staff, and in this present case of Western string instruments, especially of curator Prof. dr. Anne-Emmanuelle Ceulemans.

Finding such a varied and accessible concentration of instruments by one maker offers a good opportunity to learn to recognise the style of the maker, and to identify and compare constructional characteristics. Moreover, since most of the Boussu instruments in the MIM collection have had an existence as a museal object for at least the last century or longer, they are preserved in a state and condition much closer to their native appearance compared to their counterparts found on the commercial market. The two most well-preserved examples in the MIM collection are a violin from 1750 with MIM inv. no. 2781 and cello from 1757 with MIM inv. no. 1372, which are both in a state very close to the one in which they were when they left Boussu's workbench over two and a half centuries ago. As will be demonstrated in more detail in Chapter 4 and Section 6.3.1, these two instruments have survived in a state that preserves virtually all of their original constructional and stylistic features. In contrast, many of the instruments encountered in the hands of musicians and dealers show a much higher degree of modification and repair, since it can be assumed that they have been in more or less continuous use as musical tools since the moment they were made.

So, initially, the organological examinations concentrated on the nine instruments of the MIM. The six violins within this group (along with one instrument of private ownership) were the first to be studied intensively (during the period 2010-2012), including the registration of measurements, photographic documentation and endoscopic examination of the sound box cavity. Dimensional measurements were initially taken using the conventional tools, such as callipers,³⁸ rulers, measuring tape and a magnetic thickness

³⁷ The collection of the Musical Instruments Museum, Brussels, contains the following instruments attributed to Boussu: MIM inv. nos. 1338 (violin), 2781 (violin), 2782 (violin), 2783 (violin), 2784 (violin), 2785 (violin), 1372 (cello), 2863 (cello) and 2014.324 (double bass).

³⁸ Initially, only callipers with a range of 150 mm were available. In a later stage of the study, when larger instruments such as cellos were examined as well, callipers were custom made with a range of 900 mm.

gauge.³⁹ Measurements were recorded in a report, such as presented in Appendix VIII. Photographs were taken with several digital cameras, ranging from a consumer market single-lens reflex (SLR) model, compact cameras to a smartphone (iPhone 5). The latter device proved especially convenient for taking photos of labels. In some occasions, the MIM kindly provided high resolution photos taken in their photo studio with professional equipment and lighting. The conventional shots of front, back and scroll side view were taken, as well as numerous close-up shots, capturing parts or details which reveal maker-specific features. For endoscopy, a special musical instrument endoscope was used,⁴⁰ which can transfer images as well as video to a laptop computer (see Figure 1.3). This endoscope set also contains two lights, for proper illumination of the inside of the sound box. Of interest for endoscopic examination were the upper and lower block areas, corner blocks, linings, bass bar and possible internal inscriptions. Endoscopic photos of these details were taken, and in most cases, a video was captured as well where the endoscope made a slow 360 degrees turn inside the instrument. These videos proved to be useful for later analysis, when the actual instrument was no longer available.



Figure 1.3. Digital violin endoscopy set as used during the current study.

In December 2010, the instrument investigation methodology for the Boussu project was taken to a higher level by performing a first CT (Computed Tomography)⁴¹ scan of a violin by this maker, an instrument from 1759 in the possession of a professional musician (see

³⁹ Hacklinger, Germany. Two different gauges were alternately used: thickness gauge DBP 3611798, S/N 7346 and thickness gauge DBG, DBP 3611798, S/N 200D0168.

⁴⁰ Discovery - Advanced vision system for all musical instruments (Microtex, Italy).

⁴¹ For a review of the principles of CT scanning of violin-family instruments, see: Ian Fairbairn, 'X-ray scanning of violins', *The Strad*, vol. 91, no. 1092 (1981), pp.889-891; Steven Surr, John Waddle, 'CT analysis of bowed stringed instruments', *Radiology*, vol. 203, no. 3 (1997), pp.801-805; Terry Borman, Berend Stoel, 'Review of the uses of computed tomography for analysing instruments of the violin family with a focus on the future', *J. Violin Soc. Am.: VSA Papers*, vol. 22, no. 1 (2009), pp.239-250.

Figure 1.4). The results of this first scanning session – performed at the Leiden University Medical Center by Prof. dr. Berend Stoel, a medical imaging specialist who has also entered the field of radiology of bowed string instruments – demonstrated the potential of CT scanning for the Boussu project. At the same time, for the author of this thesis, it was a good way to get introduced to the principles of the CT technology and its associated image processing. Prof. dr. Stoel has been involved in the radiological examinations of antique violins since 2008, and has authored several key publications in this field,⁴² mainly related to the analysis of the density, thickness and arching elevation of the top and back plates. His visualisations, in the form of plate ‘maps’ displaying these three properties by means of various colours, have set the standard in the field of radiological research of violins. To perform his analyses and to produce these maps, Prof. dr. Stoel has developed his own MATLAB⁴³-based algorithm, which automatically traces the inner and outer surfaces of the violin plates and uses these tracings to subsequently construct the three types of ‘maps’.⁴⁴ This algorithm was also employed for the currently presented study.

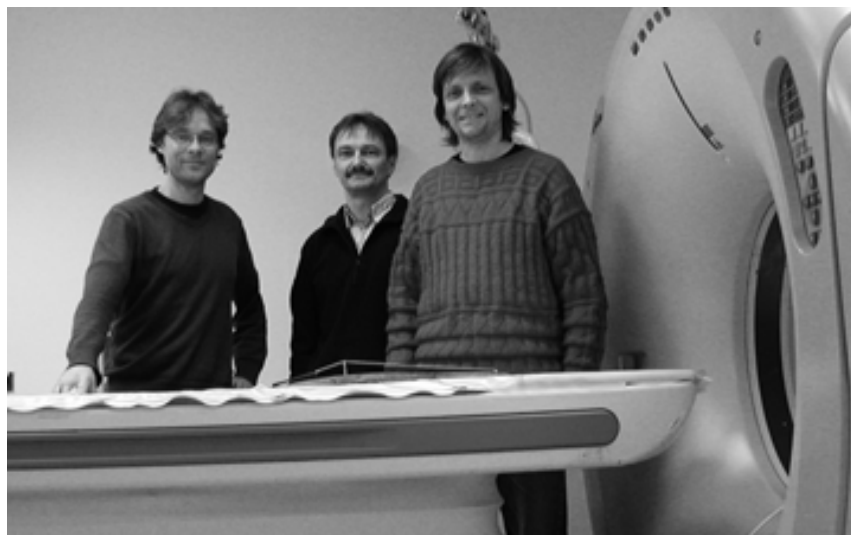


Figure 1.4. CT scanning of a violin by Boussu from 1759 on 18 December 2010 at the Leiden University Medical Center. Left to right: the author, Prof. dr. Berend Stoel, Stephen Freeman (owner of the violin).

From the initial study of the six above-mentioned violins by Boussu from the MIM collection, it became clear that two instruments within this group were promising candidates to also undergo analysis using CT scanning, in addition to the previously

⁴² Berend C. Stoel, Terry M. Borman, ‘A comparison of wood density between classical Cremonese and modern violins’, PLOS ONE, vol. 3, issue 7 (2008), pp.1-7; Borman, Stoel (2009); Terry Borman, Berend Stoel, ‘CT and modal analysis of the ‘Vieuxtemps’ Guarneri ‘del Gesù’’, The Strad, vol. 122, no. 1449 (2011), pp.68-71; Berend C. Stoel, Terry M. Borman, Ronald de Jongh, ‘Wood densitometry in 17th and 18th century Dutch, German, Austrian and French violins, compared to classical Cremonese and modern Violins’, PLOS ONE, vol. 7, issue 10 (2012), pp.1-9.

⁴³ The Mathworks, Inc., Natick, United States of America.

⁴⁴ A more detailed description of the operation mode of the algorithm can be found in: Borman, Stoel (2009), p.4.

scanned violin from 1759 in private ownership. A request to scan the violins with MIM inv. nos. 2781 and 2784 was made to MIM curator Prof. dr. Anne-Emmanuelle Ceulemans. These two instruments were selected for a radiological investigation, since they have retained to the highest extent their original structure. In addition to these two instruments by Boussu, four instruments from the MIM collection by his previous and contemporary luthier colleagues from Brussels were also included in this study (see Table 1.3), in order to be able to place the constructional characteristics of Boussu – and possibly his working methods as well – in a broader context.

Scanning of the six selected Brussels violins was performed during two sessions in 2012 and 2013 at the Brussels Erasmus Hospital, under the supervision and guidance of emeritus Prof. dr. Danielle Balériaux, a leading expert in the field of neuroradiology and neurology (see Figure 1.5). Scanning dates, scanning equipment and settings are included in Table 1.3. In case a metal-wound string was installed on an instrument, this string was removed prior to scanning, to avoid artefacts in the scan images. At the initial reconstruction from the raw scan data, the field of view was optimised in such a way, that the available reconstruction matrix of 512×512 pixels would provide the maximum attainable image resolution based on a single scan of the complete instrument.⁴⁵ Post-processing of the scan data, i.e. the creation of two- and three-dimensional reconstructions, as well as the performance of dimensional measurements within the reconstructed images, was performed by the author, after an introduction by emeritus Prof. dr. Balériaux. For this purpose, two different software packages were used: RadiAnt DICOM Viewer⁴⁶ (for use on Windows-based computers) and OsiriX DICOM Viewer⁴⁷ (for use on Apple computers). Prof. dr. Berend Stoel provided density, thickness and elevation maps for the plates of the scanned instruments. The six violins were the first instruments of the MIM collection ever to undergo a CT scan. The results of the CT study on the Brussels violins from the MIM collection have been published during the course of the currently presented PhD project.⁴⁸

⁴⁵ For violins, this would give a spatial resolution in the axial plane of c0.5 mm, for cellos of c1.0 mm.

⁴⁶ Medixant, Poznan, Poland.

⁴⁷ Pixmeo Sàrl, Bernex, Switzerland.

⁴⁸ Verberkmoes et al. (2016).

Instrument maker / date	MIM inv. no.	Scanning date	Scanner	Scanner settings
Boussu / 1750	2781	28 November 2012	Somatom Sensation 64 (Siemens, Germany)	120 kVp, exposure: 90 mAs, pixel size: 0.47 mm, slice thickness: 0.6 mm (increment: 0.4 mm), kernel: H70h.
Boussu / 1753	2784			
Maseneer / undated	2786	29 May 2013	Somatom Sensation 16 (Siemens, Germany)	120 kVp, exposure: 260 mAs, pixel size: between 0.45 and 0.47 mm, slice thickness: 0.75 mm (increment: 0.5 mm), kernel: B60f.
G. Borbon / 16...	2774			
E. Snoeck / 1734(?)	2778			
E. Snoeck / 1727	2779			

Table 1.3. Six violins from the collection of the MIM, which were scanned at the Erasmus Hospital in Brussels in November 2012 and May 2013.

A similar CT study has been performed on the two cellos by Boussu from the MIM collection (MIM inv. nos. 1372 and 2863). This time, the scanning took place on 29 July 2017 at the Brussels Saint-Luc hospital, under the supervision and guidance of radiologists Prof. dr. Emmanuel Coche and Prof. dr. Etienne Danse, and in cooperation with Prof. dr. Anne-Emmanuelle Ceulemans and Joris De Valck from the MIM. The scanner used was a model IQon Spectral CT (Philips, The Netherlands).⁴⁹ Data processing has been done using the same two software packages as for the violins (RadiAnt and OsiriX). Again, Prof. dr. Stoel created plate maps. The results of this cello study have not yet been published, but are included in this thesis under Chapter 4.

The Boussu instrument most recently added to the MIM collection, a double bass from 1760 (MIM inv. no. 2014.324), underwent an examination prior to its acquisition in 2014. This assessment was performed by Prof. dr. Anne-Emmanuelle Ceulemans and the author, assisted by MIM staff members Joris De Valck and Manu Frederickx. A kit violin (*pochette*) by Boussu preserved at the collection of the Musée de la musique in Paris (inv. no. D.E.Cl.2045) was also studied and documented. For both these latter instruments, respectively the largest and smallest known creation by Boussu, basic dimensional measurements were performed, as well as digital endoscopy.

⁴⁹ Scanner settings: 140 kVp, slice thickness: 0.9 mm, spacing between slices: -0.45 mm, pixel spacing (MIM inv. no. 1372): 0.98 mm, pixel spacing (MIM inv. no. 2863): 0.96 mm, exposure (MIM inv. no. 1372): 57 mAs, exposure (MIM inv. no. 2863): 63 mAs, X-ray tube current (MIM inv. no. 1372): 38 mA, X-ray tube current (MIM inv. no. 2863): 42 mA, convolution kernel: C.



Figure 1.5. CT scanning of a violin by Boussu on 28 November 2012 at the Erasmus Hospital in Brussels. Left to right: Ayada Bouazzaoui (CT technician), emeritus Prof. dr. Danielle Balériaux, unidentified CT technician, Prof. dr. Anne-Emmanuelle Ceulemans. Photo: author.

In addition to examining the instruments from the collections of the MIM (Brussels) and the Musée de la musique (Paris), an attempt was made to locate as many extant Boussu instruments as possible in the hands of musicians, collectors or dealers. Around 20 instruments (including the nine instruments from the MIM collection) had been identified and examined before the PhD project started in January 2015. During the course of the PhD project, another c30 instruments – mostly outside museum collections – have been located and documented. In general, for the privately-owned instruments, measurements were taken, photographs were made and endoscopy was performed, in a similar manner as described for the museum instruments. Three of the non-museum instruments were CT scanned, see Table 1.4. Again, as much as possible, metal parts (such as metal-wound strings and the brass tuning mechanism of the cittern) were removed from the instruments prior to scanning, to avoid artefacts. The results of the CT scanning study of the cittern have been published during the current PhD project, in 2016.⁵⁰ The scanning results of the two other instruments mentioned in Table 1.4 remain unpublished, but are presented in the current thesis (Chapter 4).

⁵⁰ Verberkmoes (2016).

Instrument / date / database code	Scanning date	Scanner location / scan operator	Scanner	Scanner settings
Violin / 1759 / BJB5903vn	18 December 2010	Leiden University Medical Center, Leiden / Prof. dr. Berend Stoel	Aquilion (Toshiba, Japan)	80 kVp, slice thickness: 0.5 mm, pixel spacing: 0.49 mm, exposure: 50 mAs, X-ray tube current: 50 mA, convolution kernel: FC86
Cittern / 1771 / BJB7101ci	27 January 2016	Ghent University Hospital / Prof. dr. Tom Van Hoof	Somatom Definition Flash (Siemens, Germany)	120 kVp, slice thickness: 0.6 mm, pixel spacing: 0.71 mm, exposure: 300 mAs, X-ray tube current: 300 mA, convolution kernel: 170h\4
Viola / undated / BJBnd17va	17 December 2016	Leiden University Medical Center, Leiden / Prof. dr. Berend Stoel	Aquilion (Toshiba, Japan)	80 kVp, slice thickness: 0.5 mm, pixel spacing: 0.49 mm, exposure: 50 mAs, X-ray tube current: 50 mA, convolution kernel: FC86

Table 1.4. Privately-owned instruments by Boussu which underwent CT scanning.

As is evident from the description above, all CT scanning of instruments performed as part of this PhD study has been done by using medical CT scanners. From the point of view of using these medical devices for organological research, such type of scanners have the advantage of being readily available (every city hospital has at least one CT scanner in their inventory, larger university hospitals have multiple units), while the radiological staff at a hospital is, under certain conditions, often prepared to offer their utilities and cooperation free of charge for the scanning of violins (or other cultural heritage objects). Besides their widespread and abundant availability – in the case of the present study, scanning of the MIM violins could only take place in the same city (Brussels) as where the instruments are preserved, to reduce travelling distance and avoid prolonged exposure of the instrument to non-ideal conditions – medical scanners also offer the advantage of a short scanning time, typical one to several minutes to scan a violin. Although this has certain advantages from the perspective of scan duration and exposure time of the instrument to the possibly unfavourable environment in the scanning room, this also implies that the spatial resolution of the resulting scans is limited. Typically, when scanning a violin with a medical CT scanner at optimal resolution settings, the smallest possible voxel size is around 0.4 mm³. This spatial resolution is sufficient for qualitative (structural) analyses⁵¹ and for two- or three-dimensional

⁵¹ Frank P. Bär, Theobald Fuchs, Sebastian Kirsch, Rebecca Wagner, Gabriele Scholz, Christian Kretzer, Richard Schielein, Guido Brennhäusser, Michael Böhnelt, Nils Reims, Markus Eberhorn, Tobias Koppers, Markus Raquet, Meike Wolters-Rosbach, Kathrin Fischeidl, Sarah Wagner, Markus Zepf, 'Three-dimensional computed tomography scanning of musical instruments', in Pérez, Marconi, ed. (2018), pp.171-187, at pp.173-175.

reconstructions on 1:1 scale, in order to produce templates intended for an instrument replication. However, when a more detailed analysis of the structure is required, for example when the scans are intended for wood identification, dendrochronology or to analyse small-scale constructional details, the resolution of medical CT scanning is insufficient. Coinciding with the start of the investigations of Boussu's instruments, around 2010, new X-ray based scanning techniques offering a much higher resolution have been introduced, under the names of micro-CT scanning and SRM (synchrotron radiation microtomography) scanning. These new techniques have recently readily found their application into the field of musical instrument research,⁵² and allow for instrument scans with a voxel resolution in the micrometre range. This makes visualisation possible up until the level of the wood tissue, thus providing the data for the performance of wood identification or dendrochronology. Furthermore, in case of quantitative research, when precise measuring is important, micrometre-range CT scanning is the preferred choice.

When the first CT scans within the Boussu project were performed (during the period 2010-early 2013), facilities for high-resolution CT scanning were very rare. It was therefore then decided to perform the scanning of instruments in hospitals, to be able to scan the instruments quickly, close to the museum and at favourable financial conditions. For our initial purpose, the visualisation and qualitative analysis of the macroscopic structures of the instruments, the resolution of medical scanning was sufficient. Even at the time of writing this thesis (2019-2020), only certain universities or other research institutes are in possession of high-resolution micro-CT equipment. Hence, for the current project it was decided to keep doing additional instrument scans on medical equipment. Moreover, adhering to the medical scanning format also ensured that the results of all the performed scans could be compared more directly and plate maps could be made, while the much smaller data set sizes resulting from medical scanning (around 0.5 GB per violin, compared to the multitude of that data amount per violin in the case of micrometre-range scanning) made data processing with a consumer laptop computer and commercially available software possible. Especially when the stage of instrument replication had commenced, having the opportunity to make and view the scan reconstructions and perform dimensional measurements on these reconstructions using a 'simple' laptop computer next to the workbench proved to be extremely profitable.

⁵² Franco Zanini, 'Learning the finer points', *The Strad*, vol. 123, no. 1461 (2012), pp.36-41; Andrea Zanrè, Rudolf Hopfner, 'New light on an uncut diamond', *The Strad*, vol. 125, no. 1494 (2014), pp.36-43; Jan Van den Bulcke, Denis Van Loo, Manuel Dierick, Bert Masschaele, Luc Van Hoorebeke and Joris Van Acker, 'Nondestructive research on wooden musical instruments: From macro- to microscale imaging with labbased X-ray CT systems', *Journal of Cultural Heritage*, vol. 27, Supplement (October 2017), pp.S78-S87; Volker Haag, Sebastian Kirsch, Gerald Koch, Valentina Zemke, Hans-Georg Richter, Sergej Kaschuro, 'Non-destructive investigation of historical instruments based on 3D-reflected-light microscopy and high-resolution μ -X-ray CT', in Pérez, Marconi, ed. (2018), pp.143-156; Bär et al. (2018), pp.173-175.

The performance of a CT scan on a musical instrument (or any other cultural heritage object) from a museum collection requires some practical considerations. As mentioned above, the instrument has to be transported to the scanning facility, away from its protective and conditioned environment. This may pose problems regarding damage caused by handling, shocks, vibration and changes in air temperature and humidity, especially for wooden instruments. Packaging has to be done well, with particular care for fragile objects, sometimes requiring a specially constructed case. A transport case totally made from wood or plastic (without any metal parts) may allow scanning of the object in packed state,⁵³ reducing risk of damage (e.g. due to air humidity effects). Given the long scanning times of high-resolution CT scanning (up to several hours for a complete violin⁵⁴), with corresponding prolonged exposure duration to the surrounding environment, the issue of air condition becomes particularly relevant, and additional measures may have to be taken to protect the instrument during the scan.⁵⁵

Fortunately, the instruments examined with CT scanning during our study (violins and cellos) were of such dimensions, that they would fit inside the gantry of the medical CT scanner, designed for human beings. For larger instruments (like double basses or harpsichords), however, other scanning facilities need to be found, for example those specialised in large art objects⁵⁶ or those for large animals. Soft, light-weight material, like foam pads, have to be employed to support the object during scanning and raise it from the scanner bed. Metal parts (such as strings) need to be removed before scanning, insofar the integrity of the instrument is not compromised of course, in order to avoid metal-induced artefacts in the CT scan image.⁵⁷ The scanning data should be saved under a distinct and systematic name, so that later identification of the data is unambiguous, and any other relevant details should be included in the file header. Further practicalities are discussed by Bär *et al.*⁵⁸ Standard calibration of the scanner has to be performed prior to scanning, as well as a more specialised calibration in case quantitative analyses based on CT data are foreseen (such as density determination, as will be further discussed below). An optimised scanning protocol has to be designed: material, object shape and application

⁵³ Daniel Jungblut, Stephan Karl, Hubert Mara, Susanne Krömker, Gabriel Wittum, 'Automated GPU-based surface morphology reconstruction of volume data for archaeology', in Hans Georg Bock, Willi Jäger, Michael J. Winckler, ed., *Scientific computing and cultural heritage - Contributions in computational humanities* (Berlin/Heidelberg: Springer, 2013), pp.41-50, at p.42.

⁵⁴ Rudolf Hopfner, 'Hi-res revelations', *The Strad*, vol. 129, no. 1533 (2018), pp.54-59, at p.54.

⁵⁵ Zanini (2012), p.39.

⁵⁶ Alessandro Re, Fauzia Albertin, Chiara Avataneo, Rosa Brancaccio, Jacopo Corsi, Giorgio Cotto, Stefania De Blasi, Giovanni Dughera, Elisabetta Durisi, Walter Ferrarese, Annamaria Giovagnoli, Novella Grassi, Alessandro Lo Giudice, Paolo Mereu, Giorgia Mila, Marco Nervo, Nadia Pastrone, Francesco Prino, Luciano Ramello, Massimo Ravera, Chiara Ricci, Alessandra Romero, Roberto Sacchi, Amedeo Staiano, Lorenzo Visca, Lorenzo Zamprota, 'X-ray tomography of large wooden artworks: the case study of "Doppio corpo" by Pietro Piffetti', *Heritage Science*, vol. 2, no. 19 (2014), pp.1-9.

⁵⁷ F. Edward Boas, Dominik Fleischmann, 'CT artifacts: causes and reduction techniques', *Imaging in Medicine*, vol. 4, no. 2 (2012), pp.229-240, at p.230.

⁵⁸ Bär *et al.* (2018).

of the data (e.g. qualitative or quantitative analysis) determine the settings for contrast (kVp, filter, reconstruction method), resolution (collimation, FOV, slice thickness, reconstruction method) and noise (collimation, kVp, mA, pitch, rotation speed).

CT scan data of violin-family instruments can also be used to derive the density of the wood materials present in the instrument. In order to perform such densitometry in a valid way, several conditions and criteria have to be met. First of all, besides the standard calibration method for the CT scanner, an extra calibration for scanning of wood has to be performed. By scanning a reference set of wooden samples of known density, a (linear) relationship between the CT number in Hounsfield units and the actual wood density can be established, which can subsequently be used as a calibration line to more accurately derive density values from CT data of scanned wooden objects. In relation to that, during a preparatory phase, the scanning protocol (the set of CT scanner settings) should be optimised to give the most accurate results when scanning wood materials, something that can be achieved by using the scan results of density reference samples. Furthermore, when scanning thin wooden parts, such as violin plates, another set of reference samples – wooden plates with thicknesses increasing stepwise from 2.0 to 6.0 mm – has to be scanned along with the object, in order to collect data to enable correction for the effects of edge enhancement applied during CT image reconstruction.⁵⁹ The scanning of the two reference sets should of course be done on the same scanner as used for scanning the object under study, using the same optimised protocol, but also on the same day as scanning the object, in order to avoid effects of changes in relative humidity and of updated software versions of the scanner, which can also give deviations in scan results.

To perform an initial characterisation of the varnish materials used by Boussu, the method of UV-(ultraviolet)-induced fluorescence has been used. The inspection of objects under UV light is an inexpensive, uncomplicated and non-destructive investigation technique commonly applied in museums, which can help in authentication purposes, since it can show alterations of the surface layer due to restoration, replacement of parts, varnish retouches and so on.⁶⁰ This method can also be used to identify certain natural resins in varnish layers,⁶¹ although interpretation is not in all cases unambiguous.⁶² In our study, blacklight blue UVA lamps (300-400 nm) were employed.⁶³

⁵⁹ Stoel, Borman (2008), p.6.

⁶⁰ Koen Padding, 'The use of ultraviolet light sources in lutherie', in Helen Michetschläger, ed., *Violin varnish* (Sale: Doratura Publications, 2015), pp.90-99.

⁶¹ Richard Newman, 'Tempera and other nondrying-oil media', in Valerie Dorge, F. Carey Howlett, ed., *Painted wood: history and conservation* (Los Angeles: The Getty Conservation Institute, 1998), pp.33-63, at p.48.

⁶² Corina E. Rogge, Krista Lough, 'Fluorescence fails: analysis of UVA-induced visible fluorescence and false-color reflected UVA images of tintype varnishes do not discriminate between varnish materials', *Journal of the American Institute for Conservation*, vol. 55, no. 2 (2016), pp.138-147.

⁶³ For investigations at the MIM, an array was used with multiple lamps by Osram (Munich, Germany), type L 18W/73. On other occasions, a lamp by Philips (Amsterdam, The Netherlands), type TL 8W BLB 1FM/10X25CC was used.

In order to provide an overview of all the instruments by Boussu identified and documented as part of the currently presented study, a database was set up, containing basic measurements, label and inscription information, photographs of sound box front and scroll side view, endoscopic images of the internal construction, (anonymised) provenance and (where available) references. Also incorporated in this database are several instruments that could not be investigated personally, but for which sufficient information was available (from the private owner or the curator of the collection of which the instrument was a part) to properly document them and attribute them with confidence to Boussu. This database is added to this thesis as Appendix V. Instruments included in the database have been assigned a newly proposed identification code, in order to make their future indication unambiguous. The structure of this identification number will be explained in Section 4.1. The degree to which an instrument is investigated is also marked. Four levels are distinguished: (1) HIGH - instrument extensively investigated including CT scanning and digital endoscopy, (2) MED - instrument measured and photographed, digital endoscopy performed, (3) LOW - instrument only superficially inspected and photographed, in some cases no personal access to the instrument, but limited information received from owner, (4) NOT - instrument not personally studied, only very limited information available. In addition to Appendix V, Appendix VI contains an overview of instruments which have been mentioned (in personal communication, in books, catalogues or on websites) to be made by Boussu, but which could not be personally examined and for which not enough convincing information was available to justify inclusion in the database of Appendix V.

1.3.3. Methodology of the instrument replication

Based on the observations made on a vast number of extant violins, violas and cellos – according to the procedures described in the previous section – a hypothesis was proposed regarding the detailed construction sequence employed by Boussu for the creation of these instruments. Contextual information to support this hypothesis was provided by including and comparing the outcomes of earlier studies concerning the manufacturing modes for both musical instruments as well as other consumer goods during the eighteenth century. In addition, the results from our organological study, especially the CT scanning of the instruments, provided construction plans and templates, in the form of two-dimensional CT reconstructions plotted to 1:1 scale.

Subsequently, the hypothesis was tried out during practice-oriented ‘workbench-research’, by actually constructing three violin replicas and one cello replica. The violins were based on the violin from the MIM collection with inv. no. 2781, and the replica cello was based on the MIM instrument with inv. no. 1372. To facilitate the identification of the

replicas, these were given a code, which starts with the letters 'BIO' (abbreviation for 'Boussu Inside Out'), followed by a serial number. For example, the first replica produced received the identification code 'BIO01'. During the replication process for both the violins (BIO01, BIO02 and BIO04) and the cello (BIO03), a workshop journal was kept, recording descriptions of the materials used, the steps and procedures performed, technical details (such as the tool(s) used), final thicknesses and tap tones for the plates, weight of the various parts, varnish recipes and procedures, difficulties encountered and experiences in general.

While making these replicas according to the proposed construction sequence, the employed methods and steps were at the same time critically assessed with regards to the properties of the resulting parts, as well as for the convenience and time-efficiency of the making process. The experimental process of the construction of the replica instruments thus forms an essential part of the entire research process, because the findings and insights arising from the practical activities are always used to evaluate the working hypothesis and adjust and refine it when necessary. Even new research questions may originate. This practice-induced feedback cycle exemplifies the benefits of a 'maker/researcher' approach, advantages that would be missed if research was carried out exclusively from an organological, technological or musicological perspective.

Wood selection for the replicas was initially done on visual appearance only: in accordance with Boussu's originals, very plain wood was chosen. When the spruce top plate for the first replica violin (BIO01) turned out to have a relatively high mass – in contrast to the top plate of the original violin by Boussu – the raw wood for the second and third violin replica was selected on basis of matching density. After all four replicas were built, it was decided to make a replacement top plate for violin replica BIO01, using spruce wood of a relatively low density.

During the main construction process, primarily manually driven – i.e. non-electrical – tools were used. Although these were not of eighteenth-century origin, they were at least very similar to their antique counterparts. Only few non-authentic substitutes were used, such as for bending the ribs, where an electric bending iron was employed, since a wood stove to heat a bending iron was not present in the workshop. Rib moulds and an 'alignment table' to assemble the instruments on (as explained in Section 5.3) were made of medium-density fibreboard (MDF), a modern material, while bolts and wing nuts on this latter device were of a present-day type. Otherwise, traditional materials were used. The wood surfaces were finished with metal scrapers and the horsetail plant. Other products used, such as animal bone glue, sticklac and other resins for the varnish, were also 'historically justified' (i.e. materials that are referred to in historical sources). Polishing the varnish was done with pumice and water or vegetable oil on a felt pad.

Obviously, the resulting replicas were strung with gut strings, which were obtained from manufacturers who claim to employ historically informed production methods.⁶⁴

Whenever dimensional or structural information regarding the original instruments was required during the replication process, the CT scan data could be consulted on a laptop computer present in the workshop. Real-time 2D or 3D reconstruction could be performed to create any cross section or three-dimensional view needed and dimensions could be derived from these reconstructions using the ruler tool available in the DICOM viewer software (RadiAnt DICOM Viewer⁶⁵ and OsiriX DICOM Viewer⁶⁶).

The entire making process, for both the violin replicas as well as for the cello replica, was documented by filming with a digital camcorder. Edited versions of this material (with total duration of circa 95 minutes for the violin construction clips and circa 40 minutes for the cello construction clips) were published on the dedicated YouTube channel 'Boussu_Inside_Out'.⁶⁷ The main aim of this video documentation is to capture and preserve the performed actions and operations for future research purposes, and to disseminate the making experiences to a wider audience. To accompany the videos, an extensive written documentation of the replication process is included in this thesis, with a special emphasis on and reference to construction aspects idiosyncratic to Boussu.

The resulting replicas were assessed on their visual appearance, their constructional details, their dimensions and their mass. All these attributes were compared to those of the original instruments. In addition, in order to further compare the replicas to their original examples, the newly made instruments were CT scanned as well.⁶⁸ By comparing their thickness and arching elevation maps to those of Boussu's examples, a further evaluation of the reproduction process and its resulting replicas became possible. Since the wood density of the parts of the replicas was also going to be determined from CT data, during the same scanning sessions, also scrap wood pieces of the wood used for the top plate, back plate and neck for the four replicas were scanned, along with various wooden reference blocks of known density. In the last stages of the project, based on the CT scan data, determination was performed of the wood density (in g/cm³) and volume (in cm³) of the neck, top plate and back plate for both the original Boussu violin (MIM inv.

⁶⁴ Aquila Corde Armoniche Srl, Caldogno, Italy; Gamut Music, Duluth, United States of America.

⁶⁵ Medixant, Poznan, Poland.

⁶⁶ Pixmeo Sàrl, Bernex, Switzerland.

⁶⁷ Youtube channel 'Boussu_Inside_Out', https://www.youtube.com/channel/UChivkXPogBhUIj3X2I_DFWA (accessed July 2019).

⁶⁸ Scanning of the replica instruments was performed scanned by Prof. dr. Berend Stoel at the Leiden University Medical Center (Leiden, The Netherlands). Violin replicas BIO01 and BIO02 were scanned on 14 July 2019, and violin replica BIO04 and cello replica BIO03 on 10 November 2019. For both scanning sessions, the same Aquilion (Toshiba, Japan) CT scanner was employed, using the following settings: 80 kVp, slice thickness: 0.5 mm, pixel spacing: 0.49 mm, exposure: 50 mAs, X-ray tube current: 50 mA, convolution kernel: FC86.

no. 2781) as well as for the replica violins. The segmentation software ITK-SNAP⁶⁹ was used for this purpose. By comparing the volumes and densities of these components, between the original instrument and its replica, further insights could be gained regarding the structural similarities between the original and its copy, and thus regarding the degree of accuracy of the replication process. Lastly, an initial acoustical characterisation of the violin replicas has been performed, by conducting sound radiation measurements.

In the concluding stages of the study, between June 2018 and January 2020, the replica instruments were used by the newly formed 'Ensemble Boussu' (Dr. Ann Cnop and Shiho Ono, violins, and Mathilde Wolfs, cello, see Figure 1.6) to perform trio sonata repertoire from mid-eighteenth century Brussels composers. With this ensemble, playing the said repertoire on the newly built instruments, several public concerts and a professional audio recording, intended for release on CD and music streaming audio platforms, took place in 2018, 2019 and 2020. An extensive evaluation of the acoustic qualities and playability of the replicas fell outside the scope of the currently presented PhD project. However, the album,⁷⁰ released in October 2020, will give a good representation of how the replica instruments sound when played in a small, bowed-string-only ensemble.

⁶⁹ Paul A. Yushkevich, Joseph Piven, Heather Cody Hazlett, Rachel Gimpel Smith, Sean Ho, James C. Gee, Guido Gerig, 'User-guided 3D active contour segmentation of anatomical structures: Significantly improved efficiency and reliability', *Neuroimage*, vol. 31, no. 3 (2006), pp.1116-1128.

⁷⁰ This CD was issued worldwide in October 2020 on Etcetera Records (catalogue no. KTC 1679). Also, this recording has since been available through several major streaming audio services.



Figure 1.6. Ensemble Boussu holding the replica instruments. Photo: author.

1.4. Some considerations regarding biographical research

1.4.1. The biographical turn

“The structure of society evokes [...] a personal response within each individual, and that means that the paths people choose are often utterly at odds with those that have been mapped out for them.”⁷¹

In the past, biographical study proved to be a controversial topic within the academic world and it was therefore considered unsuitable as a subject for graduate or doctoral research.⁷² However, as will be seen, the reputation of the field of study that investigates the lives of individuals has greatly improved in recent decades. Since the thesis presented here contains a large biographical component, this section will provide some theoretical concepts of this research area and the recent developments within it. During the collection and interpretation of the information regarding Boussu’s life, some of the ideas and principles described in the remainder of this section have been taken into consideration and put into practice.

For most of the twentieth century, biography was regarded by many academics as an inferior research field,⁷³ a “lesser form of history”.⁷⁴ The scope of biography was said to be too narrow, not allowing for generalisation, and therefore being at most a useful – but certainly not essential – activity.⁷⁵ It has even been characterised as a form of voyeurism and privacy breach,⁷⁶ or even worse, as a form of parasitism, exerted at the cost of the well-known protagonist for the greater glory of the biographer.⁷⁷ However, since the 1980s, renewed interest and appreciation arose for biography as an academic topic,⁷⁸ up to a point that several authors perceive a true ‘biographical turn’ occurring in the

⁷¹ Sigurður Gylfi Magnússon, ‘The life is never over - Biography as a microhistorical approach’, in Hans Renders, Binne de Haan, Jonne Harmsma, ed., *The biographical turn - Lives in history* (London/New York: Routledge, 2017), pp.42-52, at p.45.

⁷² David Nasaw, ‘Historians and biography - Introduction’, *American Historical Review*, vol. 114, no. 3 (2009), pp.573-578, at p.573; Hans Renders, Binne de Haan, Jonne Harmsma, ‘The biographical turn’, in Hans Renders, Binne de Haan, Jonne Harmsma, ed. (2017), pp.3-11, at p.4.

⁷³ Daniel R. Meister, ‘The biographical turn and the case for historical biography’, *History Compass* (2017), e12436, pp.1-10, at p.1. Available from: <https://doi.org/10.1111/hic3.12436> (accessed January 2020); Magnússon (2017), p.42; Nigel Hamilton, ‘Biography as corrective’, in Hans Renders, Binne de Haan, Jonne Harmsma, ed. (2017), pp.15-30, at p.15.

⁷⁴ Nasaw (2009), p.573.

⁷⁵ Meister (2017), p.3.

⁷⁶ Hamilton (2017), p.26.

⁷⁷ Hans Renders, ‘The biographical method’, in Hans Renders, Binne de Haan, ed., *Theoretical discussions of biography - Approaches from history, microhistory and life writing* (Leiden: Brill, 2014), pp.222-226, at p.222.

⁷⁸ Renders, De Haan, Harmsma (2017), p.3.

humanities in the past three decades.⁷⁹ This current movement accepts biographical research as a critical scholarly method.

Besides the above-mentioned scepticism, another point of critique from twentieth-century scholars towards biography relates to a presumed lack of theorisation.⁸⁰ In order to overcome this deficiency and provide biography with a methodological and theoretical fundament, Renders *et al.* recently have proposed an association with the discipline of microhistory.⁸¹ This sub-field of history is primarily typified by a reduction in the scale of observation (towards a single happening, settlement, group or human being) and the positioning of the human experience as the outset of historical interpretation, with the aim to identify and analyse aspects that would otherwise be overlooked. Meister discerns two contrasting applications of biography by historians: where some scholars use the lives of individuals as ‘lenses’ to observe or address larger historical phenomena, others – including those following the microhistorical pathway, but the ‘classical’ biographers as well – use biography to study the life itself, with only limited consideration for the broader context.⁸²

The microhistorical approach is characterised by a shift in orientation from ‘quantitative’ to ‘qualitative’, from an ‘objective’ perspective to a ‘subjective’ one, in order to counteract the depersonalisation and abstractness of social history.⁸³ It can be seen as a reaction to the French *Annales* school, which focuses on extended time-frames, large geographical areas and grand historical narratives, but which failed to give information on the day-to-day lives of individual human beings and the complexity and dynamics in those existences.⁸⁴ According to Renders *et al.*, “Microhistory and biography share the vantage of scrutinising, challenging and possibly correcting established interpretations of human history in a scholarly way. Biographical research complies with the research methodologies of the microhistorian, which are based on the study of source materials and the principle of verifiability”.⁸⁵ Following the idea that by zooming in on specific individuals or communities, employing primary sources and the personal perspective,⁸⁶ unknown and unanticipated dimensions of social structures could become discernible, while those newly gained insights may subsequently even have to result in the evaluation and possible correction of the prevailing ideas and interpretations of the past.⁸⁷ In this respect, Renders and De Haan have pointed out the mutual dependence between

⁷⁹ Renders, De Haan, Harmsma (2017), p.3; Meister (2017), p.2.

⁸⁰ Meister (2017), p.5.

⁸¹ Renders, De Haan, Harmsma (2017), pp.4-5.

⁸² Meister (2017), pp.4-5.

⁸³ Magnússon (2017), pp.43, 50.

⁸⁴ Magnússon (2017), p.43.

⁸⁵ Renders, De Haan, Harmsma (2017), p.5.

⁸⁶ Renders, De Haan, Harmsma (2017), p.6.

⁸⁷ Magnússon (2017), pp.44-45.

“understanding the whole” and “understanding the parts”.⁸⁸ The corrective quality of the biographical perspective on our knowledge of the past is especially brought to the fore by Hamilton, and he promotes the methods of interviewing and “forensic archival research” to achieve this goal.⁸⁹ However, due to the sometimes confrontational nature of such activities, even protests and repercussions from the camps of the challenged historians and family of the subject must be reckoned with.

Thus, by embracing biography and by putting the spotlight on individuals, the anthropocentric aspect of historical research will be emphasised, under the motto: ‘no history without people’.⁹⁰ By incorporating archival research, elaborate study of secondary sources and sometimes oral history, proper historical biography can give a detailed image of ‘internal’ context as well as examining the wider historical, or ‘external’ context.⁹¹ The degree to which the ‘external’ context should be considered is subject of debate amongst microhistorians. Where most agree with the inclusion of a (certain degree of) broader perspective, Magnússon advocates for an approach that predominantly ‘looks inside’, without any consideration for the larger context (the social structures outside the subject’s own immediate environment), in order to bring out “the unique aspects of the person” and to “open the way to a new understanding of how society, to which each and every person belongs, works”.⁹² The resulting research model, referred to as ‘singularisation of history’, comprises the comprehensive examination of all available sources directly relating to the subject and its immediate environment, and the consideration of all possible ways of interpretation, in order to “open doors to unexpected connections and ‘voices’”.⁹³

Magnússon further brings up the notion that both microhistorians and biographers often specifically look for unpredictable behaviour and unexpected twists within the lives of their subjects, a view shared by Smith.⁹⁴ Contradictions and tensions found in the lives of individuals – stemming from the desire to develop personal potential in opposition to the restrictions of society – generally disagree with the grand narratives of historiography, and thus offer us an opportunity to form an alternative view on the past. Where a more conventional biographical approach often aims at presenting an orderly and consistent picture, Magnússon proposes to actively expose and study gaps and inconsistencies in the

⁸⁸ Hans Renders, Binne de Haan, ‘The challenge of biography studies’, in Hans Renders, Binne de Haan, ed. (2014), pp.1-10, at p.6.

⁸⁹ Hamilton (2017), pp.22-26.

⁹⁰ Meister (2017), p.4.

⁹¹ Meister (2017), p.4.

⁹² Magnússon (2017), p.48.

⁹³ Magnússon (2017), p.49.

⁹⁴ Louis M. Smith, ‘Biographical method’, in Norman K. Denzin, Yvonna S. Lincoln, ed., *Handbook of qualitative research* (Thousand Oaks: Sage Publications, 1994), pp.286-305, at p.289.

knowledge about one person.⁹⁵ This approach may be even more fruitful when the focus is shifted from the ‘greats’ towards the ordinary people, who left behind traces as well, albeit often scarce and fragmented.⁹⁶

Renders and De Haan claim that whereas microhistory has typically examined the representativeness of individuals, biography should rather explore their distinctiveness, and the way they affect their context.⁹⁷ This question of ‘representativeness’ versus ‘distinctiveness’ is a recurring theme amongst biographical scholars: can the findings from a small scale study be representative of a broader context, or are they distinctive? According to Loriga, based on Dilthey, “An individual cannot *explain* a group, a community or an institution, and conversely, a group, a community or an institution do not make it possible to *explain* an individual. [...] this disparity is inexhaustible”.⁹⁸ Biography, however, allows us to penetrate and examine ‘social interstices’ – gaps or cracks within normative social systems where individuals or small groups have actively introduced their own, often divergent rules – thereby contributing to a more heterogeneous knowledge of the past.⁹⁹ Taking this idea even a step further, by combining different, and sometimes contradicting personal interpretations, a more diverse reconstruction of past reality can be offered.¹⁰⁰ From this perspective, Loriga argues that: “it is not necessary that the individual is seen as representative or typical for something wider. On the contrary, lives which deviate from the average seem to offer a better way of thinking about the balance between the specificity of personal destiny and the society as a whole”.¹⁰¹ Roberts explains that many sociologists would argue that studying the individual could not provide an image of a larger group due to limitation in sample size, but he also puts forward that an individual may be the only direct witness of a certain event, and in that case could thus be regarded as representative of a group.¹⁰² For Magnússon, who simply ignores the broader context, as discussed above, the issue of ‘representativeness’ becomes irrelevant. In contrast, Meister advocates for focusing back and forth between subject and context, in order to demonstrate the modes of interplay between the two; that way, it can be recounted how “the reality of people’s complex, contradictory, and messy lives” is intertwined with the larger scale historical events.¹⁰³ In a similar vein, Handlin emphasises the importance of studying interaction, instead of concentrating entirely on either the individual or the society.¹⁰⁴ According to the same

⁹⁵ Magnússon (2017), p.45.

⁹⁶ Magnússon (2017), p.50.

⁹⁷ Renders, De Haan (2014), pp.6-7.

⁹⁸ Sabina Loriga, ‘The plurality of the past - Historical time and the rediscovery of biography’, in Hans Renders, Binne de Haan, Jonne Harmsma, ed. (2017), pp.31-41, at p.34.

⁹⁹ Loriga (2017), p.38.

¹⁰⁰ Loriga (2017), p.39.

¹⁰¹ Loriga (2017), p.38.

¹⁰² Brian Roberts, *Biographical research* (Buckingham/Philadelphia: Open University Press, 2002), p.12.

¹⁰³ Meister, 2017, p.5.

¹⁰⁴ Oscar Handlin, *Truth in history* (Cambridge, Massachusetts: Harvard University Press, 1979), p.276.

author, biographers differ from historians, in that the first group uses information from the past with the aim to explain the personality and character of the individual, something which most historians don't do.¹⁰⁵

Renders stresses that 'biography' and 'genealogy' are not identical. The latter field is mainly concerned with the gathering of biographica – the construction of a family tree – and is illustrative and descriptive, but, according to Renders, will rarely relate the illustration to the larger, interpreted narrative. Nevertheless, genealogical knowledge can be useful in a variety of ways for those working in other disciplines.¹⁰⁶

Smith describes the various consecutive steps to be taken in the biographical process, from subject selection and first investigations, through the creation and use of an archive, the development of a theme within the life story, the characterisation of the subject's personality, the establishment of the biography's form, arriving finally at the inclusion of context and the definition of the literary style.¹⁰⁷ The five types of written biographical form distinguished by Smith,¹⁰⁸ arranged in an increasing degree of subjectivity regarding the biographer's approach, are: (1) the 'objective' biography, a presentation of facts in chronological order, (2) the 'scholarly-historical' biography, again a factual chronology, but with increasing historical background and an attempt to characterise the subject, (3) the 'artistic-scholarly' form, where well-researched information is presented in a lively and attractive way to the reader, (4) the 'narrative' form, which includes fictionalised elements, and lastly (5) the 'fictional' biography, closely resembling the historical novel, in which the reliance on research and facts is only very minimal. Not surprisingly, the second type is prevailing among academics. In a more popular format, biography can take the shape of feature films, documentaries, comics, websites, and so on.¹⁰⁹

The relationship between the objective knowledge (represented by biographical factual information) and its subjective perception and interpretation by the biographer and the audience is also addressed by several more recent authors. Renders and De Haan, define biography as "the study of the life of an individual, [...] explained and interpreted in part from the perspective of the personal".¹¹⁰ Klein questions whether a biography – presented as a sequence of events – can ever truly describe a 'reality', and rather presents biography as "a concept of thought", which evolves through the interaction between the facts of real lived lives and their "mediated representation", the biography. Real life feeds the

¹⁰⁵ Handlin (1979), p.266.

¹⁰⁶ Hans Renders, 'Why genealogy and biography are not kin', in Hans Renders, Binne de Haan, ed. (2014), pp.227-231, at p.227.

¹⁰⁷ Smith (1994), pp.289-293.

¹⁰⁸ Smith (1994), p.292.

¹⁰⁹ Christian Klein, 'Biography as a concept of thought', in Hans Renders, Binne de Haan, Jonne Harmsma, ed. (2017), pp.79-87, at p.79.

¹¹⁰ Renders, De Haan (2014), p.2.

biography, which in return influences the way we perceive our own existence and that of others.¹¹¹ Magnússon detects the trend of conventional historians writing their autobiographies, thus “stepping into the text”, allowing them to treat their subjects from their own perspective.¹¹² Meister, citing Rollyson, mentions that “biography, like history, is essentially revisionist”, implying that it has to be re-interpreted and re-written by each following generation.¹¹³ Sergier points out that the coherence the biographer perceives, or wants to perceive, within a set of collected biographical data, is not unambiguously evident for everyone: only rarely will a single interpretation be generally accepted.¹¹⁴ He further notices that a modern-day biographer may be biased by prejudices and ethics when he or she enters in a dialogue with the world of the past.¹¹⁵ Sergier also advises the aspiring biographer to respect both the subject – who will remain an unexplainable mystery anyhow – as well as the reader. This can be achieved by abstaining from an all-knowing attitude and an over-selective treatment of the data, aimed at a forced pursuit of unity. Instead, the biographer has to accept lacunae and contradictions, and must rather emphasise themes and motives, provide insight into the challenges of the research process and use an appropriate rhetoric for telling the story. But above all, while attempting to make the subject accessible to the reader, this must go hand in hand with the demonstration of the subject’s inevitable inscrutability.¹¹⁶

In recent years, the introduction of narrative techniques caused the genre of biographical writing to transform, while it also became more critical: erecting a statue for the subject was no longer the sole goal of the biography.¹¹⁷ What is more, the true purpose of the biographer for writing the account of a chosen life is often not fully clear from the start of the survey, it may rather grow gradually during the process, as the result of many years of study and reflection.¹¹⁸

During the past two decades, as brought forward by Hamilton, biography and traditional history have exchanged position regarding appreciation. Biography – both in its academic and popular form – has gained estimation, due to its questioning and corrective qualities, whereas traditional history has become suspect, as a result of the selectivity, hidden agendas and myth-cherishing of its practitioners.¹¹⁹ But in the end, it is not about the success of one discipline at the cost of the other. On the contrary, the success and

¹¹¹ Klein (2017), p.85.

¹¹² Magnússon (2017), p.47.

¹¹³ Meister (2017), p.3.

¹¹⁴ Matthieu Sergier, ‘En scène! - De biografie als zichtbaar verlies’, *Nederlandse letterkunde*, vol. 22, no. 3 (2017), pp.187-206, at p.189.

¹¹⁵ Sergier (2017), p.196.

¹¹⁶ Sergier (2017), p.203.

¹¹⁷ Hamilton (2017), pp.16-17.

¹¹⁸ Hamilton (2017), p.27.

¹¹⁹ Hamilton (2017), p.16.

credibility of present-day biography – the record of the life of an individual – can for a large part be attributed to its foundation on the methods of historical scholarship. To conclude, the impact of biography as a critical methodology in the wider scope of the humanities is concisely summarised by Renders *et al.*: “In scholarly terms, the biographical perspective embodies the viewpoint of individual agency and human experience as a methodological tool. By detecting individuals in the past, understanding the dynamic roles they ‘took’ and ‘made’ and putting the grand narratives of structures, institutions and abstractions into perspective, biographical research can perform the scholarly task of testing and validating the accuracy of the stories and images that have been accepted in historiography”.¹²⁰

As said earlier on in this section, some of the concepts and notions of the current generation of biographical researchers, such as the ‘corrective’ quality of biography, the microhistorical, focusing approach and the role of contextual information, certainly have had an influence on how the currently presented research was shaped, performed and interpreted. Furthermore, these ideas will also be taken into account when the results of the study on Boussu’s life are reflected upon and placed in perspective in the ‘Conclusions’ section (Chapter 7).

1.4.2. Object biography

Just as is the case for human beings, it has been proposed that for objects a biography can be written as well. To put it simple, objects can be imagined to have had a ‘birth’ (when made), a ‘life’ (when in use) and a ‘death’ (when becoming obsolete).¹²¹

For long, in fields as anthropology, history or sociology, material objects were seen as items functioning in social processes, but hardly ever as informing them. Within the area of material culture studies, the idea of a ‘cultural biography of things’ has emerged, along with theories on the way that the histories of people and material objects inform each other.¹²² Kopytoff is often considered as having first introduced the concept of ‘object biography’, in 1986.¹²³ In his influential publication, several key questions are proposed, which one could ask when attempting to write the biography of the ‘thing’: “What, sociologically, are the biographical possibilities inherent in its [the thing’s] ‘status’ and in

¹²⁰ Renders, De Haan, Harmsma (2017), p.10.

¹²¹ Anthony Harding, ‘Introduction: biographies of things’, *Distant Worlds Journal*, no. 1 (2016), pp.5-10, at p.8.

¹²² Chris Gosden, Yvonne Marshall, ‘The cultural biography of objects’, *World Archaeology*, vol. 31, no. 2 (1999), pp.169-178, at p.169.

¹²³ Igor Kopytoff, ‘The cultural biography of things: commoditization as process’, in Arjun Appadurai, ed., *The social life of things - Commodities in cultural perspective* (Cambridge: Cambridge University Press, 1986), pp.64-91.

the period and culture, and how are these possibilities realized? Where does the thing come from and who made it? What has been its career so far, and what do people consider to be an ideal career for such things? What are the recognized ‘ages’ or periods in the thing’s ‘life’, and what are the cultural markers for them? How does the thing’s use change with its age, and what happens to it when it reaches the end of its usefulness?”¹²⁴ Kopytoff also introduces the concept of ‘singularisation’, a cultural process through which objects can obtain a unique status, which makes them stand out from commodities,¹²⁵ and thus protecting them from being disposable.¹²⁶

The concept of ‘biography’ is used to investigate the transformations of human beings and objects as they are exposed to time, movement and change, and how these transformations are entangled.¹²⁷ During such dynamic social interactions between humans and objects, meanings are created and accumulated,¹²⁸ which by themselves can alter and become renegotiated over the object’s life.¹²⁹ Objects can also be used to create meaning of people’s lives.¹³⁰ From this point of view, “artifacts are not always seen as passive and people as active”.¹³¹ An object can be regarded as ‘polysemic’. Its perception by an individual observer depends on the knowledge, attitudes and assumptions that person has towards the thing.¹³²

Object biographies can thus be employed to understand the relationship between people and things,¹³³ and might include, according to Schamberger *et al.*, “information about the object’s genealogy, its manufacture, use, possession, exchange, alteration, movement and destruction or preservation, obtained from a wide variety of sources”.¹³⁴ Object biography can be performed from two major perspectives: an ‘ethnographic’ one, which attempts to describe the perception of the object by people, and an ‘historical’ one, which performs an ‘interrogation’ on the object by placing it in its historical context,¹³⁵ or by scientific analyses.¹³⁶ Harding questions to what degree historical objects really can be made to

¹²⁴ Kopytoff (1986), pp.66-67.

¹²⁵ Kopytoff (1986), pp.68-70, 73-77.

¹²⁶ Robert Barclay, *The preservation and use of historic musical instruments - Display case and concert hall* (London: Earthscan, 2004), p.4.

¹²⁷ Gosden, Marshall (1999), p.169.

¹²⁸ Gosden, Marshall (1999), pp.169-170.

¹²⁹ Gosden, Marshall (1999), p.170.

¹³⁰ Gosden, Marshall (1999), p.174.

¹³¹ Chris Gosden, ‘What do objects want?’, *Journal of Archaeological Method and Theory*, vol. 12, no. 3 (2005), pp.193-211, at p.194.

¹³² Barclay (2004), p.7.

¹³³ Gosden, Marshall (1999), p.172.

¹³⁴ Karen Schamberger, Martha Sear, Kirsten Wehner, Jennifer Wilson, Australian Journeys Gallery Development Team, National Museum of Australia, ‘Living in a material world: object biography and transnational lives’, in Desley Deacon, Penny Russell, Angela Woollacott, ed., *Transnational ties - Australian lives in the world* (Canberra: ANU Press, 2008), pp. 275-298, at p.277.

¹³⁵ Harding (2016), pp.6-7.

¹³⁶ Harding (2016), p.7.

‘speak’, wondering whether the ‘answers’ we will receive are not merely speculative, and what we can genuinely know about the past.¹³⁷ According to Gosden and Marshall, only by considering the cultural circumstances under which the object was made, as well as the ones within which it was placed afterwards, we can understand it. As a result of such transfers, object biographies often display shifts of perspective and context.¹³⁸

As is evident from the above, the relationship between people and things has a highly intertwined character. By studying the nature of this interaction, we can learn about the lives of the people who made, employed and discarded the objects. Or, to quote Harding: “the life of objects is no more nor less than the life of humans, of ourselves”.¹³⁹

The category of objects addressed in this thesis, musical instruments, can also be considered commodities; their economic value is related to their use. Therefore, they become disposable after the moment they are no longer functional.¹⁴⁰ However, through the process of singularisation, society may protect a certain portion of them from being discarded, by giving them a ‘symbolic’ or ‘sacred’ status.¹⁴¹ Only ‘durable’ objects, as opposed to ‘transient’ ones (e.g. musical instruments which are utilised until their economic and cultural value approaches zero), have been assigned by society a stable or increasing aesthetic, monetary or cultural value, which renders them ‘singular’.¹⁴² This, in turn, determines society’s action towards them. A musical instrument, or any other object, that has made this transition from transient to durable is often designated as ‘historic’, by application of cultural markers regarding its ownership, age, beauty, historical and monetary value and the events it ‘witnessed’.¹⁴³ A singularised musical instrument might become part of a museum collection.

A musical instrument in particular possesses the quality to induce certain responses in human beings, “beyond the confines of its own materials and disposition”.¹⁴⁴ Since it is both a sound tool and carrier of meaning, in order to understand its role and significance within our societies and cultures, we must turn our attention not only to the musical aspects, but to other facets of the socio-cultural context as well.¹⁴⁵ Either at display in a museum, or being played by musicians, musical instruments can be regarded as “part of active and potent symbol systems”.¹⁴⁶ In this respect, when reflecting upon the

¹³⁷ Harding (2016), p.7.

¹³⁸ Gosden, Marshall (1999), p.174.

¹³⁹ Harding (2016), p.8.

¹⁴⁰ Barclay (2004), p.4.

¹⁴¹ Barclay (2004), p.4.

¹⁴² Barclay (2004), p.5.

¹⁴³ Barclay (2004), p.5.

¹⁴⁴ Barclay (2004), pp.7-8.

¹⁴⁵ Kevin Dawe, ‘People, objects, meaning: recent work on the study and collection of musical instruments’, *The Galpin Society Journal*, vol. 54 (2001), pp.219-232, at p.220.

¹⁴⁶ Dawe (2001), p.221.

conservation of a British eighteenth-century cello, Egerton argues that conservators “find ways using science, historical knowledge and artistic skills to preserve and protect the things of our culture that symbolise important events, great people, great achievements, triumphs and even the failures of our civilisation”.¹⁴⁷

During its ‘career’, a musical instrument (or any other object) is first supplied in new condition, then adopted by a user, and subsequently maintained, modified, repaired and reconverted to make it meet the requirements of its extended use. During these transformations, its social, aesthetic and technical biographies take shape.¹⁴⁸ While eventually many alterations and even substitutions may have been performed to the material constitution of a historical musical instrument, or any other singular object, its symbolic impact may remain intact.¹⁴⁹

As the study of a single, forgotten human being can shed new light on the living and working environment of a particular historical period, the study of an individual, and until now neglected instrument – and its biography – can provide us with new insights, e.g. regarding the development of local traditions of instrument making, of instrument families through the centuries and of musical use, providing new contextualisation of the object as well as novel research questions.

1.5. Structure of the thesis

Chapter 2 of this thesis will present the results of the study on the life of Boussu, where a focus is directed towards the main life events (birth, marriage, death) of our protagonist and his family, their places of residence and their occupations. In Chapter 3, Boussu’s biography is further extended, by elaborating on the social, economic and juridical aspects of his existence. The next chapter contains a comprehensive analysis of all instruments identified during the currently presented study, discussing many features of their construction, materials, design and style. In Chapter 5, the violin making practices of Boussu will be addressed, based on the observations made in the previous chapters. Chapter 6 documents and discusses the making process of the replica instruments, while also providing arguments for the role of practice-led research in the field of organology. Finally, the conclusions are presented, followed by the bibliography and the appendices.

¹⁴⁷ Karen Lacroix, Chris Egerton, *The Berkswell ‘cello - Three perspectives on conservation* (DVD) (London: Royal College of Arts, 2008).

¹⁴⁸ Barclay (2004), pp.5, 8-9.

¹⁴⁹ Barclay (2004), pp.8-13.

Introduction

Some parts of this thesis are based on previous publications by the author. For inclusion in this thesis, these texts have – to a greater or lesser extent – been updated, rewritten, expanded or condensed, while minor corrections have been implemented. In order to clarify the use of previously published material, Table 1.5 provides an overview of the sections of this thesis for which earlier texts have been used.

Section(s)	Original publication(s)
1.1	Geerten Verberkmoes, 'Instrument (re-)construction as a catalyst for organological research', in Marco A. Pérez, Emanuele Marconi, ed., <i>Wooden musical instruments - Different forms of knowledge - Book of end of WoodMusICK COST Action FP1302</i> (Paris: COST/Cité de la musique - Philharmonie de Paris, 2018), pp.9-33, at p.16.
2.2-2.6	Geerten Verberkmoes, 'Benoit Joseph Boussu (1703-1773): violin maker and notary', <i>The Galpin Society Journal</i> , vol. 66 (2013), pp.117-138, 262-264, at pp.121-134.
2.6	Geerten Verberkmoes, 'Made in Amsterdam: a 1771 cittern by Benoit Joseph Boussu', <i>Early Music</i> , vol. 44, no. 4 (2016), pp.627-641, at p.630.
4.22	Geerten Verberkmoes, 'Made in Amsterdam: a 1771 cittern by Benoit Joseph Boussu', <i>Early Music</i> , vol. 44, no. 4 (2016), pp.627-641, at pp.628, 632-639.
5.2	Geerten Verberkmoes; Anne-Emmanuelle Ceulemans, Danielle Balériaux, Berend Stoel, 'An inside look at four historical violins by Brussels makers', <i>The Galpin Society Journal</i> , vol. 69 (2016), pp.109-136, 159-165, at pp.109-112.
5.3-5.4	Geerten Verberkmoes, 'Instrument (re-)construction as a catalyst for organological research', in Marco A. Pérez, Emanuele Marconi, ed., <i>Wooden musical instruments - Different forms of knowledge - Book of end of WoodMusICK COST Action FP1302</i> (Paris: COST/Cité de la musique - Philharmonie de Paris, 2018), pp.9-33, at pp.20-23, 27-28.
6.1-6.2, 6.6	Geerten Verberkmoes, 'Instrument (re-)construction as a catalyst for organological research', in Marco A. Pérez, Emanuele Marconi, ed., <i>Wooden musical instruments - Different forms of knowledge - Book of end of WoodMusICK COST Action FP1302</i> (Paris: COST/Cité de la musique - Philharmonie de Paris, 2018), pp.9-33, at pp.10-15, 23-27, 28-30.
7.1	Geerten Verberkmoes, 'Benoit Joseph Boussu (1703-1773): violin maker and notary', <i>The Galpin Society Journal</i> , vol. 66 (2013), pp.117-138, 262-264, at p.134; Geerten Verberkmoes, 'Instrument (re-)construction as a catalyst for organological research', in Marco A. Pérez, Emanuele Marconi, ed., <i>Wooden musical instruments - Different forms of knowledge - Book of end of WoodMusICK COST Action FP1302</i> (Paris: COST/Cité de la musique - Philharmonie de Paris, 2018), pp.9-33, at p.17.
7.3-7.4	Geerten Verberkmoes, 'Instrument (re-)construction as a catalyst for organological research', in Marco A. Pérez, Emanuele Marconi, ed., <i>Wooden musical instruments - Different forms of knowledge - Book of end of WoodMusICK COST Action FP1302</i> (Paris: COST/Cité de la musique - Philharmonie de Paris, 2018), pp.9-33, at pp.30-31.

Table 1.5. Overview of the sections of this thesis for which previously published texts by the same author have been used.

Chapter 1

Chapter 2

The biography of Benoit Joseph Boussu

2.1. Introduction

Benoit Joseph Boussu was active as a violin maker in the middle of the eighteenth century, and his instruments are considered to be amongst the most remarkable and finest examples produced by any eighteenth-century maker from the Low Countries. Yet, until around 2010, little had been known about him. For the currently presented study, apart from examining Boussu's instruments, archival research has also been undertaken, with the result that many new facts concerning this maker's background, personal life and career have been discovered. This chapter presents the newly found biographical information.

To summarise the identified data, Appendix I provides a diagram of the immediate family of Benoit Joseph Boussu, presented as a family tree. In Appendix II, an overview is given of the parish records concerning Boussu and his family members, identified during the current study.

2.2. Existing biographical sources

Observing his instruments gives us some clues about the personality and making approach of Benoit Joseph Boussu. The intriguing precision and refined execution of his instruments show that he was probably an accurate man, who wanted to demonstrate that he possessed the skills to make well-crafted instruments. Did he receive a formal training as an instrument maker at an early age, or was he schooled as a furniture maker, who in later life became a violin maker? Or, was he educated for an entirely different profession, and did he start violin making later in life, maybe as result of amateur musicianship? An attempt to answer some of these questions was begun by consulting the available literature. However, as will be seen, little biographical information existed prior to 2013.

Chapter 2

Vidal,¹ Stainer,² Henley,³ Von Lütgendorff,⁴ Vannes⁵ and Lindeman and Stam⁶ all write that Boussu worked between 1750 and 1780 in Brussels and/or Etterbeek (a Brussels suburb). According to Möller,⁷ Boussu worked during the period c1740-1780 in Brussels. It appears that all these authors based their information on instrument labels, or on each other's information, since no archival references are given. Kolneder⁸ reports that Boussu died in 1780, but again gives no primary source; Drescher⁹ provides no additional information on Boussu in his supplementary volume to the books by Von Lütgendorff. Kass¹⁰ states that little is known about Boussu's career, other than that he worked in Etterbeek and then in Brussels from the 1750s to the early 1760s. According to Awouters,¹¹ Boussu worked in Brussels, and known instruments are dated between 1747 and 1760. The same active period is given by Moens.¹² The information provided by Raspé¹³ again focuses on the active period, but is more extensive, and must have been largely based on his personal research in the Brussels archives. He tells us that Boussu was probably of Walloon origin, but he does not give a birth place or birth date. According to Raspé, Boussu was active in Brussels between 1747 and 1760, with a short stay in Etterbeek in 1752 and 1753. Raspé further explains that Boussu became well known and respected as a maker rather quickly, which he concludes from local contemporary publications.¹⁴

Unlike several other earlier and contemporary Brussels makers, Boussu was not employed by the Brussels court,¹⁵ so his instruments were probably not exclusively used

¹ Antoine Vidal, *La lutherie et les luthiers* (Paris: Maison Quantin, 1889), p.162.

² Cecie Stainer, *A dictionary of violin makers* (London: Novello, 1896), p.12.

³ William Henley, *Universal dictionary of violin and bow makers*, vol. 1 (Brighton: Amati Publishing, 1959), p.156.

⁴ Willibald Leo Freiherr von Lütgendorff, *Die Geigen- und Lautenmacher vom Mittelalter bis zur Gegenwart*, vol. 2 (Tutzing: Hans Schneider, 1975), p.55.

⁵ René Vannes, *Dictionnaire universel des luthiers* (Brussels: Les Amis de la Musique, 1979), p.40.

⁶ Fred Lindeman, Serge Stam, 'Well-known Dutch violin makers', in Jaap Bolink et al., ed., *400 jaar vioolbouwkunst in Nederland* (Amsterdam: NGV/Papyrus, 1999), pp.169-225, at p.179.

⁷ Max Möller, *The violin-makers of the Low Countries* (Amsterdam: Max Möller N.V., 1955), pp.18, 135.

⁸ Walter Kolneder, *The Amadeus book of the violin*, Reinhard G. Pauly, ed. and trans. (Cambridge: Amadeus Press, 2003), p.164.

⁹ Thomas Drescher, Willibald Leo Freiherr von Lütgendorff, *Die Geigen- und Lautenmacher vom Mittelalter bis zur Gegenwart*, vol. 3 (Tutzing: Hans Schneider, 1990).

¹⁰ Philip J. Kass, 'Eye, eye', *The Strad*, vol. 113, no. 1350 (2002), pp.1100-1101, at p.1100.

¹¹ Mia Awouters, 'Les instruments à cordes', in Malou Haine, Nicolas Meeùs, ed., *Instruments de musique anciens à Bruxelles et en Wallonie - 17^e-20^e siècles* (Liège/Brussels: Mardaga, 1985), pp.13-17, at p.16.

¹² Karel Moens, 'Vioolbouw in de Oostenrijkse Nederlanden', *Arca Lovaniensis*, vol. 10/b, *Jaarboek 1981* (Leuven: Depret, 1983), pp.135-156, at p.149.

¹³ Paul Raspé, 'La lutherie', in Robert Wangermée, Philippe Mercier, ed., *La musique en Wallonie et à Bruxelles*, vol. 1 (Brussels: La renaissance du livre, 1980), pp.275-284, at pp.278, 280; Paul Raspé, 'BOUSSU, Benoît-Joseph', in Malou Haine, Nicolas Meeùs, ed., *Dictionnaire des facteurs d'instruments de musique en Wallonie et à Bruxelles du 9^e siècle à nos jours* (Liège/Brussels: Mardaga, 1986), p.64, at p.64.

¹⁴ It is unknown to which local contemporary publications Raspé refers.

¹⁵ Moens (1983), pp.146-152; Malou Haine, Nicolas Meeùs, ed., *Instruments de musique anciens à Bruxelles et en Wallonie - 17^e-20^e siècles* (Liège/Brussels: Mardaga, 1985), pp.52-54; Awouters (1985), p.16.

by court musicians. Who then were Boussu's customers? Cornaz¹⁶ explains that in the mid-eighteenth century, the Brussels bourgeoisie started to play musical instruments, a pastime previously associated with the nobility. Her conclusions are based on the advertisements of various makers¹⁷ in the newspaper *Gazette de Bruxelles* and its successor *Gazette des Pays-Bas*, as well as on the announcements of property sales (which often included musical instruments) following the death of a member of a middle-class family. Thus, Boussu's customers could also have been from this social class. Indeed, the music publisher and dancing master Joseph Claude Rousselet from Brussels (d1760) was in possession of a "basse de Bossu".¹⁸ On 25 July 1780, the wine merchant Jean Baptiste van Dievoet organises a public sale of musical instruments, where, amongst others, a violin from 1752 by Boussu is offered.¹⁹ Professional players, including those associated with the court, might have used Boussu's instruments too. Further, it is known that the collegiate church of St. Gudula owned, among other bowed instruments, a violin, cello and double bass by Boussu,²⁰ which suggests that Boussu's instruments were also played by church musicians, see Figure 2.1.

Raspé reports that Boussu's workshop in Brussels was located in the area of *Notre-Dame-aux-Neiges*, in the *Rue des Epingles*.²¹ This street was located north-east inside the city walls, near the Schaerbeek gate²² (see Figure 2.2²³). Raspé further writes that Boussu was married to Anne-Marie Jugier, who gave birth to a number of children, several of the boys dying in infancy, thereby preventing the continuation of the workshop.²⁴ Remarkably,

¹⁶ Marie Cornaz, 'La vie musicale à Bruxelles entre 1741 et 1780 vue par le biais de la Gazette de Bruxelles et de la Gazette des Pays-Bas', in Roland Mortier, Hervé Hasquin, ed., *Etudes sur le XVIII^e siècle*, vol. 19: Musiques et spectacles à Bruxelles au XVIII^e siècle (Brussels: Editions de l'Université de Bruxelles, 1992), pp.39-45, at p.42.

¹⁷ Cornaz (1992), p.42. Cornaz does not specifically mention advertisements by Boussu.

¹⁸ Cornaz (1992), p.41. Rousselet's widow advertised this instrument for sale along with other instruments and household goods in 1765.

¹⁹ Jean-Philippe Van Aelbrouck, 'Annonces concernant la musique dans les gazettes et périodiques bruxellois au XVIII^e siècle (1741-1780)', *Tradition wallonne*, vol. 4 (Brussels: Ministère de la communauté française de Belgique, 1987), pp.761-799, at p.799. The original source for the information given by Van Aelbrouck is the *Gazette des Pays-Bas*, no. 57, 17 July 1780.

²⁰ Lewis Reece Baratz, 'Les œuvres de Joseph Hector Fiocco (1703-1741) dans la bibliothèque du chanoine Vanden Boom (1688-1769)', in Roland Mortier, Hervé Hasquin, ed. (1992), pp.47-77, at pp.48, 58. Baratz cites a document from the archive of the St. Gudula church (State Archives in Brussels, Forest, Belgium, Oud archief van de kapittelkerk van Sint Michiel en Sint Goedele te Brussel, inv. no. 10125), stating that church canon Vanden Boom (d1769) had donated during his lifetime to the church "[...] seven Violen waer van een van Bossù, vier Violoncellen waer van een van Bossù, twee alto violen, twee dobbel Bassen waer van eenen van Bossù [...]".

²¹ Raspé (1980), p.278; Raspé (1986), p.64. Raspé uses the French translated name '*Rue des Epingles*', but during Boussu's time this street was known by its Dutch name '*Spellekens Straet*'.

²² Jean d'Osta, *Les rues disparues de Bruxelles* (Brussels: Rossel, 1979), p.67. During the nineteenth century, the area was completely rebuilt. The old houses and small streets and alleys were demolished, new buildings and broad, straight streets came in place. Rue des Epingles was replaced by the current Rue du Gouvernement Provisoire. Boussu's house is therefore no longer present. See: ArchivIris, *Le quartier Notre-Dame-aux-Neiges / Onze-Lieve-Vrouw-ter-Sneeuwwijk*, <https://archiviris.be/fr/2019/05/05/le-quartier-notre-dame-aux-neiges-onze-lieve-vrouw-ter-sneeuwwijk/> (accessed May 2020).

²³ National Archives of Belgium, Brussels, Belgium, inv. no. BE-A0510/T582, no. 544: *Gegraveerde en gedrukte kaarten en plattegronden, Plan de la ville de Bruxelles* (Paris: Le Rouge, 1745).

²⁴ Raspé (1980), p.278.

Boussu is mentioned by Lindeman and Stam as the possible tutor of the Dutch violin maker Johannes Theodorus Cuypers and a violin attributed to Boussu labelled simply 'Leiden 176...', discovered around 1999, is used as evidence for this alleged Dutch connection.²⁵ Moreover, Raspé mentions an instrument (type not specified) with the label 'Boussu à Amsterdam 1771', although he states that he was unable to find any archival proof for attributing this instrument to the Brussels maker Benoit Joseph Boussu.²⁶

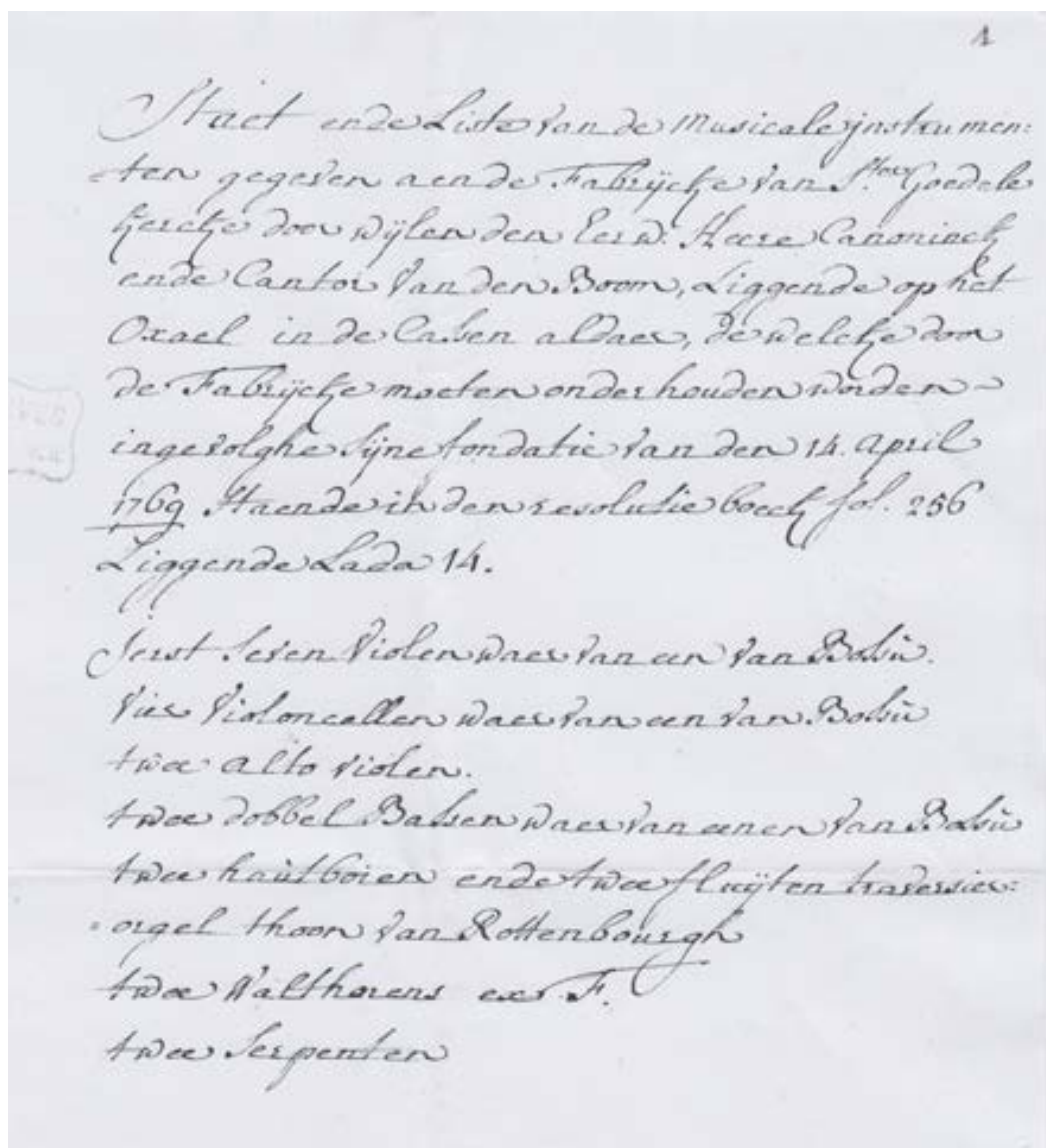


Figure 2.1. Inventory of instruments donated by canon Vanden Boom (d1769) to the collegiate church of St. Gudula (State Archives in Brussels, Forest, Belgium, Oud archief van de kapittelkerk van Sint Michiel en Sint Goedele te Brussel, inv. no. 10125).

²⁵ Lindeman, Stam (1999), p.179. It seems unlikely that Boussu was the tutor of Johannes Theodorus Cuypers, however, since Cuypers was already established as a violin maker in 1750.

²⁶ Raspé (1980), pp.278, 280; Raspé (1986), p.64.



Figure 2.2. Map of the city of Brussels in 1745, oriented towards the east (National Archives of Belgium, Brussels, Belgium, inv. no. BE-A0510/T582, no. 544: Gegraveverde en gedrukte kaarten en plattegronden, Plan de la ville de Bruxelles (Paris: Le Rouge, 1745)). *Spellekens* Street (French translation: *Rue des Epingles*) is marked 'SpSt' by the author.

2.3. Initial archival research

So, from studying the available literature, an initial picture of Boussu's life may be formed, mainly regarding his period as a violin maker. Yet other aspects of his life are not clarified by these sources. Where was he born, and where did he die? What kind of education did he receive and at what age did he start making instruments? Why was his working period so relatively short, and did Boussu really have a connection with the Northern Low Countries? In order to answer these questions, a thorough archival search was undertaken as part of this study. The first step was to search for 'Benoit Joseph Boussu' in a well-known online genealogical database.²⁷ This search returned the entry for a person named "Benoit Joseph Boussu", who, according to the online entry, was baptised on 7 (sic) April 1703 in Fourmies, a village²⁸ in the north of France, close to the

²⁷ FamilySearch, <https://www.familysearch.org/en/> (accessed May 2009).

²⁸ Des villages Cassini aux communes d'aujourd'hui, Fourmies, http://cassini.ehess.fr/cassini/fr/html/fiche.php?select_resultat=14504 (accessed January 2020). In 1793, Fourmies had 1474 inhabitants.

current French-Belgian border. A copy of the original baptism record was requested and received in 2009 from the town hall of Fourmies,²⁹ see Figure 2.3. Of course, this instant result immediately gave rise to an important question: was this Fourmies-born Benoit Joseph the same person as the violin maker Boussu? And if so, this would imply that Boussu only had started making instruments in his 40s, assuming that he started making in the late 1740s or early 1750s, as the available literature and instrument labels suggest. Was there any possibility that, at some moment during his life, this Benoit Joseph Boussu had exchanged his quiet native ground for the busy life of Brussels, 100 km north? To prove that the French Benoit Joseph Boussu was indeed the violin maker Boussu, the lifeline of this Fourmies-born Boussu had to be followed, to such extent that a connection could be made with the information provided by Raspé.³⁰

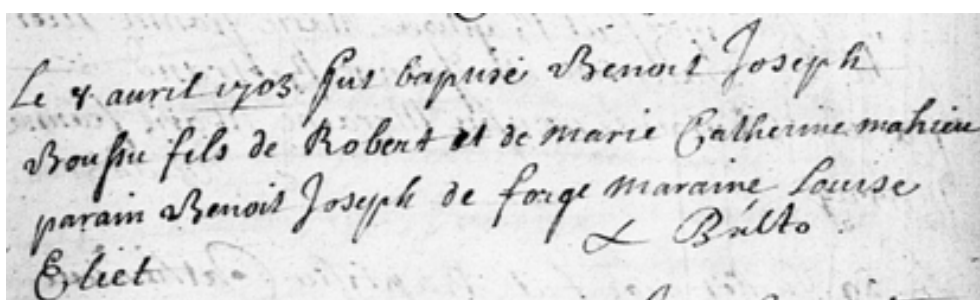


Figure 2.3. Baptism record of Benoit Joseph Boussu, Fourmies parish baptismal register, 8 April 1703 (Archives municipales, Avesnes-sur-Helpe, France).

2.4. The period 1703-1749

From searching the French Archives départementales du Nord,³¹ more specifically the parish registers of Fourmies, it became clear that the father of the Fourmies-born Benoit Joseph Boussu, Robert Boussu, was born in 1673 in Fourmies,³² and that he married Marie Catherine Mahieu in 1701.³³ In 1702, the couple's first child was born, a daughter named Marie Joseph,³⁴ followed in 1703 by Benoit Joseph,³⁵ who was baptised on 8 April (see Figure 2.3).

²⁹ Email and postal mail communication in November 2009 between the author and Ms. Céline Fauconnier of the Fourmies town hall office.

³⁰ Raspé (1980), pp.278, 280; Raspé (1986), p.64.

³¹ Archives départementales du Nord, Lille, France, <https://archivesdepartementales.lenord.fr> (accessed March 2012).

³² Archives départementales du Nord, Lille, France, inv. no. Fourmies B [1645-1695], 5 Mi 011 R 010: Fourmies parish, baptismal register, baptism record for Robert Boussu, 11 September 1673.

³³ Archives départementales du Nord, Lille, France, inv. no. Fourmies BMS [1696-1719], 5 Mi 011 R 010: Fourmies parish, marriage register, marriage record for Robert Boussu and Marie Catherine Mahieu, 12 April 1701.

³⁴ Archives départementales du Nord, Lille, France, inv. no. Fourmies BMS [1696-1719], 5 Mi 011 R 010: Fourmies parish, baptismal register, baptism record for Marie Joseph Boussu, 24 February 1702.

³⁵ Archives départementales du Nord, Lille, France, inv. no. Fourmies BMS [1696-1719], 5 Mi 011 R 010: Fourmies parish, baptismal register, baptism record for Benoit Joseph Boussu, 8 April 1703. In the baptism record, the first

Within months after the birth of Benoit Joseph, the family was disrupted by the successive deaths of mother Marie Catherine³⁶ and “*un enfant a Robert Boussu*”.³⁷ This child has to be the daughter Marie Joseph, since she is not found in later archive records, whereas Benoit Joseph is. Thus, in early 1704 the family consisted solely of father Robert and son Benoit Joseph. In 1708, the widower Robert remarried, his second wife being Anne Fontaine,³⁸ and between 1709 and 1728 at least ten children were born from this second marriage.³⁹ The family lived in the nearby village of Wignehies from 1708,⁴⁰ but moved back to Fourmies in 1714.⁴¹ In several of the baptism records, father Robert Boussu is referred to as ‘*Notaire*’, ‘*Notaire Roÿal*’ or ‘*Notaire Roÿal de la terre d’Avesnes en Haynaut*’. The French Archives départementales du Nord preserves the archive of the notary Robert Boussu,⁴² consisting of documents notarised in Fourmies between September 1701 and December 1728. In addition, Robert Boussu’s signature appears on many documents from 1684 to 1701, notarised by notary Philippe Boussu, his father.⁴³ It seems, therefore, that Robert Boussu was an apprentice in the notary office of his father, and that he initially often signed documents as a witness before practising as a notary himself. In early 1729, at the age of 56, Robert Boussu died in Wignehies.⁴⁴

Returning to the Fourmies-born Benoit Joseph Boussu, his signature (see Figure 2.4(a)) is found for the first time on a document dated 3 January 1718, notarised by his father Robert Boussu.⁴⁵ His role was as a witness and according to the document he was living in Wignehies. Thereafter, his signature regularly appears on documents notarised by his

name is written as ‘Benoit’, instead of ‘Benoît’, therefore the former spelling is used throughout this article. Furthermore, the day of baptism could either be read as ‘7’ or ‘8’. However, Boussu’s *provision d’office de notaire* from 1729 (discussed in Section 3.6) mentions “*huit avril mil sept cent trois*” as his date of baptism. See also: Archives Nationales, Paris, France, inv. no. V/1/278, pièce 286: Grande Chancellerie, Paris, lettres de provision d’office, *lettre de provision d’office de notaire* for Benoit Joseph Boussu, 30 June 1729.

³⁶ Archives départementales du Nord, Lille, France, inv. no. Fourmies BMS [1696-1719], 5 Mi 011 R 010: Fourmies parish, death register, death record for Marie Cat[h]erine Mahieu, 17 December 1703.

³⁷ Archives départementales du Nord, Lille, France, inv. no. Fourmies BMS [1696-1719], 5 Mi 011 R 010: Fourmies parish, death register, death record for ‘un enfant a Robert Boussu’, 10 February 1704.

³⁸ Archives départementales du Nord, Lille, France, inv. no. Wignehies BMS [1687-1769], 5 Mi 011 R 027: Wignehies parish, marriage register, marriage record for Robert Boussu and Anne Fontaine, 14 February 1708.

³⁹ Archives départementales du Nord, Lille, France, inv. no. Wignehies BMS [1687-1769], 5 Mi 011 R 027: Wignehies parish, baptismal register, various baptism records from 1709 until 1728.

⁴⁰ Archives départementales du Nord, Lille, France, inv. no. 2E39/65: Archives des tabellions d’Avesnes, notary T. Beviere, Avesnes-sur-Helpe, act *en minute*, sale of a house in Wignehies to Robert Boussu, 23 January 1708.

⁴¹ Archives départementales du Nord, Lille, France, inv. no. 2E39/65: Archives des tabellions d’Avesnes, notary C. Hallet, Avesnes-sur-Helpe, act *en minute*, renting of a house in Fourmies to Robert Boussu, 17 February 1714.

⁴² Archives départementales du Nord, Lille, France, inv. nos. 2E39/382/2 through 2E39/391: Archives des tabellions d’Avesnes, notary R. Boussu, Fourmies/Wignehies, acts *en minute*, September 1701 to December 1728. Each of these ten boxes contains several hundred acts *en minute*.

⁴³ Archives départementales du Nord, Lille, France, inv. nos. 2E39/372 through 2E39/382/1: Archives des tabellions d’Avesnes, notary P. Boussu, Fourmies, acts *en minute*, 1684 to 1701.

⁴⁴ Archives départementales du Nord, Lille, France, inv. no. Wignehies BMS [1687-1769], 5 Mi 011 R 027: Wignehies parish, burial register, burial record for Robert Boussu, 23 January 1729.

⁴⁵ Archives départementales du Nord, Lille, France, inv. no. 2E39/388: Archives des tabellions d’Avesnes, notary R. Boussu, Wignehies, act *en minute*, 3 January 1718.

father during the period July 1719-March 1725.⁴⁶ It seems as if he assisted his father as a witness during this period. In the following years, between March 1725 and late September 1729, the name Benoit Joseph Boussu has not been found thus far in the archives of notary Robert Boussu, nor in the parish registers of Wignehies or Fourmies or notarial archives concerning his birth area (as preserved in the Archives départementales du Nord in Lille). It appears that Benoit Joseph temporarily left the area, perhaps to receive a formal education as a notary,⁴⁷ or even to work or be trained in another profession.

From studying the notarial archives concerning Avesnes(-sur-Helpe, a small town⁴⁸ located about 20 km from Fourmies), preserved at the Archives départementales du Nord in Lille, it has become clear that Benoit Joseph Boussu started working as a notary there in September 1729,⁴⁹ after having received the royal permission to practise in June 1729.⁵⁰ A collection of acts *en minute* which he notarised in Avesnes between 5 January 1733 and 15 August 1748 is also preserved.⁵¹ Given the amount of documents notarised by Boussu (between approximately 100 and 150 per annum for the most active period 1733 through 1743), it can be assumed that his work as notary was his main professional activity.

By the end of 1732, the name of the Fourmies-born Benoit Joseph also starts to appear in the parish church registers of Avesnes. In a baptism record from November 1732, for instance, Boussu is mentioned as godfather and is said to be from the parish of Avesnes.⁵² He must have been 29 years of age at the time. On this record, we can again see his signature (see Figure 2.4(b)). It is executed more maturely now and it resembles that of his father and some other family members. Also, it is rather flamboyant and easily stands

⁴⁶ Archives départementales du Nord, Lille, France, inv. nos. 2E39/388 through 2E39/391: Archives des tabellions d'Avesnes, notary R. Boussu, Wignehies, acts *en minute*, July 1719 to March 1725. In the earliest of these documents, Benoit Joseph Boussu is referred to as 'Joseph Boussu', whereas his signature is 'B. J. Boussu'; from November 1721 onwards, he is referred to as 'Benoit Joseph Boussu'.

⁴⁷ As will be explained in Section 3.5.3, in order to work as a notary in eighteenth-century France, one was not required to study law at a university. Candidate notaries would work as a clerk in a notary office for several years, and learn the profession in a practice-based way.

⁴⁸ Des villages Cassini aux communes d'aujourd'hui, Avesnes-sur-Helpe, http://cassini.ehess.fr/cassini/fr/html/fiche.php?select_resultat=2166 (accessed January 2020). In 1793, Avesnes-sur-Helpe had 2702 inhabitants.

⁴⁹ Archives départementales du Nord, Lille, France, inv. no. 2E39/500: Archives des tabellions d'Avesnes, notary B.J. Boussu, Avesnes-sur-Helpe, *répertoire*, 30 September 1729 to 15 August 1748. From this *répertoire*, the register with an overview of all the acts he notarised, it has become clear that Boussu was active as a notary between 30 September 1729 and 15 August 1748 (for more information on *répertoires*, see Chapter 3, Section 3.1).

⁵⁰ Archives nationales, Paris, France, inv. no. V/1/278, pièce 286: Grande Chancellerie, Paris, lettres de provision d'office, *lettre de provision d'office de notaire* for Benoit Joseph Boussu, 30 June 1729.

⁵¹ Archives départementales du Nord, Lille, France, inv. nos. 2E39/80 through 2E39/87: Archives des tabellions d'Avesnes, notary B.J. Boussu, Avesnes-sur-Helpe, acts *en minute*, 5 January 1733 to 15 August 1748. Each of these eight boxes contains several hundred acts *en minute*. Acts notarised by Boussu for the period 30 September 1729 until December 1732 have not been preserved in the Archives départementales du Nord in Lille.

⁵² Archives départementales du Nord, Lille, France, inv. no. Avesnes-sur-Helpe BMS [1710-1736], 5 Mi 001 R 002: Avesnes-sur-Helpe parish, baptismal register, baptism record of Marie Joseph Benoite Frique, 9 November 1732.

out from other signatures in the register. Later in November 1732, Boussu signed an act, notarised by notary Gossuin⁵³ from Avesnes, describing a settlement between him and his stepmother Anne Fontaine, regarding the inheritance of Robert Boussu. In this document, Benoit Joseph Boussu is referred to as ‘*notaire royal*’ in Avesnes.



Figure 2.4. Two signatures of Benoit Joseph Boussu. Top to bottom: (a) signature of Benoit Joseph Boussu on a document notarised by Robert Boussu, 3 January 1718, (b) signature of Benoit Joseph Boussu, Avesnes parish baptismal register, 9 November 1732.

In further records in the register of the parish of Avesnes, Benoit Joseph Boussu is mentioned regularly from 1732 onwards. On 13 April 1733, Benoit Joseph (“*fil de Robert et de Marie Catherine Mahieu*”) married Marie Charlotte Heisne.⁵⁴ Soon after, a son named Louis Benoist Joseph was born,⁵⁵ but this child died just ten days old in February 1734.⁵⁶ On the child’s burial record (see Figure 2.5) father Benoit Joseph is again referred to as ‘*notaire*’, which confirms that he had chosen the family profession.

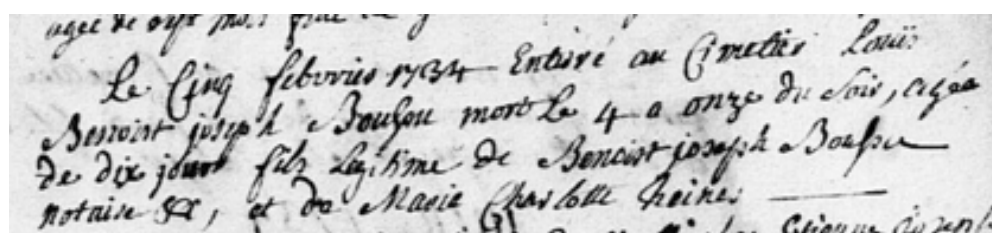


Figure 2.5. Burial record of Louis Benoist Joseph Boussu, Avesnes parish burial register, 5 February 1734.

⁵³ Archives départementales du Nord, Lille, France, inv. no. 2E39/54: Archives des tabellions d’Avesnes, notary C.L. Gossuin, Avesnes-sur-Helpe, act *en minute*, 14 November 1732.

⁵⁴ Archives départementales du Nord, Lille, France, inv. no. Avesnes-sur-Helpe BMS [1710-1736], 5 Mi 001 R 002: Avesnes-sur-Helpe parish, marriage register, marriage record for Benoit Joseph Boussu and Marie Charlotte Heisne, 13 April 1733. Since Boussu is not described as a widower in this record, it can be assumed that this was his first marriage.

⁵⁵ Archives départementales du Nord, Lille, France, inv. no. Avesnes-sur-Helpe BMS [1710-1736], 5 Mi 001 R 002: Avesnes-sur-Helpe parish, baptismal register, baptism record for Louis Benoist Joseph Boussu, 27 January 1734.

⁵⁶ Archives départementales du Nord, Lille, France, inv. no. Avesnes-sur-Helpe BMS [1710-1736], 5 Mi 001 R 002: Avesnes-sur-Helpe parish, burial register, burial record for Louis Benoist Joseph Boussu, 5 February 1734.

The birth of several other children followed: daughter Marie Gabriel Joseph⁵⁷ (1735), son Louis Joseph Constantin⁵⁸ (1736, probably died at an early age), daughter Marie Catherine⁵⁹ (1738, died at the age of two days⁶⁰), son Pierre Antoine⁶¹ (1739, on this occasion the father is referred to as “*notaire au baillage d’Avesnes*”), daughter Françoise Louise⁶² (1741) and son Jean François Joseph Marie⁶³ (baptised on 15 August 1742). Judging from several parish register records from the early 1740s, the Fourmies-born Benoit Joseph Boussu was by now a respected member of the community, since he is referred to as ‘*M^{tre}*’ or ‘*sieur*’. However, during this flourishing of his professional career, his personal life became very difficult. Soon after having given birth to their son Jean François Joseph Marie, Benoit Joseph’s wife died at the age of 39, and was buried on 26 August 1742.⁶⁴ In the burial record, Benoit Joseph Boussu’s profession is recorded as “*notaire & procureur au baillage roial d’Avesnes*”. Boussu, responsible for several young children, became a widower at the age of 39.

Two years later, in 1744, a remarkable event is recorded in the baptismal register of the parish of Avesnes: the baptism on 19 June 1744 of a child named Jean Baptiste Louis.⁶⁵ The record states that the mother’s name was Marie Anne Jugier, and refers to the father in the following terms: “[...] *la mere marie anne jugier a déclaré dans les douleurs de l’enfantement etre de benoit joseph bossüe [...]*”. Just below the baptism entry is written: “*Legitimé par le mariage en datte du onze juillet 1744*”. This record is remarkable for two reasons: firstly, because the child was born out of wedlock; and secondly, because the name of the mother is recorded as ‘Marie Anne Jugier’. This is very similar to the name ‘Anne-Marie Jugier’ given by Raspé⁶⁶ for the wife of the violin maker Boussu from Brussels, thus providing direct evidence that the Fourmies-born Benoit Joseph Boussu was indeed the violin maker

⁵⁷ Archives départementales du Nord, Lille, France, inv. no. Avesnes-sur-Helpe BMS [1710-1736], 5 Mi 001 R 002: Avesnes-sur-Helpe parish, baptismal register, baptism record for Marie Gabriel Joseph Boussu, 5 June 1735.

⁵⁸ Archives départementales du Nord, Lille, France, inv. no. Avesnes-sur-Helpe BMS [1710-1736], 5 Mi 001 R 002: Avesnes-sur-Helpe parish, baptismal register, baptism record for Louis Joseph Constantin Boussu, 22 November 1736.

⁵⁹ Archives départementales du Nord, Lille, France, inv. no. Avesnes-sur-Helpe BMS [1737-1745], 5 Mi 001 R 003: Avesnes-sur-Helpe parish, baptismal register, baptism record for Marie Catherine Boussu, 7 March 1738.

⁶⁰ Archives départementales du Nord, Lille, France, inv. no. Avesnes-sur-Helpe BMS [1737-1745], 5 Mi 001 R 003: Avesnes-sur-Helpe parish, burial register, burial record for Marie Catherine Bo[u]ssu, 10 March 1738.

⁶¹ Archives départementales du Nord, Lille, France, inv. no. Avesnes-sur-Helpe BMS [1737-1745], 5 Mi 001 R 003: Avesnes-sur-Helpe parish, baptismal register, baptism record for Pierre Antoine Bo[u]ssu, 5 March 1739.

⁶² Archives départementales du Nord, Lille, France, inv. no. Avesnes-sur-Helpe BMS [1737-1745], 5 Mi 001 R 003: Avesnes-sur-Helpe parish, baptismal register, baptism record for Françoise Louise Bo[u]ssu, 18 January 1741.

⁶³ Archives départementales du Nord, Lille, France, inv. no. Avesnes-sur-Helpe BMS [1737-1745], 5 Mi 001 R 003: Avesnes-sur-Helpe parish, baptismal register, baptism record for Jean François Joseph Marie Boussu, 15 August 1742.

⁶⁴ Archives départementales du Nord, Lille, France, inv. no. Avesnes-sur-Helpe BMS [1737-1745], 5 Mi 001 R 003: Avesnes-sur-Helpe parish, burial register, burial record for Marie Caroline Haine [Heisne], 26 August 1742.

⁶⁵ Archives départementales du Nord, Lille, France, inv. no. Avesnes-sur-Helpe BMS [1737-1745], 5 Mi 001 R 003: Avesnes-sur-Helpe parish, baptismal register, baptism record for Jean Baptiste Louis, son of Marie Anne Jugier, 19 June 1744.

⁶⁶ Raspé (1980), p.278.

B. J. Boussu, who in his later life worked in Brussels. The marriage between Benoit Joseph Boussu (“agé de 41 ans[,] fils de robert et de marie catherine mahieu, morts, veuve de D^{elle} marie caroline hayne”) and Marie Anne Jugier (“ageé de 25 ans[,] fille de philippe mort et de gillette haudry”) was registered on 11 July 1744,⁶⁷ the same date as that given in the amendment to the baptism record of their son Jean Baptiste Louis. Interestingly, one of the witnesses at the marriage, as well as being godfather to the newborn child, was Louis Joseph Heisne, who seems to have been related to Boussu’s first wife Marie Charlotte Heisne;⁶⁸ his presence may indicate his family’s approval of the second marriage. Figure 2.6 shows the marriage record of Benoit Joseph Boussu and Marie Anne Jugier.

Le onze juillet apres la publication de trois bans
faite en cette paroisse le 24. 25 et 27 juin ont
esté par nous mariés et ont recus la benediction
nuptiale apres que nous auons eue pris leurs
consentement mutuel par eux et par Benoit Joseph
Boussu agé de 41 ans fil de robert et de
marie catherine mahieu, morts, veuve de
delle marie caroline hayne, et marie anne
jugier agé de 25 ans fille de philippe
mort et de gillette haudry. tous deux conjoints
de cette paroisse temoins mariés Louise
jugier magdelaine jugier sœurs de la
conjointe Louis joseph hayne cousin du
conjoint george carten qui ont été signés
B. Boussu Marie anne jugier
Cousin L. J. Heisne
marie louise jugier
magdeline jugier Notoulaux

Figure 2.6. Marriage record of Benoit Joseph Boussu and Marie Anne Jugier, Avesnes parish marriage register, 11 July 1744.

⁶⁷ Archives départementales du Nord, Lille, France, inv. no. Avesnes-sur-Helpe BMS [1737-1745], 5 Mi 001 R 003: Avesnes-sur-Helpe parish, marriage register, marriage record for Benoit Joseph Boussu and Marie Anne Jugier, 11 July 1744.

⁶⁸ Louis Joseph Heisne is called ‘cousin’ to Boussu in the marriage record of 1744. He was also godfather to one of the children, Françoise Louise, from the first marriage. See: Archives départementales du Nord, Lille, France, inv. no. Avesnes-sur-Helpe BMS [1737-1745], 5 Mi 001 R 003: Avesnes-sur-Helpe parish, baptismal register, baptism record for Françoise Louise Bo[u]ssu, 18 January 1741. Furthermore, Heisne often co-signed documents notarised by Benoit Joseph Boussu, indicating that he was also a colleague.

Two more sons were born in Avesnes from this second marriage: Alexandre⁶⁹ (1745) and Benoit Joseph⁷⁰ (1747, probably died at an early age). In the years following 1748, no further entries for the Boussu family are found in the parish registers of Avesnes. Also, the last preserved document notarised by Boussu at his Avesnes office is dated 15 August 1748,⁷¹ while one day later, Boussu transfers his notarial licence, as is evidenced by an act drafted by fellow notary De Renly.⁷²

It would appear, therefore, that the Boussu family left Avesnes in 1748, which closely equates with Raspé's date of 1747 for the start of Boussu's Brussels period.⁷³ However, although it is likely that the Boussu family left Avesnes soon after mid-October 1748,⁷⁴ they might not have moved directly to the Brussels area, but to Liège first. Indeed, a Boussu cello, now in private hands, bears the label 'Boussu, a / Liege, 1749' (see Figure 2.7). Importantly, this cello label looks very similar, both in handwriting as well as in appearance, to the label of a violin from 1750 preserved at the Musical Instruments Museum (MIM) in Brussels (inv. no. 2781, see Figure 4.1(b)). Moreover, a son of Benoit Joseph Boussu and Marie Anne Jugier, named Henri Joseph Boussu, was baptised in Liège in May 1749⁷⁵ (see Figure 2.8). The presence of the family in Liège is further confirmed by a notary act from November 1749,⁷⁶ in which Boussu is described as "Maitre Luthier demeurant presentement en la ville de Liege".

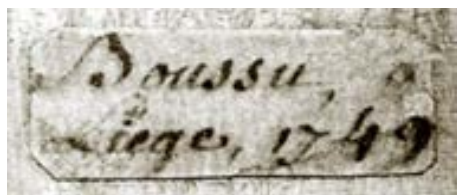


Figure 2.7. Cello label 'Boussu, a / Liege, 1749'. Photo courtesy of C. Strouken.

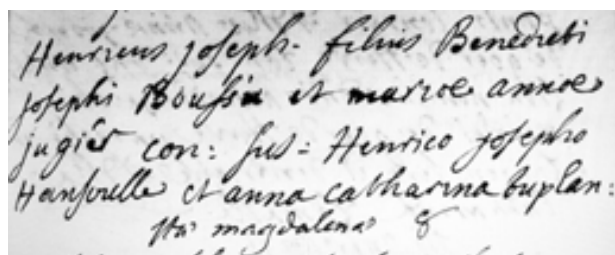


Figure 2.8. Baptism record of Henricus Joseph (Henri Joseph) Boussu, baptismal register of parish Notre-Dame-aux-Fonts, Liège, 8 May 1749.

⁶⁹ Archives départementales du Nord, Lille, France, inv. no. Avesnes-sur-Helpe BMS [1737-1745], 5 Mi 001 R 003: Avesnes-sur-Helpe parish, baptismal register, baptism record for Alexandre Boussu, 13 July 1745.

⁷⁰ Archives départementales du Nord, Lille, France, inv. no. Avesnes-sur-Helpe BMS [1746-1766], 5 Mi 001 R 004: Avesnes-sur-Helpe parish, baptismal register, baptism record for Benoit Joseph Boussu, 30 September 1747.

⁷¹ Archives départementales du Nord, Lille, France, inv. no. 2E39/87: Archives des tabellions d'Avesnes, notary B.J. Joseph Boussu, Avesnes-sur-Helpe, act *en minute*, 15 August 1748.

⁷² Archives départementales du Nord, Lille, France, inv. no. 2E39/93: Archives des tabellions d'Avesnes, notary H.L. de Renly, Avesnes-sur-Helpe, act *en minute*, 16 August 1748.

⁷³ Raspé (1980), p.278; Raspé (1986), p.64.

⁷⁴ Archives départementales du Nord, Lille, France, inv. no. 2E39/502: Archives des tabellions d'Avesnes, notary T.J. Lebeau, Avesnes-sur-Helpe, *répertoire*, 31 October 1736 to 8 October 1771. In this *répertoire*, an act, dated 16 October 1748, concerning a sale of two annuities by Boussu is registered. Boussu is mentioned as "not[ai]r^e à Avesnes".

⁷⁵ State Archives of Belgium, Belgium, inv. no. BE-A0523_712045_712433_FRE, 0500_000_01014_000_0_0037: Notre-Dame-aux-Fonts parish, Liège, baptismal register, baptism record for Henri Joseph Boussu, 8 May 1749.

⁷⁶ Archives départementales du Nord, Lille, France, inv. no. 2E39/121: Archives des tabellions d'Avesnes, notary T. Lebeau, Avesnes-sur-Helpe, act *en minute*, 12 November 1749.

What was the reason for Boussu's leaving from Avesnes? Was his reputation damaged by the birth of an illegitimate child? Or did he consider the opportunity of working as a notary in Liège or Brussels? The reasons for Boussu's departure remain unclear, but within a couple of years of leaving Avesnes he had changed profession from notary to musical instrument maker, a radical career switch by eighteenth-century standards. From the dating and numbering of known instruments from 1751 to 1753 (see Section 4.5), it can be concluded that violin making had become a full-time occupation by the early 1750s.

2.5. Life in Etterbeek and Brussels

The family's stay in Liège must have been short, since a newborn son Benoit Joseph was baptised on 1 February 1751 in Etterbeek, a suburb of Brussels.⁷⁷ Then, from the label and internal inscription in a violin from the collection of the Musical Instruments Museum in Brussels,⁷⁸ it may be concluded that Boussu and his family lived in Etterbeek until at least February 1753.⁷⁹ From the internal inscription of another violin in the same collection,⁸⁰ it would appear that by June 1753, they were living within the city walls of Brussels. The short stay in Etterbeek may have been related to guild (Dutch: '*ambacht*' or '*gilde*', French: '*métier*') regulations,⁸¹ since Boussu, a recent immigrant, is unlikely to have been allowed to work as violin maker within Brussels immediately. Indeed, it is noteworthy that he only started using the title '*Maitre Luthier*' or '*Me. Luthier*' on his labels after he moved from Etterbeek to Brussels in 1753. Furthermore, the Brussels labels are printed, instead of handwritten, suggesting a more professional approach. On the other hand, a search of the Brussels books of the '*Stoeldreijers*' ('turners of chairs'), the guild for Brussels instrument makers,⁸² available for the period 1758 until 1795, has not yielded any record of the name

⁷⁷ State Archives of Belgium, Belgium, inv. no. BE-A0541_006325_006218_FRE, 0316_000_00194_000_0_0052_r: St. Gertrude parish Etterbeek, baptismal register, baptism record for Benedictus Josephus Bo[u]ssu, 1 February 1751.

⁷⁸ Musical Instruments Museum, Brussels, Belgium, inv. no. 2783: violin by Benoit Joseph Boussu, 1753. This violin carries a label with the text: 'B.J. Boussu, a Etterbeecke / contre Bruxelles Le 11 fevrier / 1753. no. 37.'

⁷⁹ Musical Instruments Museum, Brussels, Belgium, inv. no. 2785: violin by Benoit Joseph Boussu, 1751. This violin contains the internal inscription: 'Boussu, a / Bruxell... / 1751.', which suggests that the family lived in Brussels in 1751, rather than Etterbeek. However, assuming the internal inscription is authentic, it is likely that Boussu made the instrument in Etterbeek in 1751, but signed it as being made in Brussels. Other instruments made in Etterbeek have '*Bruxelles*' added to their label or internal text.

⁸⁰ Musical Instruments Museum, Brussels, Belgium, inv. no. 2784: violin by Benoit Joseph Boussu, 1753. This violin contains the internal inscription: 'B.J. Boussu , a / Bruxelles , Le 5. juin / 1753.'

⁸¹ According to Heyde, "Commercial law referred to the cities, while the villages usually stood outside this jurisdiction. This made the countryside attractive to both makers and entrepreneurs". See: Herbert Heyde, 'Entrepreneurship in pre-industrial instrument making', in Boje E. Hans Schmuhl, Monika Lustig, ed., *Musikalische Aufführungspraxis in nationalen Dialogen des 16. Jahrhunderts - Teil 2: Musikinstrumentenbau-Zentren im 16. Jahrhundert* (Michaelsteiner Konferenzberichte, vol. 72, no. 2) (Augsburg: Michaelstein, 2007), pp.25-63, at. p.28.

⁸² Haine, Meeùs, ed. (1985), p.52.

‘Boussu’.⁸³ Possibly, Boussu was member of another guild, but this seems unlikely since other instrument makers were members of the ‘*Stoeldreijers*’. Under the category of instrument makers, his name isn’t included either in the Brussels almanac *Le Guide Fidèle* for the years 1758 to 1765,⁸⁴ whereas other makers like Snoeck and Rottenburgh are.

Further research in the Brussels archives was undertaken to complement the work of Raspé.⁸⁵ In the Brussels census of 1755,⁸⁶ under the entry ‘*Spellekens Straetien*’ (French translation: *Rue des Epingles*), the Boussu family is found under the category of ‘*Vremdelingen*’ (foreigners). This categorisation is a further indication that Boussu was not a member of a guild, since guild membership was often connected to citizenship. The family is said to consist of “Benoit Bossú”, “*Violmaecker*” (violin maker) from “*Avaine*” (Avesnes), his wife and nine children, aged between two and 18 years⁸⁷ (see Figure 2.9). Their house is registered as no. 201 in the *Ossendael* section (section no. 34),⁸⁸ a few houses away from the “*Engels Clooster*” (English cloister). Figure 2.10(a) shows a detail of a Brussels map from 1748,⁸⁹ in which the location of the house is indicated.⁹⁰ The illustration further gives an impression of the neighbourhood, which included many vegetable gardens and orchards.⁹¹ From the professions of the other people nearby, as registered in the 1755 census, it appears that this was an area for those of limited income. In the second half of

⁸³ State Archives in Brussels, Forest, Belgium, inv. no. 1758-1795, no. 987: Comptes du métier, tourneurs de chaises. While Boussu is not registered, ‘Snoek’ (until 1761), two persons named ‘Rottenbourg’ (until 1794, sometimes as ‘*Instrumentmaker*’) and ‘Michiels’ (sometimes as ‘*Instrumentmaker*’) are recorded in the guild’s annual membership registers.

⁸⁴ Almanach nouveau [...] ou le guide fidèle, tant des étrangers que domiciliés dans la ville de Bruxelles (Brussels: J. Moris, editions 1758-1765).

⁸⁵ Raspé (1980), pp.278, 280; Raspé (1986), p.64. Personal email communication between the author and Mr. Raspé in May 2012 did not result in an exchange of information. Mr. Raspé has indicated that his research notes on Boussu were lost in a home accident.

⁸⁶ State Archives in Brussels, Forest, Belgium, inv. no. BE-A0541/T 25, carton 410: Staten van Brabant, Brussels census of 1755.

⁸⁷ The information given concerning the ages of the children implies that the daughter Marie Gabriel(le), who should have been about 20 years old at the time of the census, was no longer living with her parents. Alternatively, her age was not registered correctly during the census. Further, it can be concluded that not all of Boussu’s children, more specifically the youngest (two-year old) child, have been identified during the current study.

⁸⁸ In the eighteenth century, the city of Brussels was divided into 40 sections and houses were numbered in a continuous sequence within one section.

⁸⁹ City Archives of Brussels, Brussels, Belgium, section Kaarten, map no. 25: Plan de la ville de Bruxelles - Bruxella nobilissima Brabantiae civitas. Restauratum AN° 1748 (Martin de Taily, reissue of 1748). Although this map was originally published in 1640, and only slightly revised for the reissue of 1748, the number and pattern of houses depicted for this specific section of the *Spellekens* Street appears to represent the mid-eighteenth-century situation. This is confirmed by a depiction of the same area by Ferraris (1777), see: <https://www.kbr.be/en/the-ferraris-map/>

⁹⁰ The location of house no. 201 is derived from information on another Brussels map from c1776, which depicts the house lots with their numbers. City Archives of Brussels, Brussels, Belgium, section Kaarten: Plan parcellaire manuscrit de Bruxelles, avec indication des rues, des quartiers, des numéros des parcelles et correspondant aux wijckboeken (c1776), plan de Bruxelles grand format no.1. Although this manuscript map shows more houses in the surroundings of the *Spellekens* Street than the 1748 map, especially along the road close to the city walls, it is believed that the 1748 map gives a good impression of the neighbourhood at the time Boussu lived there.

⁹¹ Alexandre Henne, Alphonse Wauters, Histoire de la ville de Bruxelles, vol. 4 (Brussels: Editions Culture et Civilisation, 1975), p.196.

the nineteenth century, this neighbourhood of Brussels has been completely renovated.⁹² Old houses have been demolished and new streets and buildings were constructed. The house where Boussu lived therefore no longer exists.

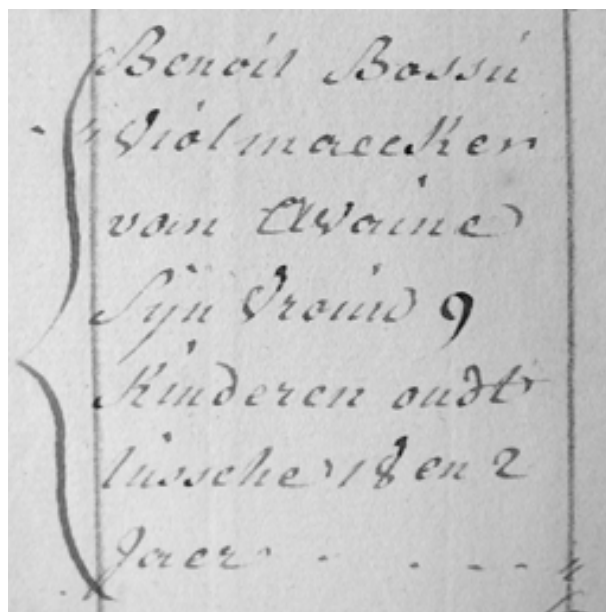


Figure 2.9. Registration of the Boussu family in the 1755 Brussels census.

Baptism records for two more children of Boussu and Marie Anne Jugier have been identified: a daughter Jeanne Catherine⁹³ (1756) and a son Jean Baptiste⁹⁴ (1758). Burial records for three Boussu children were also found in the register of the Brussels St. Gudula cemetery: Jeanne Catherine died in 1758, registered as 10 months old,⁹⁵ Louis Jean Baptiste died in 1759 at the age of 14,⁹⁶ and Jean Baptiste died in May 1760 at the age of one.⁹⁷ Moreover, we now know that Boussu's second wife Marie Anne Jugier was buried in St.

⁹² Christian Vandermortten, 'Het stedelijk weefsel in de tweede helft van de 19e eeuw', in Claire Billen, Jean-Marie Duvosquel, ed., *Steden in Europa - Brussel* (Antwerp: Mercatorfonds, 2000), pp.156-157, at pp.156-157.

⁹³ State Archives of Belgium, Belgium, inv. no. BE-A0541_006325_006218_FRE, 9998_998_00112_000_0_0220_r: St. Michael and St. Gudula parish Brussels, baptismal register, baptism record for Joanna Catharina Bo[u]ssu, 29 January 1756.

⁹⁴ State Archives of Belgium, Belgium, inv. no. BE-A0541_006325_006218_FRE, 0316_000_00019_000_A_0017_r and 9998_998_00113_000_0_0001_r: St. Michael and St. Gudula parish Brussels, baptismal register, baptism record for Joannes Baptista Boussu, 10 December 1758.

⁹⁵ State Archives of Belgium, Belgium, inv. no. BE-A0541_006325_006218_FRE, 9998_998_00167_000_0_0020_r: St. Gudula cemetery Brussels, burial register, burial record for Jeanne Catherinne Boussu, 28 February 1758. Her real age should have been two years, assuming she was the Jeanne Catherine baptised on 29 January 1756.

⁹⁶ State Archives of Belgium, Belgium, inv. no. BE-A0541_006325_006218_FRE, 9998_998_00168_000_0_0001_r: St. Gudula cemetery Brussels, burial register, burial record for Louis Jean Baptiste Boussu, 29 April 1759. While the burial record states that Louis Jean Baptiste was 12 years of age, since he was born on 19 June 1744, he was actually 14 years old.

⁹⁷ State Archives of Belgium, Belgium, inv. no. BE-A0541_006325_006218_FRE, 9998_998_00168_000_0_0001_r: St. Gudula cemetery Brussels, burial register, burial record for Jean Baptiste Boussu, 16 May 1760.

Gudula's cemetery in September 1759⁹⁸ (see Figure 2.11). No profession for Benoit Joseph Boussu is given in these four burial records, whereas professions, at least for master craftsmen, are generally included for records in the same register. This might suggest that around 1760 Boussu was already less active as a violin maker or had given up the profession entirely. In the four burial records, the address for the Boussu family is stated as "*Spellekens Straete*" or "*Spellekens Straetien*".



Figure 2.10. The area of the *Spellekens* Street. Top to bottom: (a) as depicted on a Brussels map of 1748, detail. Boussu's house, no. 201, is indicated by the author; the collegiate church of St. Gudula is clearly shown on the right and the city walls are visible on the left, (b) as depicted on a manuscript map from c1776, which displays the house lots with their numbers (see footnote 90).

⁹⁸ State Archives of Belgium, Belgium, inv. no. BE-A0541_006325_006218_FRE, 9998_998_00168_000_0_0001_r: St. Gudula cemetery Brussels, burial register, burial record for Marie Anne Jugier, 18 September 1759.

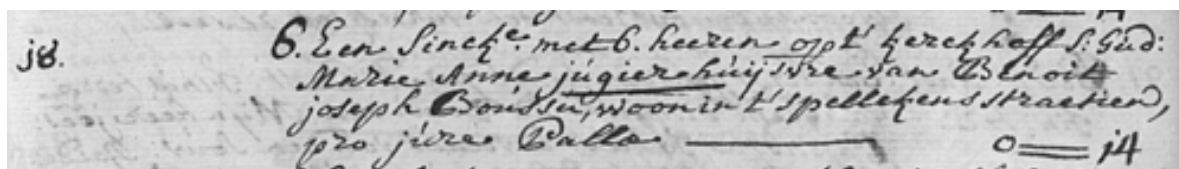


Figure 2.11. Burial record of Marie Anne Jugier, burial register of the cemetery of St. Gudula, Brussels, 18 September 1759.

Perhaps the deaths of his second wife and three of his children between 1758 and 1760 made him give up his profession and persuaded him to leave Brussels. The last evidence for Boussu's residence in Brussels is a testament from November 1762, which still describes him as "*cÿ devant notaire audit baillage [...] maitre et marchand luthier demeurant a Bruxelles*".⁹⁹ When Pierre Antoine, the eldest surviving son of Boussu and his first wife, married in Brussels on 14 January 1764, neither the violin maker nor any other family members were among the witnesses,¹⁰⁰ which suggests that the Boussu family (except the eldest son) had already left Brussels by early 1764. In the Brussels census of 1767 only one person named Bo(u)ssu is mentioned: Petrus Bossu. This must be Pierre Antoine.¹⁰¹ From this information, it can be concluded that Benoit Joseph Boussu was no longer living in Brussels at that time.

2.6. A Dutch connection

For the years 1763 and 1764, no single piece of evidence has been found that can reveal the place of residence of the violin maker, not in the form of archive documents, nor as musical instruments. A violin, carrying the internal written inscription '1765' and the branding mark 'BOUSSU' has been identified (see Section 4.2 and Appendix V, database code BJB6501vn), although this instrument does not provide any information regarding its place of production.

A possible connection of Boussu with the Northern Netherlands has previously been suggested as a result of two instruments ascribed to him which carry the labels 'Leiden

⁹⁹ Archives départementales du Nord, Lille, France, inv. no. 2E80/107: Archives des tabellions d'Avesnes, notary T. Lebeau, Avesnes-sur-Helpe, act *en minute*, 20 November 1762. This is the only identified document that states both Boussu's first and second profession.

¹⁰⁰ State Archives of Belgium, Belgium, inv. no. BE-A0541_006325_006218_FRE, 9998_998_00479_000_0_0001_r: St. Nicolas parish Brussels, marriage register, marriage record for Petrus Antonius Bossu and Maria Magdalena Josepha Jonniau, 14 January 1764.

¹⁰¹ City Archives of Brussels, Brussels, Belgium, Table 80: Albert Mehauden, Michel Vanwelkenhuyzen, *La ville de Bruxelles - Ses habitants, leurs métiers et leurs adresses vers 1767*, 2nd edition (Brussels: Archives de la ville de Bruxelles, 2008), p.256; City Archives of Brussels, Brussels, Belgium, historical archive, register 1042. Petrus (Pierre) Bo[u]ssu's age is not given in the census register but his profession is stated as "*silversmidtsgast*" (journeyman silversmith) and his address is given as "*Rose Stratien*".

176...¹⁰² and ‘Boussu à Amsterdam 1771’.¹⁰³ In the currently presented study, archive documents providing evidence for Boussu’s presence in Holland in the late 1760s and early 1770s have been identified. Before these will be discussed, first some light will be shed on the destination of his children.

Of the fifteen children that were born from Boussu’s two marriages, only six outlived their father. A property division act of April 1774¹⁰⁴ mentions the names of four heirs, all children of the first marriage: Pierre Antoine, (Jean) François Joseph, (Marie) Gabrielle and Françoise. The two sons became silversmiths, the first one in Brussels and the second one in Paris (in another notarial act,¹⁰⁵ they are described as respectively “*joualier, demeurant a Bruxelles*” and “*jouallier, demeurant a Paris*”). As said above, a marriage act for Pierre Antoine has been found in the marriage register of the St. Nicolas parish in Brussels, dated 14 January 1764.¹⁰⁶ Neither his father nor any other family members were among the witnesses for this registration, which suggests that only Pierre Antoine was still living in Brussels at the moment of the marriage, the rest of the family presumably had left the city. Pierre Antoine Boussu died in Brussels in May 1811.¹⁰⁷ Son François can be followed until October 1786, when he is mentioned (as alive) in two legal documents.¹⁰⁸ For the years thereafter, so far no documents concerning him have been found, neither in the Archives départementales du Nord in Lille, nor in the city archives of Paris.

As for the girls, the Amsterdam ‘*pui*’ register for intended marriages contains two marriage banns, both for 19 April 1771, concerning Marie Gabriel and Françoise Boussu (see Figure 2.12).¹⁰⁹ The sisters are described as being 34 and 30 years of age, from “*Aven*”,

¹⁰² Lindeman, Stam (1999), p.179. The author has tracked down an alleged Boussu violin labelled ‘Leiden 176...’ but has not been able to examine it, since it was sold to an Asian organisation around 2010 (personal communication with the former owner). This instrument was possibly identified during a later stage of the current study, see Appendix V, database code BJB6501vn.

¹⁰³ Raspé (1980), pp.278, 280; Raspé (1986), p.64. This instrument was most likely identified during a later stage of the current study, see Appendix V, database code BJB7101ci.

¹⁰⁴ Archives départementales du Nord, Lille, France, inv. no. 2E39/107: Archives des tabellions d’Avesnes, notary N. Prissette, Avesnes-sur-Helpe, act *en minute*, 19 April 1774.

¹⁰⁵ Archives départementales du Nord, Lille, France, inv. no. 2E39/210: Archives des tabellions d’Avesnes, notary A. Lebeau, Avesnes-sur-Helpe, act *en minute*, 11 November 1773.

¹⁰⁶ State Archives of Belgium, Belgium, inv. no. BE-A0541_006325_006218_FRE, 9998_998_00479_000_0_0001_r: St. Nicolas parish Brussels, marriage register, marriage record for Petrus Antonius Bo[u]ssu and Maria Magdalena Josepha Jonniau, 14 January 1764.

¹⁰⁷ State Archives of Belgium, Belgium, inv. no. 3358, 0_0004: Municipality of Brussels, civil status registers Brussels, death record for Pierre Antoine Boussu, 10 May 1811.

¹⁰⁸ Amsterdam City Archives, Amsterdam, The Netherlands, inv. no. 5075/16531: Notarissen ter standplaats Amsterdam, notary P. Fraissinet jr., Amsterdam, act *en minute*, 5 October 1786; Archives départementales du Nord, Lille, France, inv. no. 11B/232: Fonds du Bailliage royal d’Avesnes, registre d’embrefs Avesnes, *embref*, 16 October 1786.

¹⁰⁹ Amsterdam City Archives, Amsterdam, The Netherlands, inv. no. 5001, 746: Archive of civil status, register of intended marriages ‘*pui*’ Amsterdam, registration of marriage banns for the intended marriage of “Marie Gabriel Boussu” and “Joannes Roseau”; Amsterdam City Archives, Amsterdam, The Netherlands, inv. no. 5001, 746: Archive of civil status, register of intended marriages ‘*pui*’ Amsterdam, registration of marriage banns for the intended marriage of “Francoise Boussu” and “Jean Babtist Tetar”, 19 April 1771.

but at the time of marriage living in Amsterdam, “*Peylsteeg*” and “*Prinsegragt*” respectively. The grooms were “Joannes Roseau” (Jean Rousseau, a gun maker from Liège) and “Jean Babtist Tetar” (a cobbler or shoemaker from Rouchelle).¹¹⁰ Most interestingly, both sisters were bringing their father, “Benois(t) Joseph Boussú”, as witness. The records for the actual marriages were identified as well; these two ceremonies took place again on the same day, 5 May 1771, in the French Roman Catholic *Fransche Kapel* (French chapel) in Amsterdam. And again, father Benoit Joseph was present as witness (see Figure 2.13).¹¹¹ Interestingly, the baptismal register of the *Fransche Kapel* contains an entry on 24 June 1770 for the baptism of one Marie Jeanne Piront, which includes the name of “Marie Joseph Gabriel Bossu” as a godmother.¹¹² Moreover, Marie (Joseph) Gabriel is further recorded in several baptism records of the French chapel as late as 1787, as either mother or godmother,¹¹³ and she is known to have died in Amsterdam in 1795.¹¹⁴ Her sister Françoise Louise is mentioned in Amsterdam baptismal records up to 1810, also as mother and godmother.¹¹⁵ She died in Amsterdam in 1821.¹¹⁶ It seems that the two sisters permanently lived in Amsterdam from at least 1770 until they passed away. From the early 1770s onwards, several other persons named Boussu (or Bossu) are also recorded in various Amsterdam civil registers on a regular basis.

Only three children of Boussu’s second marriage were still alive in 1762, as evidenced by his testament from 20 November of that year.¹¹⁷ Although these three children are not mentioned by name in the testament, sons Alexandre, Joseph and Benoit are implied, since at that moment they were the only three surviving descendants from the second marriage.

¹¹⁰ Amsterdam City Archives, Amsterdam, The Netherlands, inv. no. 5033, 29: Archive of the Burgemeesters, Generael Poorterboek No. 26 (1773-1777). Rousseau is registered as a gunsmith on 28 February 1775 and Tetar is registered as a cobbler or shoemaker on 24 May 1774.

¹¹¹ Amsterdam City Archives, Amsterdam, The Netherlands, inv. no. 5001, 334: Archive of civil status, register of Fransche Kapel Amsterdam, registration of religious marriage of Marie Gabriele Boussu and Jean Rousseau, registration of religious marriage of Françoise Boussu and Jean Batiste Tetar, 5 May 1771.

¹¹² Amsterdam City Archives, Amsterdam, The Netherlands, inv. no. 5001, 334: Archive of civil status, register of Fransche Kapel Amsterdam, baptism record for Marie Jeanne Piront, 24 June 1770.

¹¹³ Amsterdam City Archives, Amsterdam, The Netherlands, inv. no. 5001, 334: Archive of civil status, register of Fransche Kapel Amsterdam, baptism records.

¹¹⁴ Amsterdam City Archives, Amsterdam, The Netherlands, inv. no. 5001, 1060: Archive of civil status, register of Nieuwe Kerk and Engelse Kerk cemetery Amsterdam, burial record for Marie Joseph Gabriel Broussu [sic], wife of Jean Rousseau, 2 April 1795.

¹¹⁵ Amsterdam City Archives, Amsterdam, The Netherlands, inv. no. 5001, 334: Archive of civil status, register of Fransche Kapel Amsterdam, baptism records; Amsterdam City Archives, Amsterdam, The Netherlands, inv. no. 5001, 353: Archive of civil status, register of church Het Haantje Amsterdam, baptism records.

¹¹⁶ Amsterdam City Archives, Amsterdam, The Netherlands, inv. no. 5009, 3215: Archive of civil status, civil registry, death registrations, death record for Marie Françoise Bousu [sic], 12 March 1821. Marie Françoise Bousu [sic], born in “*Aveijné in Frankrijk*” (Avesnes in France) and widow of “Jean Baptist Tettar”, died on 9 March 1821.

¹¹⁷ Archives départementales du Nord, Lille, France, inv. no. 2E80/107: Archives des tabellions d’Avesnes, notary T. Lebeau, Avesnes-sur-Helpe, act *en minute*, 20 November 1762.

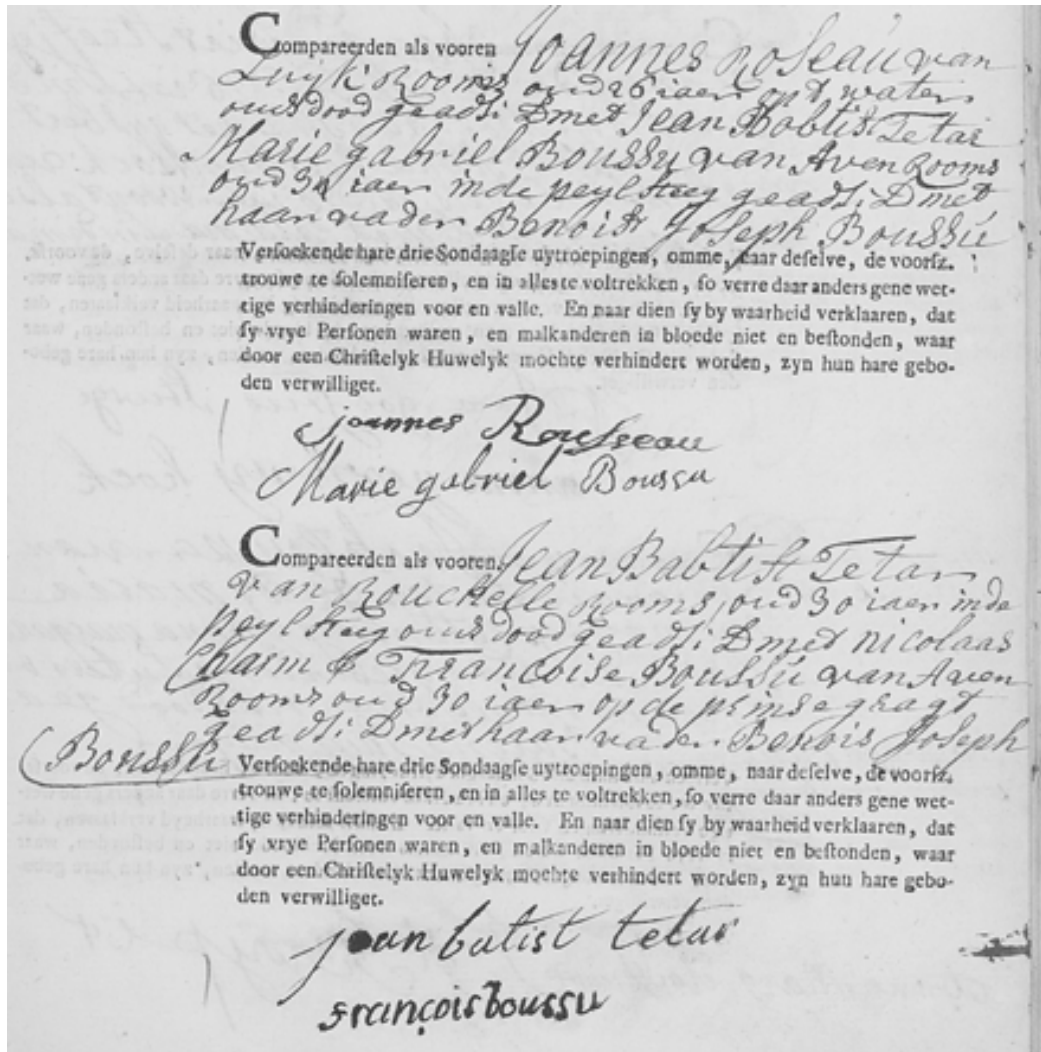


Figure 2.12. Marriage banns for Boussu's daughters "Marie Gabriel" and "Francoise", register of intended marriages 'pu', Amsterdam, 19 April 1771. Image: Stadsarchief Amsterdam / Amsterdam City Archives.

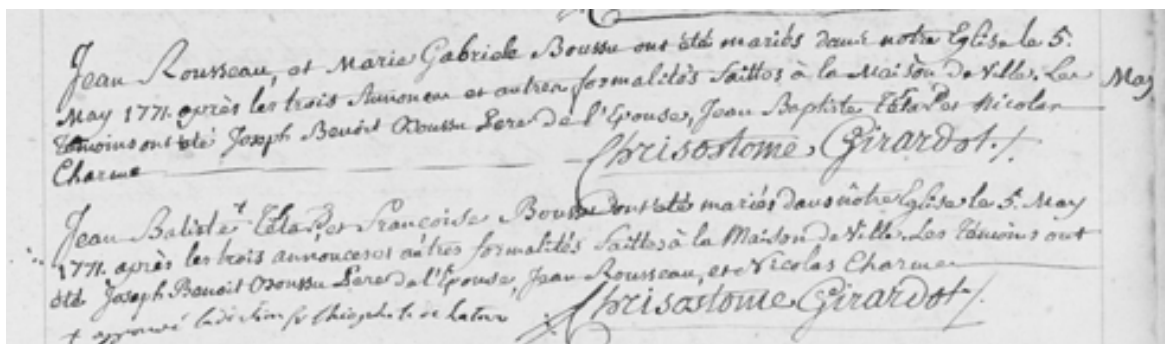


Figure 2.13. The registration of the religious marriage of "Marie Gabrielle Boussu" and "Jean Rousseau" and the registration of the religious marriage of "Françoise Boussu" and "Jean Batiste Tetar", register of the *Fransche Kapel*, Amsterdam, 5 May 1771. Image: Stadsarchief Amsterdam / Amsterdam City Archives.

Regarding Alexandre, it is only known that he embarked in 1766 on a ship of the Dutch East India Company (VOC), bound for Batavia (nowadays Jakarta, Indonesia) and that he died in June of the following year during that voyage.¹¹⁸ The timing of his demise is in accordance with a notary act from January 1773, in which only the sons Joseph and Benoit are mentioned as the remaining children of Boussu's second alliance.¹¹⁹ Moreover, the same VOC archives also contain a reference to a certain "Arij Joseph Bossú" from "Doornik" (Tournai), who got aboard of a VOC ship headed for Batavia in December 1767, and is claimed, by present-day archivists, to have died during that journey in July 1768.¹²⁰ Could this be the son (Henri) Joseph Boussu? This may very well be possible, but only if we ignore the claim of his death in 1768, since a registration of the bans of marriage is present in the Amsterdam 'pui' register for the 27-year old "Joseph Boussu" from Amsterdam and Maria de Villairs, published in early March 1778.¹²¹ According to the registration, both of Joseph's parents had died.¹²² The witnesses were Jean Rousseau and Jean Baptiste Tetar, the husbands of Boussu's daughters. The actual marriage took place on 22 March 1778 in the *Fransche Kapel*,¹²³ which was the preferred parish church for the Boussu family. It is thus permitted to assume that this Joseph Boussu living in Amsterdam is a son of the violin maker and his second wife Marie Anne Jugier, born around 1750. Indeed, this is supported by a baptism record from Amsterdam's French chapel from 1780 for "Antoine Bossu",¹²⁴ son of "Henri Joseph Bossu" and "Mariane de Villers", showing that the Joseph Boussu who married in 1778 is beyond doubt the violin maker's son Henri Joseph Boussu, born in Liège in 1749. This (Henri) Joseph Boussu is mentioned in a legal document from 24 March 1778¹²⁵ as "*soldat au service de la Hollande dans le regiment de Radde*

¹¹⁸ National Archives of The Netherlands, The Hague, The Netherlands, entrance no. 1.04.02, inv. no. 6478: Inventory of the archive of the Dutch East India Company (VOC), Luxemburg: Grootboek en journal, 1766-1767, folio 359; National Archives of The Netherlands, The Hague, The Netherlands, entrance no. 1.04.02, inv. no. 14483: Inventory of the archive of the Dutch East India Company (VOC), Stralen: Grootboek, 1766-1767, folio 132. According to these two register entries, this "Alexander Bossú" was originally from "Brussel" (Brussels).

¹¹⁹ Archives départementales du Nord, Lille, France, inv. no. 11B/228: Fonds du Bailliage royal d'Avesnes, registre d'embref Avesnes, *embref*, 28 January 1773.

¹²⁰ National Archives of The Netherlands, The Hague, The Netherlands, <https://www.nationaalarchief.nl/onderzoeken/index/nt00444/c5ad61ca-c864-11e6-9d8b-00505693001d?searchTerm=bossu> (accessed March 2020). According to this webpage, present-day archivists have concluded that this "Arij Joseph Bossú" had died during the journey. However, the ship's payroll does not mention explicitly that "Arij Joseph Bossú" had died. See: National Archives of The Netherlands, The Hague, The Netherlands, entrance no. 1.04.02, inv. no. 13161: Inventory of the archive of the Dutch East India Company (VOC), Zuid-Beveland: Grootboek, 1767-1768, folio 194.

¹²¹ Amsterdam City Archives, Amsterdam, The Netherlands, inv. no. 5001, 750: Archive of civil status, register of intended marriages 'pui' Amsterdam, registration of marriage bans for the intended marriage of Joseph Boussu and Maria de Villairs, 6 March 1778.

¹²² The indication "*oud. dood*" (the Dutch abbreviation for 'parents dead') is added to Joseph's entry.

¹²³ Amsterdam City Archives, Amsterdam, The Netherlands, inv. no. 5001, 334: Archive of civil status, register of Fransche Kapel Amsterdam, registration of religious marriage of Joseph Boussu and Marie Villers, 22 March 1778.

¹²⁴ Amsterdam City Archives, Amsterdam, The Netherlands, inv. no. 5001, 334: Archive of civil status, register of Fransche Kapel Amsterdam, baptism record for Antoine Bo[u]ssu, 15 June 1780.

¹²⁵ Archives départementales du Nord, Lille, France, inv. no. 11B/229: Fonds du Bailliage royal d'Avesnes, registre d'embref Avesnes, *embref*, 24 March 1778.

en garnison à Tournay”, and he died in Amsterdam in 1781, leaving behind his wife and two children.¹²⁶

For the youngest child of the family, son Benoit (Joseph) born in 1751, only few archive references have been found, yet one of these provides significant information. A boy named “Bennoit Boussu” was registered as “*famulus studiosi*” (servant to another student) at the University of Leiden on 20 March 1765.¹²⁷ Despite the fact that the actual age and place of birth for the son Benoit (Joseph) is different from the registered information for this “Bennoit Boussu”,¹²⁸ it is nevertheless highly likely that this boy was a son of Boussu the violin maker, since according to my research in the Leiden Regional Archives, no other Boussu family is known to have lived in Leiden around the same time. Surprisingly, no yearly re-enrolments can be found for “Bennoit Boussu” at this university after 1765.¹²⁹ Given the apparent presence of one of Boussu’s sons in Leiden in the mid-1760s, the possibility that father Boussu made instruments there – as suggested by a violin carrying the label ‘Leiden 176...’, reported by several sources¹³⁰ – gains plausibility. Further search in the Leiden Regional Archives, focused on the civil and notarial archives,¹³¹ did not yield any mention of the family however, and this may indicate that their stay in the city was only short-lived. For son Benoit, we found further archive references from 1775, 1776 and 1783, where he is mentioned as “*garson majeur [...] au service de la Hollande et soldat au regiment de Radir en garnison a Nimegue*”, “*garson majeur [...] soldat au regiment de Navarre en garnison a Douay*” and “*soldat au regiment d’Armgnac en garnison a Thiereville*” respectively.¹³² No references to him after 1783 have been identified.

¹²⁶ Amsterdam City Archives, Amsterdam, The Netherlands, inv. no. 5001, 1244: Archive of civil status, register of Heiligewegs- en Leidsche cemetery Amsterdam, burial record for Joseph Boussu, 11 April 1781.

¹²⁷ Leiden University Archives, Leiden, The Netherlands, inv. no. ASF 15: 9 Volumen inscriptionum 1755-1808. This information was found with the aid of an online database established by Martine Zoeteman-Van Pelt, now incorporated into the website www.stamboomnederland.nl.

¹²⁸ According to the *Volumen inscriptionum*, the enrolled Bennoit Boussu was twelve years old (on 20 March 1765) and had been born in Paris. My research has identified a son named Benoit Joseph, born in Etterbeek on 1 February 1751. The differences in age and place of birth may seem to imply that two different persons are being referred to, although Zoeteman-Van Pelt does stress that age and place of origin or birth in the (eighteenth-century) enrolment registers of the University of Leiden can be unreliable or at least ambiguous. See: Martine Zoeteman-Van Pelt, *De studentenpopulatie van de Leidse universiteit 1575-1812* (PhD diss., University of Leiden, 2011), pp.107-110, 121-122.

¹²⁹ Leiden University Archives, Leiden, The Netherlands, inv. no. ASF 137-140: Recensielijsten 1766-1769.

¹³⁰ Lindeman, Stam (1999), p.179; Scherzi Musicali, Joseph-Hector Fiocco - Petits motets (CD booklet), MEW 1054 (*Musique en Wallonie*: 2010), p.8. According to the last known owner of this violin, the instrument was sold to an Asian foundation around 2010, after being used for a CD-recording by ensemble Scherzi Musicali. Unfortunately, I was not able to examine the instrument before it was sold, and its current location is unknown. Possibly, this instrument is now in the collection of the Chimei Museum in Taiwan, see Section 4.2.

¹³¹ Research in the Leiden Regional Archives has been undertaken, searching the baptismal, marriage, burial and notarial registers for the names ‘Boussu(s)’, ‘Bossu(s)’ (and variations), so far without success.

¹³² Archives départementales du Nord, Lille, France, inv. no. 2E39/212: Archives des tabellions d’Avesnes, notary A. Lebeau, Avesnes-sur-Helpe, act *en minute*, 13 February 1775; Archives départementales du Nord, Lille, France, inv. no. 11B/229: Fonds du Bailliage royal d’Avesnes, registre d’embrefs Avesnes, *embref*, 28 June 1776; Archives départementales du Nord, Lille, France, inv. no. 11B/229: Fonds du Bailliage royal d’Avesnes, registre d’embrefs Avesnes, *embref*, 24 March 1778 (with added text and signature of son Benoit Boussu in margin dated 18 November 1783).

Returning to father Benoit Joseph, his whereabouts become known again in the last part of the 1760s. Various archival records from between early 1767 and late 1772 show that he was living in Amsterdam during those years. Most of these records are notarial and legal documents from the region of Avesnes, in France, where Boussu maintained financial interests throughout his later life (as will be further demonstrated in Chapter 3). In these documents he is described in terms such as “*demeurant presentement a Amsterdam*”,¹³³ but also as “*marchand luthier demeurant a Amsterdam*”, see for example Figure 2.14.¹³⁴

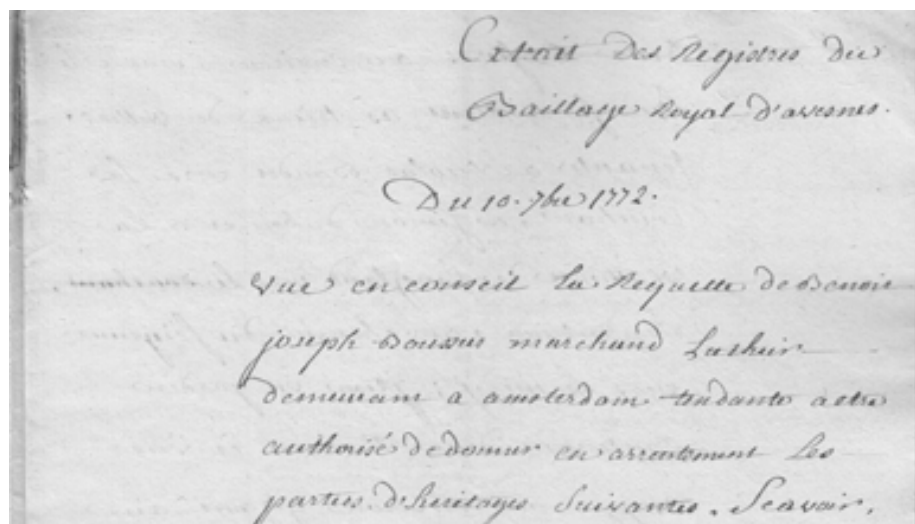


Figure 2.14. Extract of the registers of the “*Baillage Royal d’Avesnes*”, 10 September 1772.

We even have tangible proof for his instrument-making activities in Amsterdam, in the form of a cittern made in that city, unearthed during the current study. This instrument will be discussed in more detail in Section 4.22. In contrast with the relatively large number of surviving instruments from the Brussels period, however, this cittern is the only currently known remnant of Boussu’s Amsterdam workshop. This suggests that his dealings with musical instruments in Holland were probably mainly of a commercial nature: although he may have built the occasional instrument now and then, the emphasis must likely have been more on the trading of bought-in instruments and accessories as well as on performing repairs. A search in a database containing Dutch newspapers from the eighteenth century¹³⁵ did not result in the identification of announcements concerning Boussu’s instrument making-activities in Holland between c1765 and c1772.

¹³³ For example: Archives départementales du Nord, Lille, France, inv. no. 2E39/162: Archives des tabellions d’Avesnes, notary P.L. Lenseigne, Avesnes-sur-Helpe, act *en minute*, 21 March 1767.

¹³⁴ Archives départementales du Nord, Lille, France, inv. no. 2E39/210: Archives des tabellions d’Avesnes, notary A. Lebeau, Avesnes-sur-Helpe, extract of the registers of the *Baillage royal d’Avesnes* dated 10 September 1772, supplement to an act *en minute*, 1 June 1773.

¹³⁵ Delpher, <https://www.delpher.nl/> (accessed May 2020).

After a life characterised by surprising professional choices, that made him practise successively as a notary, a luthier and possibly an instrument dealer, and by various relocations which took him from Hainaut in the north of France via the principality of Liège, the area of Brussels to Holland, at the end of his life Boussu must have felt the need to return to his native region in France, where he appears to have had financial interests throughout his entire adult life. At some time in late 1772 or early 1773,¹³⁶ he permanently returned to Avesnes, where he died on 15 September 1773,¹³⁷ a widower and 70 years of age (see Figure 2.15). He was buried the next day, on the cemetery in Avesnes located in front of the family house (see Section 3.9). According to his last will, established two days before his demise, he left to Marie Gabrielle, his eldest daughter living in Amsterdam, “*tous les outils bois et ouvrages commencés et à achever concernants son art de l’hutier [sic]*”.¹³⁸

L'anné Sept Cent Soixante trois
Le seize Septembre fut enterré
au Cimetière de Avesnes
Benoit Joseph Boussu veuve, mort la
veille âgé de Soixante dix ans furent
témoins ses Neus Nicolas Boussu et
Antoine Joseph Labeau qui ont signé
Boussu

L'anné Sept Cent Soixante trois le seize
Septembre fut enterré au Cimetière de Avesnes
Benoit Joseph Boussu veuve, mort la veille
âgé de Soixante dix ans furent
témoins ses Neus Nicolas Boussu et
Antoine Joseph Labeau qui ont signé
Boussu

Figure 2.15. Burial records for Benoit Joseph Boussu, Avesnes parish register, 16 September 1773. Top to bottom: (a) version from the burial register preserved at the Archives départementales du Nord, Lille, France, (b) version from the burial register (*'Baptêmes, Mariages & Décés - 1771-1779'*) preserved at the Archives municipales, Avesnes-sur-Helpe, France.

¹³⁶ In a document from 28 January 1773, Boussu is described as “*demeurant cy devant a Amsterdam et presentement en cette ville d'Avesnes*”. This indicates that he had permanently returned to Avesnes. See: Archives départementales du Nord, Lille, France, inv. no. 11B/228: Fonds du Bailliage royal d'Avesnes, registre d'embref Avesnes, *embref*, 28 January 1773.

¹³⁷ Archives départementales du Nord, Lille, France, inv. no. Avesnes-sur-Helpe BMS [1767-1786], 5 Mi 001 R 005: Avesnes-sur-Helpe parish, burial register, burial record for “Benoit Joseph Boussu [sic]”, 16 September 1773. The burial record of 16 September states “*mort la veille*”, which means that Boussu died one day earlier, on 15 September.

¹³⁸ Archives départementales du Nord, Lille, France, inv. no. 2E39/168: Archives des tabellions d'Avesnes, notary J.B. Cornet, Avesnes-sur-Helpe, act *en minute*, 13 September 1773.

We may wonder about the peculiarity of Boussu's dual career, of both notary and violin maker, in the light of the conventions of the eighteenth century. Certainly, more cases of professional instrument makers with a second profession from this period are known. Plucked and bowed string instrument maker John Frederick Hintz (1711-1772)¹³⁹ and keyboard instrument maker Johann Christoph Zumpe (1726-1790),¹⁴⁰ both from German descent but working in London, had also been active as furniture makers. John Joseph Merlin (1735-1803), a maker of keyboard instruments originating from the Liège area but active in London, worked also as an inventor and watch and clock maker.¹⁴¹ The latter occupation applied likewise to bowed and plucked string instrument maker (and apparently musician) Pierre Joseph Peerens (c1739-1819), active in Lille (his marriage record refers to him as 'watchmaker musician').¹⁴² Others, in the field of violin making, for example Bernardo Calcagno (Genoa, c1680-1756)¹⁴³ and members of the Borbon and Snoeck families (active in Brussels, see Section 5.2), also appear to have combined their instrument making activities with a career as musician. Without doubt, many more examples of seventeenth- and eighteenth-century makers with a parallel job can be found, if looked for.

In the above examples, the instrument makers described indeed were active in two different professions, although their 'other' occupation certainly can be brought in connection with the field of musical instruments, either from the aspect of craft or music. As for Boussu, the change of profession appears to more drastic (from a 'desk job' to manual labour) as well as abrupt (abandoning his notary office in 1748 and emerging as '*maître luthier*' in Liège one year later). With regard to diversity of professional experience, Boussu's unusual career may share some parallels with the course of Joachim Tielke (1641-1719), who first studied medicine and later philosophy at the University of Leiden before becoming involved in the production of plucked and bowed string instruments, as well as art dealing, in Hamburg,¹⁴⁴ or even with the path of the Amsterdam violin maker Willem van der Syde (c1663-after 1692), who is recorded to also have been a *varensman*

¹³⁹ Lanie Graf, 'John Frederick Hintz, eighteenth-century Moravian instrument maker, and the use of the cittern in Moravian worship', *Journal of Moravian History*, no. 5 (2008), pp.7-39, at pp.8-10; Panagiotis Pouloupoulos, "'A guittar to be played with a bow, as well as with the fingers": reconsidering a puzzling hybrid by Frederick Hintz', *Journal of the American Musical Instrument Society*, vol. 44 (2018), pp.88-122, at p.88.

¹⁴⁰ Eva Badura-Skoda, *The eighteenth-century fortepiano grand and its patrons - From Scarlatti to Beethoven* (Bloomington: Indiana University Press, 2017), p.425; Margaret Cranmer, 'Zumpe, Johannes [Johann Christoph]', in Deane Root et al., ed., *Grove Music Online* (2001).

Available from: <https://doi.org/10.1093/gmo/9781561592630.article.31066> (accessed May 2020).

¹⁴¹ Badura-Skoda (2017), p.430.

¹⁴² Christine Hemmy, Philippe Bruguère, Jean-Philippe Echard, 'New insights into the life and instruments of Gérard Joseph Deleplanque, maker in eighteenth-century Lille', *The Galpin Society Journal*, vol. 71 (2018), pp.5-34, at p.9.

¹⁴³ Philip Kass, 'A few gentlemen of Genoa', *The Strad*, vol. 120, no. 1432 (2009), pp.46-47, at pp.46-47.

¹⁴⁴ Alexander Pilipczuk, Carlos O. Boerner, 'Joachim Tielke: instrument-maker and merchant of Hamburg - Recent findings about his education and professional life', *The Galpin Society Journal*, vol. 61 (2008), pp.129-146, at p.131.

(sailor).¹⁴⁵ Such examples of historical makers who had a more unusual combination of professions seem to appear less frequently, but again further cases could be identified when actively searched for. We conclude with two such examples listed by Von Lütgendorff, that might be worth a future investigation: Dominique Cans (1748-1806, active in Oudenaarde, Belgium), who repaired (and possibly made) bowed string instruments next to his main profession as a pharmacist,¹⁴⁶ and the Renaissance polymath Jacopino Lancilotto (c1507-c1551), who is said to have been making musical instruments next to his other activities as theologian, astrologer, poet, painter and... notary!¹⁴⁷

End Note

At a late stage in the editing of the article ‘Benoit Joseph Boussu (1703-1773): violin maker and notary’ (*The Galpin Society Journal*, 2013), in 2012, the year and place of Boussu’s birth were published by Dilworth and Milnes.¹⁴⁸ The current author would like to emphasise that he independently identified details of Boussu’s birth from primary archive sources in 2009 and that this specific information has been shared by him at a conference presentation in Ghent (SCAD, Sustainable Construction & Design, musical instruments session, Ghent University, 17 February 2011) and at a presentation at the Musical Instruments Museum, Brussels on 21 November 2011. Information on the date and place of death of Boussu, and on his notarial career, was not yet identified during the time of those presentations.

The biographical entry provided by Dilworth and Milnes reads “BOUSSU, Joseph / b.1703 Fourmies France, fl.c.1749-1780 Etterbeek, Brabant / Belgium”. The briefness of this listing, and the inconsistencies and errors in it (even Boussu’s name is given incompletely), imply that these authors did not perform any actual archive research on Boussu themselves. Also, no references (i.e. to archive documents, literature or other sources) are provided. Such a non-transparent transfer of information, more often encountered in the community of violin expertise, does not allow us to know the actual origin or validity of the data provided.

¹⁴⁵ Lindeman, Stam (1999), p.217.

¹⁴⁶ Willibald Leo Freiherr von Lütgendorff, *Die Geigen- und Lautenmacher vom Mittelalter bis zur Gegenwart*, vol. 2 (Frankfurt am Main: Frankfurter Verlags-Anstalt, 1922), p.68.

¹⁴⁷ Von Lütgendorff (1922), p.281.

¹⁴⁸ John Dilworth, John Milnes, *The Brompton’s book of violin and bow makers* (London: Usk Publishing, 2012), p.81.

Chapter 3

The social, economic and juridical conditions under which Boussu lived and worked

3.1. Introduction

In the previous chapter, information was presented regarding Boussu's primary life events (such as birth, marriage and death), the composition of his family and also his places of residence. This biographical information was mainly retrieved from data available in parish and civil registers of Fourmies, Avesnes, Liège, Etterbeek, Brussels and Amsterdam. Moreover, Chapter 2 presents some additional information, identified after the first publication of biographical results in 2013,¹ and obtained as the result of the study of notarial and municipal council archives in Boussu's birth area. By studying these complementary sources, it was possible to further refine the chronology of the professional activities and geographical relocations of Boussu. At the initial stage of the PhD study (around 2016), the small number of notarial and municipal council acts identified up to that point was thus mainly used to extract basic chronological information regarding place of residence and occupation. This information is included in Chapter 2.

After the publication of the results of the exploratory study of the notarial and municipal council archives from Avesnes and surrounding villages,² these sources were studied further, and since then, many more documents concerning Boussu have been identified, transcribed and analysed. In this current chapter, the results of the in-depth analysis of these notarial, municipal and judicial acts will be presented, supplemented by a review of relevant literature, with the aim of providing a picture of the social, economic and juridical conditions under which the notary-turned-luthier lived and worked. We rely on

¹ Geerten Verberkmoes, 'Benoit Joseph Boussu (1703-1773): violin maker and notary', *The Galpin Society Journal*, vol. 66 (2013), pp.117-138, 262-264, at pp.121-134.

² Geerten Verberkmoes, 'Benoît Joseph Boussu: la carrière singulière d'un notaire hainuyer devenu luthier', in Brigitte Van Wymeersch, Faïch Thoraval, ed., *La musique dans l'ancien comté de Hainaut (XVII^e-XVIII^e)* [tentative title] (Turnhout: Brepols Publishers, accepted, in preparation).

these sources, since personal documents, such as a family journal (*'livre de raison'*, which is available for some French eighteenth-century notaries³), letters or even a painted or drawn portrait, are not available.

Since Boussu acquired and maintained economic interests in his birth area throughout his entire adult life, the main focus of the study of notarial, council and court acts is on documents from the area of Avesnes, which will nevertheless also provide information regarding his conditions and activities outside France. Table 3.1 gives an overview of the main archival sources consulted during this continued stage of biographical research, while all currently identified notarial, municipal council and court acts are included in the list provided in Appendix III. As can be seen in this list, over 200 notarial, municipal council and court acts concerning Boussu's personal and economic activities have been found. Considering the range of archive series examined, as well as the apparent degree of abundance, diversity, overlap and congruence within the found data, it can be assumed that the vast majority of legal documents concerning Boussu has been identified.

In Hainaut, in contrast to most other parts of France during the pre-Revolutionary era, documents that were authenticated by a notary, had to be archived and issued *en grosse*⁴ by the *tabellion*, in order to render these acts and contracts executory force.⁵ Furthermore, the procedure of 'realisation' – *deshéritance* ('expropriation') and subsequent *adhéritance* ('appropriation') of an immovable property by the two respective parties – had to be performed according to the tradition of the *coutumes* (local customary law). This happened in front of a local council of aldermen (*'mayeur et échevins'*) for *biens roturiers* (property of commoners), or by a feudal court (*'pairie'*) for *biens nobles* (property under feudal rule).⁶ Therefore, almost always two versions of acts involving the sale or the letting of houses or land, or concerning the establishment of annuities are available: one drafted by a notary, and another by a local bench or court. Because two complementary documents are to be expected in most cases, this facilitates and confirms the coherence and completeness of the identified information. When a certain act is found in a notarial archive, a corresponding bench or court act has to exist, and *vice versa*. Chronologically,

³ Alain Moreau, *Les métamorphoses du scribe - Histoire du notariat français* (Perginan: Socapress, 1989), pp.80-81; René Favier, 'Formation et établissement d'un jeune notaire dauphinois à la veille de la révolution: Pierre-Philippe Candy', in Lucien Faggion, Anne Mailloux, Laure Verdon, ed., *Le notaire entre métier et espace public en Europe, VIII^e-XVIII^e siècle* (Aix-en-Provence: Presses de l'Université de Provence, 2008), pp.139-152.

⁴ '*En grosse*' literally refers to the fact that these documents were written in big letters. The '*grosse*' of a notarial act is the public document, destined to be used by the parties in their relation with others. To the contrary, the '*minute*' is the original document, written in small letters, and kept by the notary in his personal archive. Generally speaking, while a *minute* is never to leave the notary's archive, the notary can deliver various *grosses* of it. See also: Rob van Drie et al., *Genealogie - Van stamboom tot familiegeschiedenis* (Utrecht: Teleac / Den Haag: Centraal Bureau voor Genealogie, 1988), p.53.

⁵ Albert Cacheux, 'Les notaries dans le ressort de la coutume de Mons en Hainaut français aux XVII^e et XVIII^e siècles', *Tijdschrift voor Rechtsgeschiedenis / Revue d'Histoire du Droit / The Legal History Review*, vol. 28, no. 1 (1960), pp.42-58, at pp.53-54.

⁶ Cacheux (1960), p.54.

first comes the actual agreement, the notarial document. This document only binds the two parties, e.g. seller and buyer. The second document, the 'judicial' one, is needed in order to 'realise' the agreement, i.e. to make it 'opposable' to all other legal subjects. The first document is merely 'relative' between parties, the second one is 'absolute' in the sense that it compels everyone to respect the transfer of property.

During the current study of the notarial archives, a focus was placed on notaries residing and/or mainly active in and near Avesnes, Fourmies and Wignehies, for the period c1710-c1775, see Table 3.1. Initially, a targeted search was performed on this corpus of acts *en minute* around the dates of important life events of Boussu, such as marriage, relocation and death, in order to identify documents like marriage contracts, *rappports* and testaments. Also, for certain periods lacking much general information, such as the years 1763-1767, collections of acts *en minute* were combed out in search for acts concerning Boussu.

For each notary of interest, a contemporary chronological register, or '*répertoire*',⁷ was also present, containing summaries of all the drafted acts. Later on in the study, these registers for each notary of interest were searched in their entirety, within the period c1700-c1780. When a reference to an act concerning Boussu was encountered in the register of a certain notary, the actual act could easily be traced in the collection of acts *en minute*⁸ of that same notary.

The acts of the municipal councils of Avesnes, Fourmies and Wignehies, as well as the feudal court acts of the *pairie* (lordship) of Avesnes, collectively called '*embrefs*', were bound together in registers, which were examined in their entirety for the period c1710-c1775. Table 3.1 presents an overview of the court and council acts under study. *Répertoires* were also available for the *embrefs*, and as a double check, these registers were also investigated (see Table 3.1). However, these latter listings were far from complete with respect to the period of interest.

⁷ *Répertoire*: in the French law, this word is used to denote the chronological inventory which notaries are required to make of all contracts drafted by them, containing date, names of parties involved and subject. See also: Van Drie et al. (1988), pp.53-55.

⁸ A notarial act *en minute* is an act that a notary must deposit and preserve in his archive (*protocol*), and from which authentic copies or extracts may be issued.

Archive series	Examined period	Archive	Archive inv. nos.
<i>Répertoires</i> of notaries active in and near Avesnes, Fourmies and Wignehies. (notaries: T. Beviere, B.J. Boussu, R. Boussu, J. Carniaux, J.B. Cornet, H.L. de Renly, F. Diesmes, J. Fontaine, C.L. Gossuin, C. Hallet, J.F. Lahanier, A. Lebeau, T.(J.) Lebeau, T. Leclercq, P.L. Lenseigne, F. Lermigeau, J.B. Michel, S.I. Pidou, L. Pinson, N.J. Prissette, J.J. Renaut)	c1700- c1780	Archives départementales du Nord, Lille, France	2E39/496-514
Acts <i>en minute</i> of notaries active in and near Avesnes, Fourmies and Wignehies. (notaries: T. Beviere, B.J. Boussu, R. Boussu, J. Carniaux, J.B. Cornet, H.L. de Renly, F. Diesmes, J. Fontaine, C.L. Gossuin, C. Hallet, J.F. Lahanier, A. Lebeau, T.(J.) Lebeau, T. Leclercq, P.L. Lenseigne, F. Lermigeau, S.I. Pidou, L. Pinson, N.J. Prissette, J.J. Renaut)	c1710- c1775	Archives départementales du Nord, Lille, France	2E39/1-491, 2E80/106-107
<i>Embrefs, pairie d'Avesnes</i>	1719-1776	Archives départementales du Nord, Lille, France	11B/137-175
<i>Répertoires of embrefs, pairie d'Avesnes</i>	18 th century	Archives départementales du Nord, Lille, France	11B/95-98
<i>Embrefs, mayeur et échevins d'Avesnes</i>	1717-1775	Archives départementales du Nord, Lille, France	11B/214-228
<i>Répertoire of embrefs, mayeur et échevins d'Avesnes</i>	18 th century	Archives départementales du Nord, Lille, France	11B/210
<i>Embrefs, mayeur et échevins de Fourmies</i>	1712 ⁹ - c1780	Archives départementales du Nord, Lille, France	11B/414-420
<i>Répertoire of embrefs, mayeur et échevins de Fourmies</i>	1776-1788	Archives départementales du Nord, Lille, France	11B/421
<i>Embrefs, mayeur et échevins de Wignehies</i>	1702-1771	Archives départementales du Nord, Lille, France	11B/566-579
<i>Répertoire of embrefs, mayeur et échevins de Wignehies</i>	1770-1786	Archives départementales du Nord, Lille, France	11B/583

Table 3.1. Overview of archival sources examined.

The notarial archives on the one hand and the council and court archives on the other hand were mostly examined in a serial manner and independent of each other. Afterwards, when the found acts were inventoried, it appeared that, in case of transactions involving immovable property, almost always both the notarial version and

⁹ The book of *embrefs* for the *mayeur* and *échevins* of Fourmies, for the period 1679-1712 (Archives départementales du Nord, Lille, France, archive inv. no. 11B/413) was “*pas communicable*”.

council or court version of the document concerning a specific transaction was identified, which confirmed that the search process had a high degree of completeness and thoroughness. Missing acts could easily be traced from the information of the corresponding, identified 'twin document'. It can thus be assumed that the analysis of the identified documents will provide us with a rather exhaustive image of Boussu's economic activities and pursuits.

Besides the acts in which Boussu himself was one of the involved parties, the preserved acts *en minute* that he drafted in his function as a notary and his *répertoire* can provide us with additional information regarding his notarial activities in Avesnes between 1729 and 1748. These analyses will be presented in Section 3.6. Even the acts *en minute* notarised by his father Robert contain traces of Boussu junior, as will be seen in Section 3.3.

After Boussu left Avesnes, he lived in respectively Liège (c1748-c1751), Etterbeek (c1751-c1753), Brussels (c1753-c1762), possibly Leiden (c1763-c1767) and finally Amsterdam (c1767-c1772). It is likely that Boussu visited a notary in all of these five places, for example to arrange the renting of a house, or even regarding his initiation of professional activities in the field of lutherie. Be that as it may, during this PhD project, it was decided that as far as the study of the notarial archives is concerned, the focus would be set on the acts from the area of Avesnes. Currently, without the availability of digitally searchable indexes, studying notarial archives is very time-consuming; a full examination of all relevant archives would expand beyond the time-frame of the present project. In addition, since Boussu's financial and patrimonial interests were almost exclusively grounded in his native region, the corresponding notarial archives would provide the largest amount of information. Furthermore, since he would maintain these interests during the period that he lived outside France – Boussu even visited Avesnes regularly during the period 1749-1772 to arrange his affairs – the archives of that region would also render information regarding his whereabouts and activities outside his homeland.

Nevertheless, some initial search in notarial archives outside France has been done. For the notaries of the region of Brussels, a register was consulted which was made in the twentieth century by Count Fernand de Jonghe d'Ardoye (1911-1989).¹⁰ This collection of 6,000 pages of handwritten notes contains references to nearly 74,000 notarial acts, compiled in eleven volumes, covering Brussels acts from the seventeenth, eighteenth and early nineteenth century. The register is searchable on name, location and profession. For the current research, the index on names was searched, for 'Boussu' (or alternative spellings). This yielded two acts from 1777 and 1778, related to the succession of Boussu,

¹⁰ State Archives of Belgium, Belgium, Het Notariaat van Brussel ontsloten voor de 17de en 18de eeuw, <http://www.arch.be/index.php?l=nl&m=nieuws&r=alle-nieuwsberichten&a=2015-12-14-het-notariaat-van-brussel-ontsloten-voor-de-17de-en-18de-eeuw> (accessed April 2019).

and involving the children of his first marriage (see Appendix III). No acts of Brussels notaries were found directly involving their father. However, since the registers of De Jonghe d'Ardoye are most likely not exhaustive,¹¹ it may be possible that documents regarding Boussu senior are present in the Brussels notarial archives, although these can only be found by manually searching the protocols. Such an operation fell out of the scope of the current research, and was thus not performed.

For the notarial archives in Leiden (preserved at the Leiden Regional Archives), for the period 1762-1768, the alphabetical indexes in the notarial repertories of all notaries active during this time span have been searched. No reference to Boussu has been found. For the notaries of Amsterdam, some initial exploratory search has been performed in the City Archives of Amsterdam, mostly aimed at the (French-speaking¹²) notaries active during the period 1767-1773. This returned one *procuration* act from 1769 concerning Boussu, and three acts from 1772, 1773 and 1786 respectively, involving his children (see Appendix III). Further manual search was postponed, since the Amsterdam City Archives had begun the digitisation of their historical notarial archives in 2016. Perhaps, when this process has progressed further (in March 2020, only around 32 % of the acts is searchable online¹³), more information beneficial for our study may become available. The notarial archives of Liège, for the period c1748-c1751, have not been examined yet.

Considering the current planned or ongoing digitisation of notarial archives in Western Europe, searching these sources should become much more efficient and productive in the coming decades. Hopefully, as these projects will materialise, it will become possible to find additional traces of Boussu's initial education and places of residence, violin making activities or transactions in his regions of residence, both in- and outside France.

Boussu was born in the region around Avesnes, and his professional occupation as a notary took place in that small town. He also kept financial interests in the region after he left to pursue a career in violin making. Therefore, first a short overview of the history of this town is provided, up to the end of the eighteenth century.

¹¹ Personal communication with Dr. Harald Deceulaer, archivist at the State Archives in Brussels, Forest, Belgium.

¹² Amsterdam City Archives, Amsterdam, The Netherlands, A.I. Bosma, Repertorium van notarissen residerende in Amsterdam Amstelland, ambachtsheerlijkheden en geannexeerde gemeenten, 1524 - 1810 (Amsterdam: Amsterdam City Archives, 1998). Available from: <https://www.amsterdam.nl/stadsarchief/archief/downloads/repertorium/> (accessed April 2019). This document contains information regarding the language(s) in which each Amsterdam notary could draft acts.

¹³ VeleHanden, https://velehanden.nl/projecten/bekijk/details/project/amsterdam_notarieel_2 (accessed March 2020).

3.2. A short history of Avesnes until the eighteenth century¹⁴

Avesnes, or Avesnes-sur-Helpe as it is now called, is a small town located 25 km south of the current French-Belgian border, and 50 km south of the Belgian city of Mons. It originated before the eleventh century on a site where previously Gallo-Roman settlements had been. It was the feudal lord Wédric le Sor who built a castle at this place soon after his arrival there in the year 1066, and not much later a first fortification was constructed encircling the castle and its surrounding houses.

During the Middle Ages, Avesnes was situated inside the historical County of Hainaut, a lordship within the Holy Roman Empire. The territory covered the present-day Belgian province Hainaut and the eastern part of the current French department Nord. In the year 1200, Avesnes obtained its administrative autonomy, through a charter granted by the lord Gautier II. From that moment on Avesnes was a true city (*ville*), with its inhabitants having the status of *bourgeois* with corresponding privileges, and with a council of mayor and aldermen who governed the city and acted as judges. These prerogatives would appear so solid, that 400 years later, Louis XIV was obliged to maintain them. The newly acquired privileges favoured the economic life, and soon the trade in cloth was flourishing. Important fairs and markets of textiles were organised in the city, attracting merchants from far and wide. In the first half of the fifteenth century, Avesnes was an important commercial centre, going through the most prosperous period of its history. However, later in that century, the cloth market started to decline, due to competition from Flanders.

From the end of the Middle Ages onwards, Hainaut, and thus Avesnes, was consecutively incorporated inside larger territories: the Burgundian Netherlands (1436-1477), the Habsburg Netherlands (1482-1556) and the Spanish Netherlands (1556-1659). The geographical location of Avesnes made it a commercial transit centre in times of peace, but a battlefield in times of war. Throughout the ages, the city was besieged many times, and the French even burnt down the city completely in 1477, during a dispute with the Burgundians. In 1514 another big fire destroyed most of the wooden houses, including the town hall and its archives. The city would be rebuilt within a few years, this time in stone. At this occasion, the St. Nicolas collegiate church was restored as well: a new nave was built onto the thirteenth-century choir (see Figure 3.1).

¹⁴ Unless stated otherwise, the information in this section is based on: Jean Mossay, *Histoire de la ville d'Avesnes (Avesnes-sur-Helpe: Éditions de l'Observateur, 1969)*, pp.9-162.



Figure 3.1. Early photograph of the St. Nicolas collegiate church, Avesnes-sur-Helpe. Photo: unknown.

In 1659, the signing of the Treaty of the Pyrenees ended the 1636-1659 war between France and Spain. Due to this agreement, the County was divided into two parts. The northern part remained Spanish, until it came under Austrian regime in 1713. The southern part, including Avesnes, turned in the hands of the French. The first act of authority by Louis XIV in the conquered cities was the appointment of royal officials, to replace the Spanish ones. For the province of Hainaut, these officials fell under the supreme authority of the *intendant*, who governed the region. In each city in the newly annexed area, a *gouverneur*, *lieutenant de roi* and a *major de place* were installed, who represented the Monarchy. These royal officials acted side-by-side with the local magistrates, the *mayeur et échevins* (mayor and aldermen), indicating that Louis XIV at least partly respected the autonomy the city had enjoyed for so long. That said, the Monarchy took the right to appoint the magistrates, and reduced the number of aldermen, thereby restricting the municipal independence. The inhabitants of the cities were expected to swear an oath on the Monarchy, which they did, but not wholeheartedly.

Given the sieges and terror the people from Avesnes had suffered from the French through the ages, such as the total destruction of their city in 1477, strong anti-French and anti-monarchical sentiments were present among many of the people of Avesnes. Passive resistance lasted for at least 50 years after the annexation of 1659, and this protest was for a large part led by the clergy. Not much could be done about this from the side of the central government, since it was not easy to dismiss and replace priests and monks.

Furthermore, the French domination did not bring much economic prosperity, instead, the cloth trade further collapsed since the trade exchange with the Southern Netherlands had been cut off. Agriculture played just a minor role, and only few tanneries, weaving mills and forges remained. The people were poor, and to make matters worse, the pressure of royal taxes was high. Many citizens exercised some kind of resistance, in the form of disobedience, smuggling or sabotage, and French ceremonies were ignored by the population. Until deep into the eighteenth century, tensions would persist between the royal officers, representing the centralised government, and the local magistrates, who stood up for autonomy and who had the sympathy of the people.

Avesnes was also a place of garrison. Since its first defence walls were built in the eleventh century, these fortifications were improved and expanded various times, most notably under Louis XIV by the military engineer Vauban, which resulted in a structure with the characteristic *bastions* and *demi-lunes* (see Figures 3.2 and 3.3). During the seventeenth century, in absence of sufficient barracks, soldiers were lodged in the houses of the locals. The problems regarding the housing of the soldiers diminished after the modifications by Vauban, when barracks were provided as well.



Figure 3.2. Detail from a map of Avesnes from 1767 showing the fortifications (Bibliothèque nationale de France, Paris, France, inv. no. CB407211985).



Figure 3.3. Scale 1:600 relief map of Avesnes from 1829 showing the fortifications (Palais des Beaux-Arts de Lille, Lille, France, inv. no. D 2004.1.4). Photo: Palais des Beaux-Arts de Lille.¹⁵

During the reign of Louis XIV, several wars were fought, which also affected Avesnes. Sometimes, the city had a role behind the front lines, as gathering centre for troops, wounded or prisoners. On other occasions, such as during the War of the Spanish Succession (1701-1714), the battling took place close by, and enemy troops would perform raids, burning down the villages surrounding Avesnes and taking hostages. Many would flee inside the city walls. After the hostilities had finally stopped, scarcity and plundering by unpaid troops took over, circumstances that were exacerbated by the extremely cold winter of 1708-1709. Inequality among the population, manifested by existing privileges, individual tax exemptions and *terres franches*, and due to historical reasons and local customs, was a contributing factor to the malaise.

When peace had definitively returned, and after the death of Louis XIV in 1715, the financial state of France was deplorable, but nevertheless, the region of Hainaut slowly managed to recover. New roads were constructed towards Paris, Mons, Valenciennes and Chimay, while postal and coach services were improved. Some small industries – tanneries, breweries and textile production – recovered, although the level of earlier

¹⁵ Palais des Beaux-Arts de Lille, Lille, France, <http://pba-opacweb.lille.fr/fr/search-notice/detail/8c4qfdt7gbem991q9vcn2yzepjigqc0z04psq3xx8xh7kt15l6> (accessed April 2020).

times was never regained. Commerce also resumed, by the re-establishment of markets and free fairs. Although the garrison remained the main source of local commerce, agriculture would also become an important factor in the local economy: many citizens, in case they could afford, invested in agricultural land and small farms, to supplement their incomes. Between 1715 and 1789, life in Avesnes would be relatively stable and calm. Houses were rebuilt, a new town hall was constructed, which acted as tribunal, but as theatre as well, and schools were reorganised.

As said before, the bailiwick of Avesnes was created by Louis XIV soon after the French annexation, in 1661. It was established as an institution for royal judicature. According to Mossay, attached to the bailiwick were “*un bailli d’honneur, qui était de droit le gouverneur de la ville, d’un lieutenant général, d’un lieutenant particulier, de quatre conseillers, d’un procureur et d’un avocat du roi, d’un greffier, de six notaires, de trois huissiers et de quatre sergents*”. He continues by stating that, since 1692, to the existing corps of officers were added “*un receveur des consignations, un receveur des épices, un commissaire aux saisies réelles, un contrôleur, six procureurs, un conseiller garde sceau, un contrôleur des taxes et un garde note*”. Especially in the first decades after the establishment of the bailiwick, it was difficult to find suitable candidates to fill in all the vacancies, but in the eighteenth century judicial life was very active. Besides the jurisdiction of the royal bailiwick, cases concerning property from inside the city walls of Avesnes were presented to the council of the mayor and aldermen, and cases concerning the numerous villages surrounding Avesnes (the ‘*terre et pairie*’, see Figure 3.4) appeared in front of the court of the lord (‘*seigneur*’) of Avesnes.

Throughout the eighteenth century, the number of inhabitants in Avesnes was fairly stable. The city had 2,651 inhabitants in the late seventeenth century,¹⁶ and 2,702 in the year 1793.¹⁷

Interestingly, while describing the history of Avesnes, Mossay gives several examples of music being played in the city. A solemn mass on 4 June 1668 was celebrated “*avec une excellente musique et un agréable concert de violons*”. In early August 1710, the youth of Avesnes provoked the abhorred *lieutenant de roi*, De Court, by “*râclant du violon*”. And, under the expenses of the *confrérie de St. Jean Baptiste* which united the musketeers, were costs for services “*avec contrepoint et musique*”. These mentions bear witness to a certain musical activity in the city. Further musical practice in Avesnes is described by Piérart and Peter, who mention the chanting of the canons of the St. Nicolas church and the

¹⁶ Mossay (1969), pp.156-157.

¹⁷ Des villages Cassini aux communes d’aujourd’hui, Avesnes-sur-Helpe, http://cassini.ehess.fr/cassini/fr/html/fiche.php?select_resultat=2166 (accessed January 2020).

player of that church's carillon,¹⁸ while Lebeau describes a music master, choir boys and an organ player, all in service of the *Chapitre* of the local parish.¹⁹



Figure 3.4. Map of Avesnes from c1668, showing Avesnes and its surrounding villages (Sébastien Pontault de Beaulieu, *Les plans et profils des principales villes et lieux considérables du comté de Hainaut* (Paris: Le Chevalier de Beaulieu, c1668), plate 17).

3.3. Boussu's youth: witness and novice in his father's notary practice

As was already mentioned in Section 2.4, in his adolescence, Benoit Joseph Boussu acted as a witness in the practice of his father, Robert Boussu, a notary in the village of Fourmies and later Wignehies. The first act on which we find Benoit Joseph's signature and mention as witness is from 3 January 1718. The signature was shown in Figure 2.4. Watching the activities in the office and hearing the notarial formulations probably had an effect on the boy of being initiated in the profession. It is important to realise that Benoit Joseph

¹⁸ G. Piérart, J. Peter, 'Notes et Documents sur le chapitre Saint-Nicolas d'Avesnes, XVI^e-XVIII^e siècles', *Mémoires de la Société archéologique & historique de l'arrondissement d'Avesnes (Nord)*, vol. 13 (Avesnes-sur-Helpe: Editions de l'Observateur, 1930), pp.50-61, at p.52.

¹⁹ Isidore Lebeau, *Précis de l'histoire d'Avesnes* (Avesnes: Viroux, 1836), p.112.

was 14 years of age at this moment. In the eighteenth century, this seems to have been the minimum age at which people could act as a witness on a notarial document.²⁰

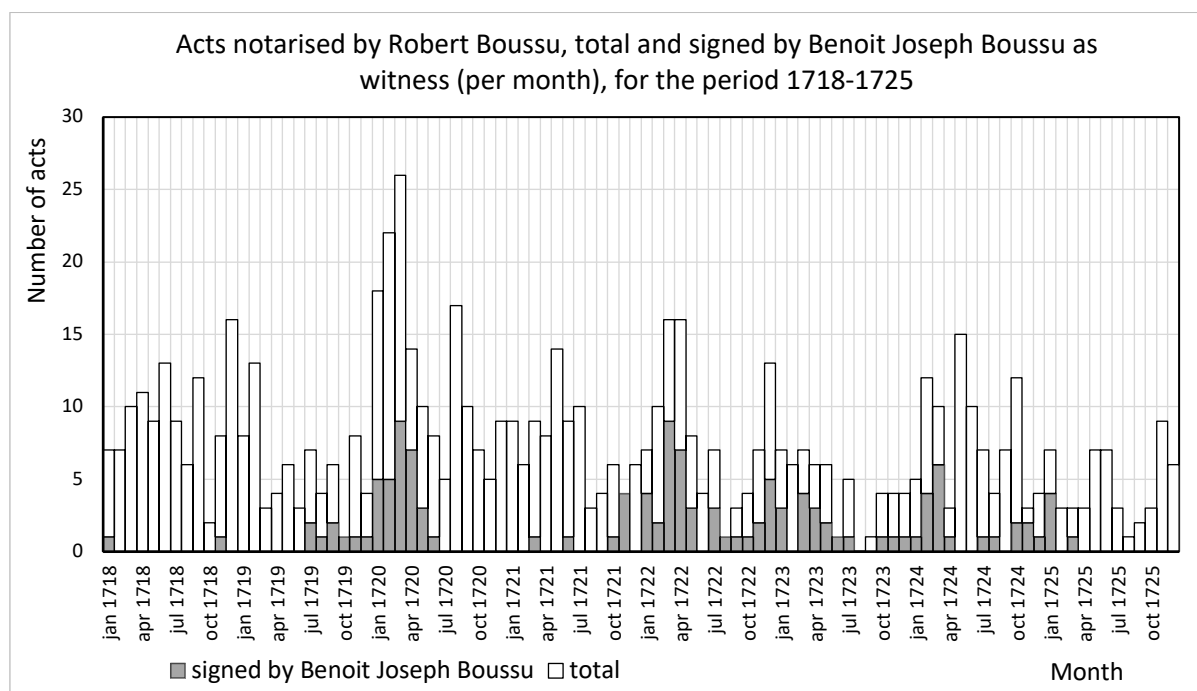
In order to better understand the frequency and chronological distribution with which Benoit Joseph Boussu acted as a witness in his father's office, Graph 3.1 gives an overview of the acts drawn up by Robert Boussu during the period 1718-1725, based on his protocol.²¹ Both the total number of acts (white bars) as well as the acts co-signed by Benoit Joseph Boussu (grey bars) are included in the graph. As can be seen, after co-signing a first act in January 1718, Boussu junior only signed one other act (in November 1718) during the one and a half year period to follow. Possibly, he was considered too young to be around the adults in the office on a regular basis, and instead had to visit school. Between July 1719 and June 1720, he functions as a witness more frequently, with a peak in March 1720. In that same month, the total number of acts notarised by father Boussu also reaches a high point, as a result of which senior had to call on his son more often. It is likely that the latter was around the house often, and was asked to appear in the office and put his signature whenever an extra witness was required. Between July 1720 and December 1721, Benoit Joseph's activity as a witness for his father's practice is again very low. It may even be that he was away from the area of Avesnes for most of the time during this period. An apprenticeship in another city, maybe as a notary clerk or even as a woodworking novice, cannot be ruled out, although no evidence has been found for either possibility so far.

During the period from January 1722 until March 1725, Benoit Joseph's signature is again present on acts passed before his father on a more regular basis, see Graph 3.1. For some months during this interval (often in the first quarter of a calendar year), his signing is present on almost half of the documents, while for other months, his cooperation was called on only once. Anyway, the frequent and consecutive presence of his signature throughout this time span shows that he must have been continuously present in Avesnes, possibly as an assistant in the paternal office. The last time we find his signature on any document drafted by his father is on an act of 5 March 1725. This termination coincides with the regular appearance of Benoit Joseph's eldest (half-)brother Jean Joseph as a witness in the acts notarised by father Robert, from 12 March 1725 onwards. This younger boy (born on 30 January 1711) had just reached the required age of 14 years at that time. Apparently, with the presence of another son that could legally act as a witness, the assistance of Benoit Joseph was no longer needed by his father. The signature of Jean

²⁰ Adriaan Pitlo, *De zeventiende en achttiende eeuwse notarisboeken en wat zij ons omtrent ons oude notariaat leeren* (Haarlem: H.D. Tjeenk Willink & Zoon, 1948), p.271. Pitlo mentions the age limit of 14 years for notarial witnesses, based on his study of a variety of Dutch seventeenth- and eighteenth-century notary manuals. It can be assumed that in the north of France, a similar age limit applied.

²¹ Archives départementales du Nord, Lille, France, inv. no. 2E39/388-391: Archives des tabellions d'Avesnes, notary R. Boussu, Fourmies.

Joseph Boussu keeps frequently appearing until the last acts passed before Robert Boussu, at the end of 1728. Boussu senior dies in January 1729.



Graph 3.1. Distribution of acts notarised by Robert Boussu for the period 1718-1725, total and signed by Benoit Joseph Boussu as witness (per month).

3.4. Early 1725 to mid-1729: the ‘lost years’

After Benoit Joseph Boussu acted as witness in his father’s business for the last time in early March 1725, he disappears from the radar for several years. So far, no document mentioning his name or containing his signature for the period March 1725 until June 1729 has been found, neither in acts by notaries and parish records from the area of Avesnes (which have been actively searched for Boussu’s presence), nor in any document from outside this region. What has been found so far, however, is a reference – in a *répertoire* of *embrefs* including registrations for the locality of Wignehies²² – to an *émancipation* act from 1724 for Benoit Joseph Boussu. Such acts were drafted when a minor (a person under the age of 25) had to be liberated by the father from the paternal power,²³ for example in the case when an unmarried minor left the parental home. This could

²² Archives départementales du Nord, Lille, France, inv. no. 11B/96: Fonds du Bailliage royal d’Avesnes, embrefs de la pairie d’Avesnes, répertoire par localités pour la période 1615 à 1789. Under the entry for Wignehies for the year 1724, this *répertoire* mentions the *émancipation* for Benoit Joseph Boussu.

²³ Caroline Lentz, ‘Le passage à l’âge adulte - L’émancipation en Roussillon au XVIII^e s. - Typologie des actes d’émancipation en Roussillon au XVIII^e siècle’, in Gilbert Languier, ed., *Mineurs, minorité - Jeunes, jeunesse en Roussillon et en Languedoc, XVI^e-XVIII^e siècle* (Perpignan: Presses universitaires de Perpignan, 2010), pp.75-96, at p.82.

imply that the young Benoit Joseph left his father's house, or even his birth area, to pursue independent activities not long after the *émancipation* act was issued. Unfortunately, despite intensive search within the series 11B of the Archives départementales du Nord in Lille, the act itself has not been found, likely because the collections of *embrefs* for Wignehies appear to be incomplete. Therefore, we cannot learn about the content of Boussu's *émancipation* act, which deprives us from possible concrete information regarding his occupation and intended place of destination for the period from early 1725 to mid-1729. Nonetheless, the fact that the *émancipation* act was issued strongly suggests that Benoit Joseph had the intention to move out of the region of Avesnes around late 1724 or early 1725.

Although we lack clarity regarding Boussu's life during this period, he must have resided somewhere in the years immediately following 1724, and have been engaged in some kind of activity. But since it is currently unknown where Boussu lived during those years, and what he did, it is very difficult to find a starting point for further search. At the moment, digitisation of entire notarial archives in Europe is only performed in very few cases. As one of the forerunners of such initiatives, in 2016 the Amsterdam City Archives has started scanning and indexing (with the help of volunteers) its entire notarial archives.²⁴ At the moment of writing, only one-third of the acts has been indexed, and is thus searchable by a software search system. It will likely take another five to ten years to fully complete this project. However, this Dutch archive is on the forefront of such digitisation initiatives, and it will probably take decades before all major archives in Europe have completely scanned and indexed their notarial archives. Once these enormous projects have been finished successfully, there might be a possibility to trace the whereabouts of Boussu during the four-year period between April 1725 and June 1729. Given the specific requirements for becoming a notary in eighteenth-century France, namely several years of full-time experience as a clerk, it is highly likely that he worked under a senior notary during this period. When the future digitisation and indexation process of the French notarial archives would be in an advanced stage, we may find an apprenticeship contract, or mentions of his role as witness or clerk at a notary office somewhere in France, maybe in the Hainaut area, maybe in a city outside that region or, who knows, maybe even in Paris.²⁵ Until that moment, we can only guess about Boussu's activities or place of residence during these 'lost years'.

²⁴ VeleHanden, https://velehanden.nl/projecten/bekijk/details/project/amsterdam_notarieel_2 (accessed March 2020).

²⁵ Archives départementales du Nord, Lille, France, inv. no. 2E39/337: Archives des tabellions d'Avesnes, notary J.J. Renaut, Féron, act *en minute*, 11 June 1765. According to this property partition act, three of Boussu's half-brothers (Jean Joseph, Philippe and Bruno) lived in the French capital. Furthermore, Benoit Joseph Boussu's son Jean François also lived in that city. So at least there was a strong connection between the Boussu family and the city of Paris.

3.5. The French eighteenth-century notary

3.5.1. The notary in eighteenth-century France, and Hainaut in particular

Before presenting the results of the further archive study into the life and position of Benoit Joseph Boussu, first the role, education and social and economic position of the notary in French pre-Revolutionary society in general will be discussed in the upcoming three sections.

In the *Traité des connaissances nécessaires à un notaire* from 1774 by Blondela, notaries are described as “*officiers établis pour donner aux actes qui se passent pardevant eux le caractère de la forme publique et de l'autorité de la justice, qui fait que ces actes portent la preuve de leur vérité*”.²⁶ De Ferrière, in 1755, gives the following description: “*un notaire est [...] un Officier public, dont la fonction est de rédiger par écrit, & dans la forme prescrite par les Loix, les actes, conventions, & dernières dispositions de hommes. [...] Les actes qui sont passés pardevant Notaires, dans la forme prescrite par les Loix, produisent trois principaux effets. Le premier est, d'avoir une date certaine, & de faire foi en Justice; en sorte que l'on ne seroit point reçu à prouver par témoins le contraire de ce qui est énoncé par les actes qui sont passés pardevant Notaires; [...] Le deuxième est, que les actes passés pardevant Notaires emportent hypothèque²⁷ sur les biens de l'obligé, quand même il n'en seroit point fait mention. Le troisième est, qu'étant scellés du sceau de la Jurisdiction dans laquelle les Notaires sont immatriculés, ils peuvent être mis à exécution, sans qu'il soit besoin de mandement ni de permission du Juge*”.²⁸ According to this description, the act of a notary had three functions: (1) it gave correct report of the act and its date, (2) it involved, automatically and tacitly, a mortgage on the object involved, and (3) it had its own executory force without having to be affirmed by a judge. However, Hainaut – known as ‘*pays de nantissement*’ according to the local customary laws – was an exception to this general French rule, in the sense that notarial acts only had the first of these three above-mentioned functions. Figure 3.5 depicts a French eighteenth-century notary.

Gehlen defines the seventeenth- and eighteenth-century notary as follows (translated from Dutch to English): “a public functionary serving the common interest, appointed by the government and whose job it was, upon being asked to do so, to draw up acts of special probative value, while being obliged to provide – against a fee – copies of those deeds to

²⁶ Moreau, *Les métamorphoses du scribe* (1989), p.56.

²⁷ This implies an automatic (tacit) mortgage. Anyone who has committed himself to pay by means of a notarial act, must, from the moment of signing the deed, guarantee for the effective payment of the debt with all his property.

²⁸ Claude Joseph de Ferrière, *Dictionnaire de droit et de pratique*, vol. 2 (Paris: Saugrain fils, 1755), pp.362-363.

parties and those interested”.²⁹ According to this last description, it can thus be said that a notary is licensed by the authorities, to draft acts for individuals at their request, ensuring the evidential value of these documents.³⁰ To oversee that the document is indeed signed by both parties and that no forgery took place, several independent witnesses (often two or more) are present during the signing, and also sign the act. Furthermore, the notary had the task to carefully archive copies of all acts he drafted, and to keep a register, so that these protocols could contribute to a collective ‘perpetual memory’.



Figure 3.5. Engraving, showing a French eighteenth-century notary in action.³¹

²⁹ Antoon Florentijn Gehlen, ‘Het notariaat der Lage Landen in historisch perspectief’, in Elisabeth M. van der Marck et al., ed., *Ars Notariatus*, vol. 42 - Atlas du notariat / Atlas van het notariaat (Deventer: Kluwer, 1989), pp.477-492, at p.487.

³⁰ Pitlo (1948), p.188.

³¹ Bibliothèque nationale de France, cabinet des estampes, Paris, France. Image reproduced from: Moreau, *Les métamorphoses du scribe* (1989), p.54.

In the sixteenth century, the notary would only write the authentic act *en minute* for the involved parties, who had to go to a *tabellion* next, in order to have their act *en grosse* (or a future copy) made and to have the legal seal applied. Finally, the *garde-note* would register and archive the act *en minute*.³² With royal edicts from 1579 and 1597, the roles of the *tabellion* and the *garde-note* were successively incorporated in the function of the notary, thereby defining the final form of the notarial profession for the *Ancien Régime*. From that moment onwards, the notary was responsible for both the authentic and executory quality of the acts, as well as for archiving and conserving them.³³ This is exactly the situation as described above by De Ferrière in 1755.

The notary issued documents of various categories.³⁴ First, there were the acts concerning matters of family and inheritance. Within this category fell marriage contracts, registrations of guardianship, testaments, inventories and property partitions. In the field of property-related and economic transactions, the notary drafted contracts for buying/selling, renting, exchange, annuities and various business agreements. The third category included acts regarding disputes, such as protests, statements and interrogatories. In the first two areas, the notary was, according to Gehlen when discussing notaries in the Low Countries in the seventeenth and eighteenth century, in competition with the *échevins* (aldermen) and *greffiers* (registrars) of the local courts of justice.³⁵

For notaries from Paris, for the reference year 1749, Poisson found that, with 77 % of examined acts classifiable, 26 % of the acts deals with family matters and 71 % relates to purely economic transactions. For Lille, for the same year, these percentages were found to be 26 % and 74 % respectively (based on 92 % classifiable acts), while for the relatively small city of Charleville(-Mézières), like Avesnes in the north of France, percentages were found of 31 % for acts concerning family matters and 67 % for economic transactions (100 % of the examined acts were classifiable).³⁶ On average, for 141 notary practices spread over 45 cities in France, for the year 1749, Poisson found that the family-related acts represented 20.4 % of the classifiable notarial activity, while the economic acts represented 73.7 %.³⁷ With respect to the region now known as Belgium, Bruneel gives, for the eighteenth century and for both the cities and the rural areas, the following

³² Cacheux (1960), p.43.

³³ Cacheux (1960), pp.43-44.

³⁴ Cacheux (1960), p.44; Gehlen (1989), p.489; Claude Bruneel, 'De uitoefening van het ambt', in Claude Bruneel et al., ed., *Het notariaat in België - Van Middeleeuwen tot heden* (Brussels: Gemeentekrediet, 1998), pp.118-140, at pp.128-130.

³⁵ Antoon Florentijn Gehlen, 'Le notariat aux Pays-Bas: perspective historique', in Van der Marck et al., ed. (1989), pp.127-142, at p.139.

³⁶ Jean-Paul Poisson, *Notaires et société - Travaux d'histoire et de sociologie notariales* (Paris: Économica, 1985), p.295.

³⁷ Poisson (1985), p.290.

percentages: around 15 % for acts regarding family matters, around 75 % for acts concerning business and around 10 % for acts concerning disputes.³⁸

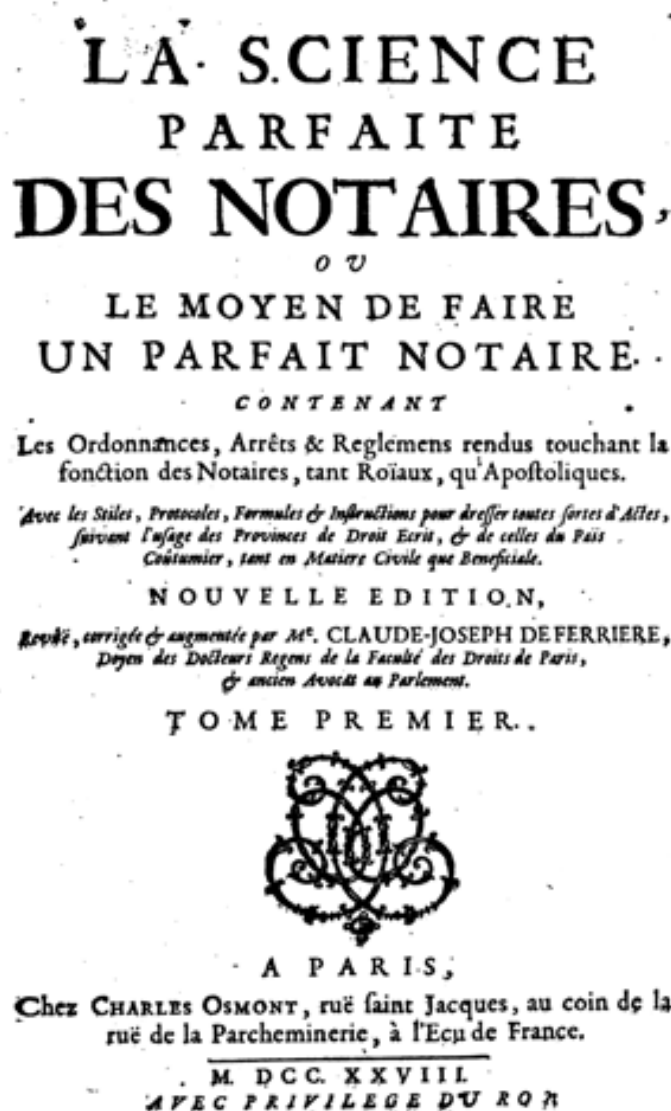


Figure 3.6. Title page of 'La science parfaite des notaires', vol. 1, edition 1728.³⁹

Various notarial manuals and treatises were available in the eighteenth century, containing guidelines and theory regarding the practice of the notary.⁴⁰ These books contained templates for all kinds of acts and contracts, which the notary could use as examples for his own drafting.⁴¹ The most well-known of these, for France, was the 'La

³⁸ Bruneel, 'De uitoefening van het ambt' (1998), p.128.

³⁹ Claude de Ferrière, La science parfaite des notaires - Ou le moyen de faire un parfait notaire, vol. 1 (Paris: Osmont, 1728).

⁴⁰ Paul L. Nève, J. J. Verbeek, ed., Forma servata - Vijf opstellen over formulieren en formulierboeken in het notariaat van de Middeleeuwen tot vandaag, Ars Notariatus, vol. 85 (Deventer: Kluwer, 1998).

⁴¹ Gehlen (1989), pp.486-487.

science parfaite des notaires' by Claude de Ferrière⁴² – father of the aforementioned Claude Joseph, who would later edit and expand his father's work – which was first published in 1682, but reprinted in many editions. Likely, most eighteenth-century notaries kept this book, see Figure 3.6, in their *comptoir*.

In some provinces of France that had only recently be added to the kingdom, 'notaries' existed that had by tradition been installed and practised under local *coutumes* (customary law). The integration of these 'old' scribes in the system of the royal notaries would sometimes cause problems. For the region of French Hainaut, due to the recent incorporation in France, such an exceptional situation occurred. Not long after the annexation of the southern part of Hainaut by France in 1659 as part of the Treaty of the Pyrenees which ended the Franco-Spanish War (1635-1659), in November 1661, royal notaries were installed for the first time in that region by the French king Louis XIV. In the bailiwick of Avesnes, six *offices* were created.

Previously, the functions of the public writer in Hainaut were performed by other officials, such as the *tabellions*, *échevins* (aldermen) or *hommes de fief*, each group with its own specific tasks. For example, in those earlier days, every contract concerning mutations regarding immovable property from *roturiers* (commoners) was drafted by council of aldermen, who also subsequently performed the 'realisation'. This latter action consisted of registration of the *deshéritance* ('expropriation') and subsequent *adhéritance* ('appropriation') of the property. The aldermen were present actively, formally witnessing the contract according to the *coutumes* of the region.⁴³

Starting from 1661, *notaires royaux* would have the combined competence of drafting of authenticated acts, as well as the function previously exercised by the *tabellions*, i.e. providing acts with executory force and issuing acts *en grosse* and *expéditions* (copies).⁴⁴ However, due to protest by both the inhabitants of Hainaut and the *tabellions*, already at the end of the seventeenth century, as proclaimed by several royal edicts issued between 1675 and 1699, the situation reverted back to the duality: the notaries drafted an authenticated act *en minute*, while the *tabellion* would render it executory (by issuing the act *en grosse*) and would archive the act *en minute*. The role of the eighteenth-century *notaire royal* in Hainaut was thus limited to the drafting of the act. In addition, the 'realisation' of the contract, the *deshéritance* and subsequent *adhéritance* of property involved, could only take place in front of the appropriate local council or court.⁴⁵ This *status quo* would continue until the end of the *Ancien Régime*.

⁴² Claude de Ferrière, *La science parfaite des notaires - Ou le moyen de faire un parfait notaire* (Paris: Osmont, 1682).

⁴³ Cacheux (1960), p.47.

⁴⁴ Cacheux (1960), pp.51-53.

⁴⁵ Cacheux (1960), p.54.

To recapitulate, the notarial institution in Hainaut took a rise in the fifteenth century, while soon after the annexation of 1659, Louis XIV reorganised the institution in the occupied provinces, respecting however its original legal traditions. *Tabellions* were re-established at the end of the seventeenth century in the main cities with the mission to preserve the acts *en minute* of all the notaries of bailiwicks (see Figure 3.7 for an example) and to issue *grosses*. The courts of aldermen or feudal officials had to 'realise' the contracts. After the Revolution, this old system was abandoned and public notaries were installed.⁴⁶

Thus, the eighteenth-century royal notary in Hainaut had less authority and competences than his counterpart in most other parts of France. Due to historical factors, he had to share and relinquish some of the usual functions of the *notaire royal*, in favour of the officers present since the Middle Ages, such as the *tabellions*, *greffiers*, *échevins* and *hommes de fief*, and had thus to make more effort to earn a living. Sometimes, these competitive circumstances would lead to conflicts and even legal trials, as pointed out by Herment,⁴⁷ Moreau⁴⁸ and Cacheux.⁴⁹ As will be seen later on, Benoit Joseph Bousso and his fellow notaries would also confront one of their competitors, a local registrar.

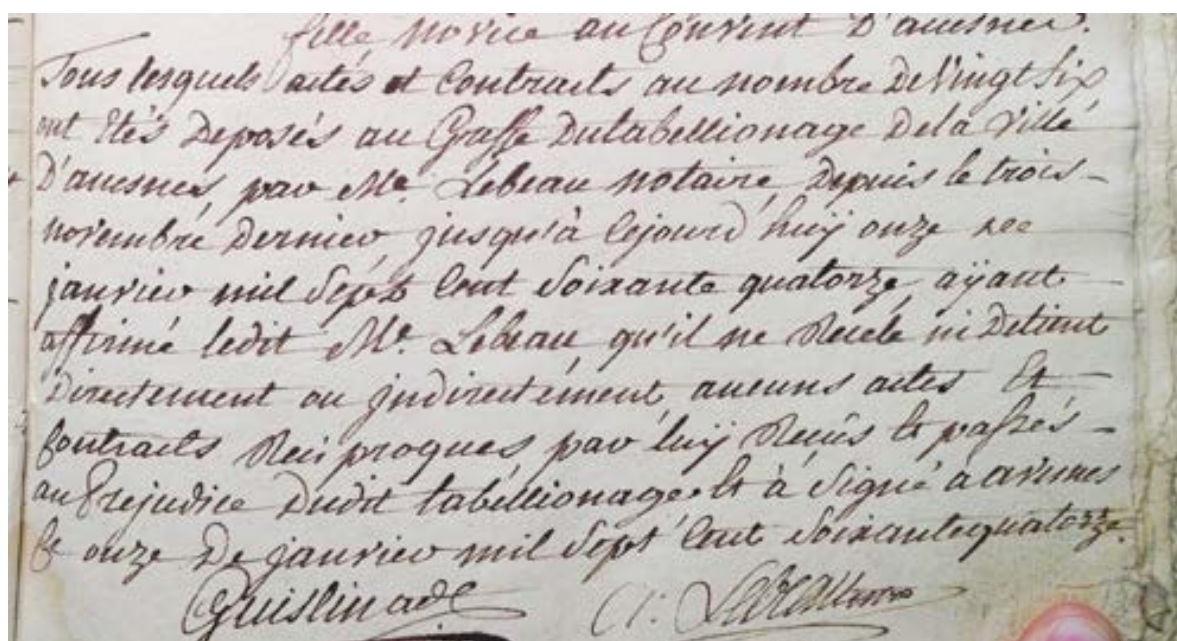


Figure 3.7. Extract of the *répertoire* of notary Antoine Joseph Lebeau, showing a remark concerning the deposition of the acts *en minute* at the *tabellion* of Avesnes, Guisslin (Archives départementales du Nord, Lille, France, inv. no. 2E39/510).

⁴⁶ Archives départementales du Nord, Lille, France, Série E: Titres féodaux, titres de familles, notaires et tabellions, communautés d'habitants, corporations et confréries. Available from: [http://viewer-archivesdepartementales.lenord.fr/accounts/mnesys_ad59/datas/medias/inventaires/pdf27.pdf](http://viewer.archivesdepartementales.lenord.fr/accounts/mnesys_ad59/datas/medias/inventaires/pdf27.pdf) (accessed April 2019).

⁴⁷ Raymond Herment, *Sous la poussière des panonceaux* (Nice: Marcel Ciais éditeur, 1955), pp.204-205.

⁴⁸ Moreau, *Les métamorphoses du scribe* (1989), p.62.

⁴⁹ Cacheux (1960), pp.53-57.

3.5.2. The social and economic status of the eighteenth-century French notary

Several authors have commented on the position of the notary in eighteenth-century society, both for France as well as for the Northern and Southern Netherlands. According to Henri Sée,⁵⁰ in Rennes “*les procureurs au Parlement [...] ont souvent une situation de fortune fort importante. Les avocats [...] sont dans l'ensemble moins aisés, mais un certain nombre d'entre eux, jouissant d'une grande notoriété, occupent dans la ville une place de premier rang [...] les notaires ont une condition fort inférieure aux avocats*”. In Rennes, and other larger cities, but especially in the rural areas, the notaries were in the lower ranks of this particular social class of legal practitioners. Sée further argues that the life of the majority of the *bourgeoisie* as a whole was very simple, except for a small but wealthy minority.⁵¹ To illustrate this, he refers to the memoirs of one François Yves Besnard (1752-1842), originally from Anjou, who had chronicled in detail the rural and urban daily life of his youth before the Revolution, including the habits of legal practitioners from the modest cities. Besnard describes the reasonably large, but sparsely and outdatedly furnished house of his great-grandmother, the widow of a notary.⁵²

The same Besnard says: “*Les fontanges [headdresses], ou rubans [ribbons] de couleurs vives, placées sur les coiffures, et les falbalas [frills, ruffles], appliqués au bas des robes, étaient des parures exclusivement réservées aux dames et demoiselles nobles ou à celles qui, par la supériorité très-marquée de fortune ou de profession des maris, se distinguaient aisément des autres familles bourgeoises. Ainsi, par exemple, les femmes de notaires, de chirurgiens, de marchands en boutiques ne se permettaient pas ce genre de luxe; quelques-unes seulement se permettaient le ruban blanc*”.⁵³ A footnote, on the same page, reads: “*Les notaires! oui! sur le même pied que les marchands en boutique! et dans l'édit de 1700 encore il était interdit à leurs femmes et filles de porter joyaux d'or et d'argent*”. Somewhat further in the memoirs of Besnard, we can read: “*Les meilleurs bourgeois, avocats, médecins, notaires, etc., mangeaient alors pour l'ordinaire dans leur cuisine. Lorsqu'ils avaient du monde, on servait communément dans le salon dit de compagnie [...]*”.⁵⁴ These quotes imply that the notaries were considered part of the middle class, at least in the smaller cities of France due to the absence of a rank of academically educated jurists. In addition, ancestry and secondary functions would affect the status of a local notary.

⁵⁰ Henri Sée, *La France économique et sociale au XVIII^e siècle* (Paris: Librairie Armand Colin, 1946), p.138. Digitised version by Jean-Marc Simonet from 2010, based on printed third edition. Available from: http://classiques.uqac.ca/classiques/see_henri/france_eco_soc_au_XVIIIe/france_eco_soc_au_XVIIIe.html (accessed November 2019).

⁵¹ Henri Sée, *Economic and social conditions in France during the eighteenth century* (New York: Cooper Square Publishers, 1968), p.204.

⁵² Celestin Port, *Les Souvenirs d'un nonagénaire - Mémoires de François-Yves Besnard*, vol. 1 (Angers: Lachèse et Dolbeau / LeMans: Pellechat, 1880), pp.7-9.

⁵³ Port (1880), p.28.

⁵⁴ Port (1880), p.137.

From the book *‘Les métamorphoses du scribe - Histoire du notariat français’* by Alain Moreau, a similar image of the eighteenth-century French provincial notary emerges,⁵⁵ whereas this author explicitly distinguishes between the urban practitioner and his provincial counterpart. He explains that the lifestyle of notaries could be very diverse, given the social disparities between them, depending on their place of residence, the importance of their practice, other functions that may be exercised, ranging from a lawyer in *parlement* (provincial appellate court), even judge, to innkeeper. Moreau illustrates the variety in careers for the provincial notary by presenting two cases, based on the family journal (*livre de raison*) of the individuals involved. Pierre Delavollée (1693-1724) worked as notary in Chartres, and obtained a university degree later in life. Although he could then work as an advocate (*‘avocat’*) in the regional *parlement* in 1712, he continued to work as a notary as well. Meanwhile, he was doing well financially, as could be deduced from the contract from his second marriage with an advocate’s daughter, which mentioned a capital of 25,000 *livres* and various farms and lands. On the other hand, the career of his fellow chronicler, Antoine Alexandre Barbier (1718-1776), a *tabellion* in Besançon, was less successful. His small practice and financially unfavourable marriage forced him to work as a lieutenant in the city’s militia, and later as a farmer. The *livre de raison* that he left behind reveals a mediocre life, self-supporting and without much luxury. He died miserably, without a successor amongst his sons and shortly after having sold his properties. According to Moreau (who paraphrases Gresset), Barbier’s destiny was very different from that of Delavollée, which illustrates the difference between the *tabellion* and the *notaire royal*, while furthermore Barbier’s existence is “*en contraste aussi avec celle de certains de ses confrères bisontins [from Besançon] titulaires d’offices multiples ou avocats, bien qu’aucun d’entre eux n’atteigne le niveau de vie des magistrats. Résidence plus modeste, participation à la vie de la cité, spirituelle, intellectuelle ou politique inexistante: pas de notaire académicien, franc-maçon ou échevin*”.⁵⁶

In contrast, the most sophisticated notaries were, unsurprisingly, those from Paris. Moreau points out that their lives differed significantly from the conditions of their provincial colleagues.⁵⁷ He quotes Foiret, who says about the capital’s notaries: “*Ils jouissaient d’une sorte de prépondérance sur leurs confrères des provinces. Plus instruits qu’eux, chargés d’affaires plus importantes et plus délicates, plus soigneux du style et des formalités, ils offraient un modèle aux autres notaires royaux et aux notaires seigneuriaux*”.⁵⁸ Not only was their work more demanding, dealing with affairs of national and international scope, they were also more intellectually oriented. Some had Voltaire and the painter Greuze as clients, while others were engaged in the translation of literature, the collection of

⁵⁵ Moreau, *Les métamorphoses du scribe* (1989), pp.79-84.

⁵⁶ Moreau, *Les métamorphoses du scribe* (1989), p.83.

⁵⁷ Moreau, *Les métamorphoses du scribe* (1989), p.84.

⁵⁸ Faustin Foiret, *Une corporation parisienne pendant la Révolution - Les notaires* (Paris: Librairie Ancienne Honoré Champion, 1912).

paintings or the support of artists.⁵⁹ Moreau further claims that many notaries, from Paris but also from the provinces, could be considered bibliophiles. Their collections did not only contain books on law, but also literature, encyclopaedias and scientific and theological works. Some of them were even authors themselves.⁶⁰ In another publication, Moreau concludes that, despite reform efforts initiated by the Monarchy, in the eighteenth century too many differences amongst notaries persisted. These contrasts were reflected in unequal regulation, in the varying quality of notarial services resulting from the disparity in intellectual levels – ranging from excellent (for the Parisian and the majority of the provincial royal notaries) to inferior – and in the standard of living of notaries. All these attributes were interdependent.⁶¹

Favier elaborates on the formation and settling of the young notary Pierre Philippe Candy (1759-1829), based on the latter's journal (*livre de raison*).⁶² After an education in Grenoble, Candy became a notary in the small town of Crémieu, in the south-east of France, where he led a rich social life in a circle of family, fellow-notaries and other legal officers. Many amicable encounters are recorded in the diary, including drinking, dining, singing and playing games, often taking place during the evening and night-time. In his later years, after the Revolution, Candy consolidates his social status and even becomes the mayor of his town.

Regarding the situation in the Northern Netherlands, Pitlo argues that the notaries, due to the lack of an education at university, did not belong to the same social class as the advocates, certificated judges and medical doctors.⁶³ He also refers to a Dutch *ordonnance* from 1695, concerning an impost on marriage and burial, where the height of the tax sum is depending on the income class. The first class, with the highest tax, consisted (amongst others) of the mayor (“*burgemeester*”), bailiff (“*baljuw*”), treasurer (“*tesaurier*”), advocate (“*advocaat*”) and medical doctor. The notary belonged to the second class, together with, amongst others, proctors (“*procureurs*”) and sheriffs (“*schouten*”), who paid half the amount of tax. Pitlo continues to say that the social status of the notary, at least in the Northern Netherlands, increased in the course of the seventeenth and eighteenth century, but in the end, the notary would never reach an important position in society and was not part of the intelligentsia. A rather similar situation is valid for the Southern Netherlands. According to Bruneel,⁶⁴ citing Van Buyten, notaries in Leuven around 1700 were part of the lower section of the middle class of society, but could climb to the top of this class when practising more than one profession. Also, other factors likely played a

⁵⁹ Moreau, *Les métamorphoses du scribe* (1989), p.85.

⁶⁰ Moreau, *Les métamorphoses du scribe* (1989), p.86.

⁶¹ Alain Moreau, ‘Le notariat français’, in Van der Marck et al., ed. (1989), pp.109-114, at p.111.

⁶² Favier (2008), pp.139-152.

⁶³ Pitlo (1948), pp.293-303.

⁶⁴ Claude Bruneel, ‘Een spectrum van carrières’, in Bruneel et al., ed. (1998), pp.103-117, at p.114.

role in this process, such as the number of competitors, social background of the family, marriages and heredity of the notarial office. Bruneel continues by stating that in the province, the possibility for a notary to become a notable was more likely. Social status could even be reflected in the burial location of the deceased notary: either in the church, or outside, on the cemetery.

Closely related to the position of the notary in society were the earnings he made with his practice. Herment gives an overview of the rates of the various standard services that the notary could provide, based on the situation in Orléans in 1683.⁶⁵ For simple acts, like sale and renting contracts, codicils and receipt acts (“*actes de remboursement*”), the client had to pay between 10 and 60 *sols* (0.5 to 3 *livres*).⁶⁶ The fee for more extensive documents, like testaments, inventories and marriage contracts, varied between 3 and 6 *livres*.

In order to get a rough idea regarding the basic income of a notary, based solely on the drafting of acts, it would then be necessary to have an indication of the number and type of acts passed annually. The distribution of act-types within the notary’s output has already been given in Section 3.5.1: according to this information, we can assume that around 20 % of the acts concerned family affairs (for which an average fee of 5 *livres* per act will be presumed), while the other 80 % of the acts were of an economic or dispute-related nature (for which an average fee of 1.5 *livres* per act will be taken). A notary would thus collect an estimated revenue of 220 *livres* per 100 issued acts. Of course, in order to calculate the net income, costs for paper, ink, displacements, and so on, would have to be subtracted.

Several authors have provided information regarding the actual number of acts certain individual notaries produced each year. The *tabellion* Barbier from Besançon had a modest practice, which produced only around 100 acts yearly, while the annual output of his succeeding son Antoine Alexandre was somewhat higher at 150 to 200 acts.⁶⁷ In contrast, the Parisian notary Paulmier would draft 600 to 800 acts per year, according to the same publication by Moreau.⁶⁸ When describing the production of the notary Candy from the small locality of Crémieu, Favier notes: “*son activité notariale restait cependant modeste: à peine une cinquantaine d’actes annuels en 1789-1790, ce qui est peu au regard des moyennes annuelles ordinairement enregistrées*”. He continues, however, by saying: “*dans une ville d’environ 2000 habitants et qui comptait alors sept notaires, cette activité restait dans la norme de*

⁶⁵ Herment (1955), pp.182-184.

⁶⁶ The *livre* (*tournois*) was the principal unit to perform monetary calculations in France during the eighteenth century. For calculation, the *livre* was further subdivided in *sols* (or *sous*) and *deniers*: 1 *livre* = 20 *sols*, 1 *sol* = 12 *deniers*. The *livre* was not existing as a physical unit; the tangible coins were issued as ‘*Louis*’ (valued at 24 *livres* after 1724), ‘*écu*’ (valued at 3 or 6 *livres* after 1724), ‘*sol*’ (valued at 1 or 2 *sols* after 1724, depending on the material of the coin), ‘*patar*’ (valued at 2 *sols*) and ‘*liard*’ (valued at 3 *deniers* after 1724).

⁶⁷ Moreau, *Les métamorphoses du scribe* (1989), pp.82-83.

⁶⁸ Moreau, *Les métamorphoses du scribe* (1989), p.88.

ses confrères: deux (Guichard et Plantier) rédigeaient trois à quatre fois plus d'actes [150-200], deux autres (Thibaud et Allier) une à deux fois plus [100], et deux (Allier neveu et Peyret) un nombre comparable [50]".⁶⁹

Bruneel provides numbers for the Southern Netherlands.⁷⁰ In Waver, in the period 1761-1777, 16 notaries were active, of whom the most active produced only 50 to 60 acts per year; others would even draft just one-fifth of that amount. In Brussels, renowned *confrères* like Mendivil or Nuewens produced 150 to 160 acts annually during the second half of the eighteenth century, while their contemporaries did not achieve that number by far. Bruneel further concludes that notaries in the Southern Netherlands had additional earnings, besides the income for writing the acts. Notaries could charge commission for their role in public sales, in the execution of testaments and in the collection of money due by debtors. Also, as a result of their inside knowledge of ongoing economic activity in the community, they could benefit by making investments in profitable businesses.⁷¹ Based on surviving cash books, Bruneel shows that for two notaries from Brussels, between 1763 and 1777, their average yearly gross turnover was 1,309 and 2,731 *florins* respectively. We must, however, not confuse these amounts with net incomes, since considerable non-profitable portions are included in the sums, such as certain city taxes, which the notary had to collect. By comparison, the surgeon-barber on the country-side earned 154 *florins*, a labourer on the land made 162 *florins*, and the wage of a room servant in Antwerp was 40 to 60 *florins* (including board and lodging). Higher magistrates made 3,000 to 4,000 *florins* per year, or more.⁷²

Like Herment (see earlier in this section), Bruneel also provides information regarding the fees for the individual operations performed by notaries in Brabant, still valid during the period 1760-1770. The amounts are given in *stuivers* (five cent piece, Brabantian equivalent to the French *sol*). A notary would charge 12 *stuivers* per page of a common act, including the act *en minute*. In case the job would take longer than usual, a fee of 12 *stuivers* per hour was calculated. For comparison, a medical doctor would charge 6 to 13 *stuivers* per consult, a mason 24 to 30 *stuivers* per day, and a mason journeyman 17 *stuivers*.⁷³

It may thus be concluded that the average notary in a small or medium-sized town in France would produce an amount of 100 to 200 acts a year, which would provide an income of around 220 to 440 *livres* per year. Notary Delavollée from Chartres⁷⁴ is known

⁶⁹ Favier (2008), p.147.

⁷⁰ Bruneel, 'De uitoefening van het ambt' (1998), pp.124-127.

⁷¹ Bruneel, 'Een spectrum van carrières' (1998), p.113; Bruneel, 'De uitoefening van het ambt' (1998), p.132.

⁷² Bruneel, 'De uitoefening van het ambt' (1998), p.133.

⁷³ Bruneel, 'De uitoefening van het ambt' (1998), p.133.

⁷⁴ Chartres counted 15,000 inhabitants at the end of the eighteenth century. See: Des villages Cassini aux communes d'aujourd'hui, Chartres, http://cassini.ehess.fr/cassini/fr/html/fiche.php?select_resultat=8537 (accessed January 2020).

to have collected an annual revenue of 400 *livres*,⁷⁵ which agrees with this estimation. To place these amounts in a context, for eighteenth-century France, the indicative annual incomes (in *livres*) for the following professions are given in parentheses: foreman on farm (84-90, including board and lodging), carter on farm (54-66, including board and lodging), ox-driver (30-36, including board and lodging), stable-boy (60-66, including board and lodging), female servant on farm (24-33, including board and lodging),⁷⁶ male agricultural day-labourer (100), female agricultural day-labourer (75),⁷⁷ lower priest (*curé*, 500-750), poor nobility (1,200-2,000), journeyman (130-440, in general, depending on trade, skills and location), textile worker (220-275), weaver (110-130, in Brittany), female spinner (55-65, in Brittany) and miner (165).⁷⁸ Similar incomes are provided by Sabot,⁷⁹ who refers to various sources: 900 *livres*/year for a lieutenant, 150-620 *livres*/year for a craftsman, 200-250 *livres*/year for a school teacher, 240-360 *livres*/year for an urban labourer and 95-120 *livres*/year for an agricultural labourer (including nourishment).

Milliot,⁸⁰ when describing the hierarchy of the Parisian luthiers in the eighteenth century, provides the following annual wages (in *livres*): non-qualified labourer (100-300), luthier journeyman (700), cabinet maker (400-750), renowned master luthier (5,500). To give a comparison to other professions, Milliot points out that both a commercial agent and a home teacher would earn between 1,000 and 3,000 *livres* per year, which would be considered a middle-class income, as well as the financial limits for living a basic and a comfortable life respectively. Or, as Besnard formulates: “*on se retirait volontiers des affaires, lorsqu’on était parvenu à jouir de 3 ou 4,000 livres de rente [per year], ce qui passait alors dans tout le Tiers-État pour une très-honnête fortune; et c’était alors une opinion reçue que qui ne pourrait vivre avec 3,000 livres de revenu, ne vivrait pas avec 100,000*”.⁸¹

⁷⁵ Moreau, *Les métamorphoses du scribe* (1989), p.81.

⁷⁶ Sée (1968), pp.20-21.

⁷⁷ Port (1880), pp.80-82.

⁷⁸ Sée (1968), pp.74, 103, 182, 213. In case income was given on basis of one day, the yearly income has been calculated assuming 220 effective working days per year, in accordance with Rudé, who assumes 111 unpaid feast days during the *Ancien Régime*, and further allowance for days of sickness. See: George E. Rudé, ‘Prices, wages and popular movements in Paris during the French Revolution’, *The Economic History Review - New series*, vol. 6, no. 3 (1954), pp.246-267, at p.248.

⁷⁹ Thierry Sabot, *La valeur des biens, niveau de vie et de fortune de nos ancêtres* (Saint-Germain-Lespinasse: Thisa, 2012), p.29.

⁸⁰ Sylvette Milliot, *Histoire de la lutherie parisienne du XVIII^e siècle à 1960*, vol. 2: *Les luthiers du XVIII^e siècle* (Spa: Les Amis de la Musique, 1997), p.24.

⁸¹ Port (1880), pp.129-130.

To place the income of the average notary in further perspective, some prices of essential comestibles will be given, based on data provided by Besnard.⁸² Meat, depending on the type and season, would cost 2 to 5 *sols* per pound. Chickens costed 15 *sols* per two, while a complete fish, based on size and type, was sold for 8 to 12 *livres*. Butter costed 5 *sols* per pound, eggs 3 to 4 *sols* per dozen. For a dinner in a simple restaurant in Paris, 10 to 12 *sols* had to be paid, more luxurious places would charge double that amount. Bread in mid-eighteenth-century France was relatively expensive, at 8 to 9 *sols* for a 4 pound loaf⁸³ (while this price could rise further in case of bad wheat harvests⁸⁴). Such a loaf would be sufficient as a one-day ration for a family,⁸⁵ but would absorb half of the daily income of an unschooled workman.⁸⁶ Ordinary wine would be sold for 10 *sols* per litre in 1789, with half of the price composed of tax,⁸⁷ although this price may have been influenced by the turbulent times.

Finally, according to an online currency convertor,⁸⁸ the French *livre* (= 20 *sols*) of the year 1750 would have a contemporary value of 11.28 euros. This conversion rate appears to be in accordance with the food prices mentioned just above. Of course, the prices of goods and products in the eighteenth century have to be related to the way these items were produced, the availability of their raw materials, their demand, and so on. These conditions may differ from the present-day situation, which implies that a direct comparison of historical and current prices has to be interpreted with a certain caution.

Since the earnings of the average provincial notary thus were only slightly higher than those made by the servants and labourers, many notaries must have felt the urge to gather some additional financial means, in order to enjoy a more comfortable life for themselves and their family. Various sources mention that it was not uncommon for a *notaire royal* to practise an ancillary legal function at the same time, in order to obtain a supplement to his basic income⁸⁹. Specific examples of the accumulation of the jobs of notary and proctor (*‘procureur’*), or notary and registrar (*‘greffier’*), keep appearing in

⁸² Port (1880), pp.130, 207-208, 212, 332.

⁸³ Steven Laurence Kaplan, *The bakers of Paris and the bread question 1700-1775* (Durban/London: Duke University Press, 1996), p.90.

⁸⁴ J. Neumann, J. Dettwiller, ‘Great historical events that were significantly affected by the weather - Part 9, the year leading to the Revolution of 1789 in France (II)’, *Bulletin American Meteorological Society*, vol. 71, no. 1 (1990), pp.33-41, at pp.36-37; Sabot (2012), p.34.

⁸⁵ Rudé (1954), p.248.

⁸⁶ Camille Ernest Labrousse, *Esquisse du mouvement des prix et des revenus en France au XVIII^e siècle* (Paris: Librairie Dalloz, 1933), p.602; David S. Landes, ‘The statistical study of French crises’, *The Journal of Economic History*, vol. 10, no. 2 (1950), pp.195-211, at p.197; Rudé (1954), p.247.

⁸⁷ Rudé (1954), p.249.

⁸⁸ *Convertisseur de monnaie d’Ancien Régime*, <http://convertisseur-monnaie-ancienne.fr/> (accessed January 2020). The methodology behind this convertor, based on three known conversion tables, is explained on its website.

⁸⁹ Moreau, *Les métamorphoses du scribe* (1989), p.58.

various sources,⁹⁰ also for the Northern⁹¹ and Southern⁹² Netherlands. The *notaires seigneuriaux* would sometimes have secondary jobs outside the field of law, being for instance craftsman, farmer or churchwarden.⁹³ During my own archival research, I even encountered the combination of surgeon and notary, for one Jean Baptiste Bryard from Moeuvres (France).⁹⁴ In addition, notaries could further expand their income by collecting commissions and profit percentages in case of their assistance in transactions, as was explained above, or by renting out property or investing in annuities.

3.5.3. How to become a (royal) notary?

The notaries in the Boussu family were *notaires royaux*, therefore we will now focus on this category. In order to perform this function in France in the seventeenth and eighteenth century, candidates had to be at least 25 years of age, of good morality and Roman Catholic. The candidate could not be a member of the clergy. A degree of law from a university was not demanded. Instead, practical experience in the working field was required.⁹⁵

As decided by the French king Francis I in 1535, an examination was also part of the process, in front of a committee of four *conseillers au Parlement*, who questioned the aspirant notary regarding his knowledge of the profession. Initially, the application of this rule would be inconsistent, until in the seventeenth century the general requirement of a form of qualification had become permanent. Nevertheless, each province would have a different composition of the exam committee and varying modalities.⁹⁶ In Paris, candidate notaries needed to have at least five years of experience as a main clerk in a Parisian notary office (except for sons and sons-in-law of notaries, who needed experience only as regular clerk). No formal exam was held, but an approval was given after the candidate had been questioned.⁹⁷

In Orleans, the candidate had to obtain three certificates, one by a clergyman regarding behaviour, one by a non-related notary concerning his specialist capacities, and a third

⁹⁰ Moreau, *Les métamorphoses du scribe* (1989), p.82; Favier (2008), p.147.

⁹¹ Pitlo (1948), pp.222, 295.

⁹² Bruneel, 'Een spectrum van carrières' (1998), p.112; Claude Bruneel, 'Notaire à Bruxelles au XVIII^e siècle, une simple compétence ou une profession à part entière?', in Hervé Leuwers, ed., *Juges, avocats et notaires dans l'espace franco-belge - Expériences spécifiques ou partagées (XVIII^e-XIX^e siècle)* (Brussels: Archives Générales du Royaume, 2010), pp.59-83, at pp.72-74.

⁹³ Moreau, *Les métamorphoses du scribe* (1989), pp.58-59.

⁹⁴ Archives départementales du Nord, Lille, France, inv. no. 2E39/502: Archives des tabellions d'Avesnes, notary T. Lebeau, Avesnes-sur-Helpe, répertoire, registration of an act dated 24 February 1745.

⁹⁵ De Ferrière (1755), p.363; Herment (1955), p.209; Moreau, *Les métamorphoses du scribe* (1989), pp.57-58.

⁹⁶ Moreau, *Les métamorphoses du scribe* (1989), p.57.

⁹⁷ Moreau, *Les métamorphoses du scribe* (1989), pp.57-58.

by a proctor (*procureur*), for general knowledge of law. In addition to that, he had to prove that he had accomplished five years of apprenticeship with a *notaire royal*.⁹⁸ In Lyon, five years of working experience at a notary office was also required, of which three years as main clerk, as well as passing for an exam.⁹⁹ In Rennes, an apprenticeship certificate was required, but without a minimum duration.¹⁰⁰

In many other places, the applicant was expected to have worked in the office of a magistrate, proctor, registrar or advocate.¹⁰¹ The notary Pierre Philippe Candy (1759-1829), for example, did apprenticeships at the office of two different *procureurs* in the French provincial capital Grenoble, with a total effective length of 33 months, spread out over a five-year period between 1780 and 1784. During these years, he regularly returned to his native town of Crémieu.¹⁰²

In the regions north of France, similar requirements for becoming a notary were applicable during the seventeenth and eighteenth century. For the Northern Netherlands, Pitlo and Gehlen mention the age limit of 25 years, good behaviour, the appropriate religion and practical experience that was assessed through an exam.¹⁰³ Similar criteria for age, education, religion and behaviour were prevailing in the Southern Netherlands.¹⁰⁴

In order to obtain the approval to exercise as a royal notary in eighteenth-century France, the applicant had to send a request to the Monarchy, represented in this case by the *Grande Chancellerie* in Paris. Once this request had been approved, the candidate received a *lettre de provision d'office*. This document was the official authorisation allowing the applicant to practise as a notary.¹⁰⁵ Having been granted this document, the applicant then had to address the royal bailiwick under which the desired notarial *office* was included. The bailiwick conducted an assessment concerning the reputation of the candidate and examined his legal knowledge. After having successfully passed this procedure, the newly appointed notary had to acquire an '*office*'. By this term, not the actual building is designated, but rather the right to carry the title of notary and to

⁹⁸ Moreau, *Les métamorphoses du scribe* (1989), p.58.

⁹⁹ Moreau, *Les métamorphoses du scribe* (1989), p.58.

¹⁰⁰ Moreau, *Les métamorphoses du scribe* (1989), p.58.

¹⁰¹ Moreau, *Les métamorphoses du scribe* (1989), p.58.

¹⁰² Favier (2008), pp.140-142.

¹⁰³ Pitlo (1948), pp.203-207; Gehlen (1989), pp.487-488.

¹⁰⁴ Bruneel, 'Een spectrum van carrières' (1998), p.104.

¹⁰⁵ Isabelle Girard, *Minutier des notaires 1462-1899 - Présentation de la sous-série 3 E* (Tours: Archives départementales d'Indre-et-Loire, 2011), p.13.

Available from: <http://archives.cg37.fr/UploadFile/GED/3E/1301384097.pdf> (accessed January 2020).

perform the associated functions.¹⁰⁶ These *offices* – sometimes referred to as *études*, although the term *étude* mostly stands for the building or room in which the notary practises – were limited in number per region,¹⁰⁷ and their transfer was performed by an actual sale.¹⁰⁸ A newly admitted notary had to purchase (or lease) the existing *office* from a predecessor. The latter had to officially give up his rights, by signing an act of resignation. Not only the title, but also the acts *en minute* and further archives were involved in the transfer.

Herment¹⁰⁹ lists the price of 18 *offices* in Tours, at the end of the seventeenth century, which mostly range between 1,000 and 3,500 *livres*, while two could only be sold for a price around 200 *livres*. In some of the cases, an additional sum of 1,000 *livres* was charged for the collection of *minutes*. These relatively low amounts were mainly the result of heavy financial pressure on notaries, caused by interests to be paid by the notary for his loans (debts), which caused the prices to lower. The same problems occurred, according to Herment, in most other regions of France. Moreau¹¹⁰ also gives several price indications: 1,300 *livres* for an *office* in Courville (1693) and 3,000 *livres* for an *office* in Chartres (1694), while the price for an *office* in Besançon in the first half of the eighteenth century fluctuated between 1,000 and 5,000 *livres*. The prices in Paris were of course much more elevated, and could be as high as 300,000 *livres* just before the Revolution. For a large city, Sée¹¹¹ mentions a value of “scarcely more than” 16,000 *livres*, for a rural area not more than 3,000 *livres*. Besnard (1752-1842)¹¹² declares: “*Le prix vénal des offices de notaire à Angers était alors de 3 à 10,000 fr.; dans les autres villes principales de la province, il était au plus de 3,000 fr., et il était dans les petites villes ou villages et bourgs de 6 à 1200 fr.*”. Finally, Favier gives the example of a provincial *office* that changed ownership for a price of 1,300 *livres*.¹¹³ So, except for the excessive prices in the capital, a notary *office* would be reasonably affordable in the rest of France.

¹⁰⁶ According to De Ferrière (1769), an *office* “est une dignité ou fonction publique qui nous donne une qualité, un titre & un rang, selon les fonctions: on les appelle charges”. See: Claude Joseph de Ferrière, *Dictionnaire de droit et de pratique*, vol. 2 (Paris: Brunot, 1769), p.255.

¹⁰⁷ In case of the bailiwick of Avesnes, six *offices* were created by the edict of November 1661. All these *offices* were active at the time Boussu obtained his *lettre de provision*. See: Alexis Cordonnier, *Sûrement et depuis longtemps - Tableaux des études notariales du département du Nord (XVI^e-XXI^e siècles)* (Lille: Archives départementales du Nord, 2015), pp.22-41.

¹⁰⁸ Moreau, *Les métamorphoses du scribe* (1989), pp.59-60.

¹⁰⁹ Herment (1955), pp.193-194.

¹¹⁰ Moreau, *Les métamorphoses du scribe* (1989), pp.81, 82, 85.

¹¹¹ Sée (1968), p.201.

¹¹² Port (1880), pp.136-137.

¹¹³ Favier (2008), p.146.

3.6. Boussu's activities as a notary

In the light of the professional conditions explained in the previous section, more specifically the commonly required training period of five years, it is not unthinkable that Benoit Joseph Boussu did an internship at a notary practice during the period March 1725 until June 1729, presumably outside the direct vicinity of Avesnes, since we did not find his signature – as a witness or as one of the parties – on acts of notaries from that region and period. In case Boussu indeed was an intern somewhere in France, we probably will one day find proof for that, once the French notary archives have been made both digitally accessible and searchable.

What has been found is the *lettre de provision d'office* for Benoit Joseph Boussu, which was issued by the *Grande Chancellerie* on 30 June 1729.¹¹⁴ The following main text from this particular document sums up the requirements for the function; please note that the text uses generic formulation, and that no specific details are given regarding Boussu's education or internship:

“Louis par la grace de Dieu Roy de France et de Navarre a tous ceux qui ces presentes verront, salut[.] Scavoir faisons que pour le bon et louable raport qui nous a esté fait de la personne de notre bien amé Benoist Joseph Boussue et de ses sens, suffisance, loyauté, prudhommie[,] capacité et experience au fait de pratique, pour ces causes et autres nous luy avons donné et octroyé, donnons et octroyons par ces p[rese]ntes l'office de notaire Royal au baillage d'Avesnes[,] resident a Fourmies que tenoit et exercoit Robert Boussu[,] son père[,] d.[erni]^{er} possesseur decedé le 22. Janvier d[erni]^{er} qui en jouissoit a titre d'heredité et apres le deces duq[ue]l led[it]. Benoist Joseph Boussu en qualité de fils et hé[ritie]r en a payé le droit de 8.^e denier en conseq.[uen]^{ce} de la decl.[arati]^{on} du 9. aoust 1722; pour led[it] office avoir[,] tenir et doresnavent exercer[,] enjouir et user par led[it] Boussu fils aux honneurs, pouvoirs, libertes, fonctions, autorites, privileges, exemptions, droits, fruits, profits, revenus et emolumens app.[artenan]^s aud.[it] office tels et tous ainsy qu'en a jouy ou deu jouir led[it] deff.[un]^t Boussu[,] son père[,] et qu'en jouissent ou doivent jouir les les [sic] pourvus de pareils offices tant q[u'i]l nous plaira; pourveu toutesfois que led[it] Boussu fils ayt atteint l[']age de 25 ans accomplis requis par les ord.[onnan]^{ces} suivant son extrait bap.[tistai]^{re} du huit avril mil sept cent trois deument légalisé cy avec la quittance du droit de 8.^e denier et autres pieces attachés sous le contrescel de notre chancellerie a peine de perte dud[it] office nulité des presentes et de sa reception[.] Sy donnons en mandement au Bailly d'Avesnes ou son lieutenant general et autres nos officiers et justiciers qu'il appartiendra que leur estant ap[p]aru des bonnes vie, moeurs, conversation, age susd[it] de 25. ans accomplis et religion Catholique, apostolique et romaine dud[it] Boussu et qu'ayant pris et reçu de luy le serment en tel

¹¹⁴ Archives Nationales, Paris, France, inv. no. V/1/278, pièce 286: Grande Chancellerie, Paris, lettres de provision d'office, *lettre de provision d'office de notaire* for Benoit Joseph Boussu, 30 June 1729.

cas requis et accoutumé, ils le recoive.[nt][,] mette.[nt] et institue.[nt] de par nous en possession et jouissance dud.[it] office, l'en faisant jouir et user ensemble des honneurs, pouvoirs, libertes, fonctions, autorites, privileges, exemptions, droits, fruits, profits, revenus et emolumens sus.^{d[its]} pleinement et paisiblement, et luy fassent obeir et entendre de tous et ainsy qu[']il app.[artien]^{dra} es choses concernant led.[it] office[.] Car tel est notre plaisir entemoin dequoy Nous avons fait mettre notre scel a ces presentes[.] Donné a Paris le trentiesme jour du mois de Juin l'an de grace mil sept cent vingt neuf et de notre regne le quatorzieme et sur le reply est escrit par le Roy, signé Chauveau et scellé du Grand Sceau de cire jaune.”

The fact that Boussu succeeded his father was not uncommon within this profession. Bruneel mentions dynasties of notaries during the *Ancien Régime*, where several generations continued the same office.¹¹⁵ Regarding the north of France more specifically, when we look at an overview of notaries from the sixteenth century onwards for the current *Département du Nord*, many instances of successive notaries with the same last name can be found within individual *offices*.¹¹⁶ Herment presents the family Aubrespy, from which seven generations of men worked as notaries and *procureurs* for over 200 years, since 1730, in the French districts of Hérault and Oise, as well as eleven succeeding generations of the Barailhé family, who were successive notaries in their *étude* in Saint-Sauvy between 1596 and 1934.¹¹⁷ Favier describes the formation of the young novice priest Pierre Philippe Candy (1759-1829) from Crémieu (near Lyon), who came from a family with many notaries, and who had to leave the seminary to become a notary himself after the death of his older brother, in order to continue the notarial family tradition.¹¹⁸

Within three months after Boussu had obtained his licence to exercise his *office*, he started to actually work as a notary in Avesnes, in September 1729. As is suggested by the *lettre de provision*, he inherited the *office* from his father Robert, who died in January 1729, although no direct archival proof (i.e. an act capturing the transfer of the *étude* from father to son) has been found.¹¹⁹

¹¹⁵ Bruneel, 'Een spectrum van carrières' (1998), p.114.

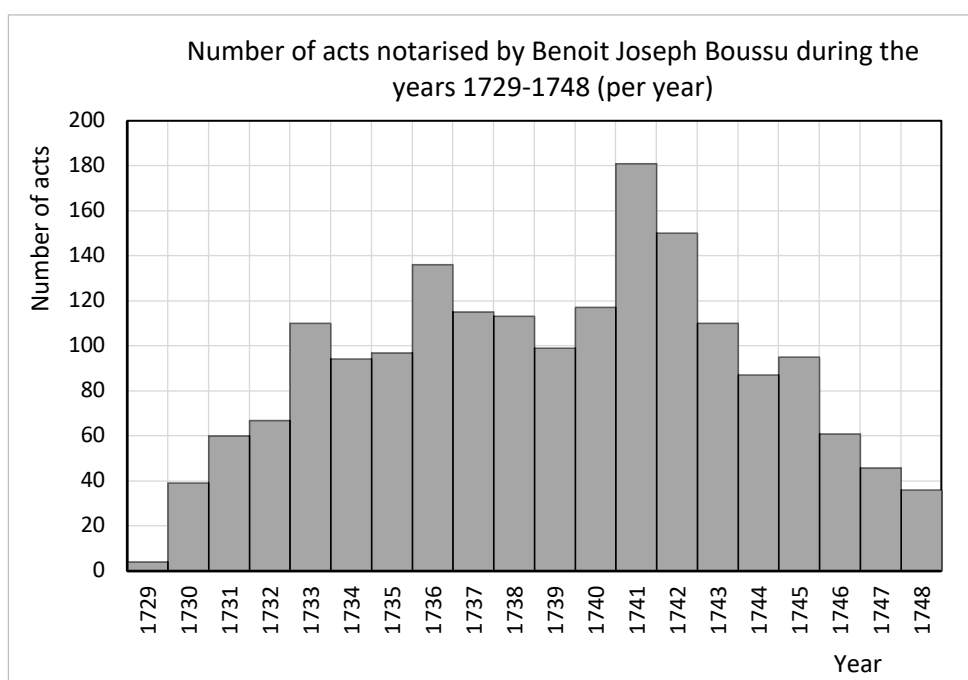
¹¹⁶ Cordonnier (2015).

¹¹⁷ Herment (1955), pp.150, 201.

¹¹⁸ Favier (2008), p.139.

¹¹⁹ A *ravestissement* act from 1709 and two *condition* acts from 1708 and 1711, all involving Robert Boussu, have been identified. These acts were issued not long after Robert Boussu's second marriage in February 1708. The documents describe the (future) inheritance of property of Robert Boussu. However, in none of these three acts, a reference has been found to the notarial *office*. See: Archives départementales du Nord, Lille, France, inv. no. 11B/559: Fonds du Bailliage royal d'Avesnes, embrefs Wignehies, *embref*, 19 October 1708; Archives départementales du Nord, Lille, France, inv. no. 11B/132: Fonds du Bailliage royal d'Avesnes, registre d'embrefs de la pairie d'Avesnes, *embref*, 11 January 1709; Archives départementales du Nord, Lille, France, inv. no. 11B/559: Fonds du Bailliage royal d'Avesnes, embrefs Wignehies, *embref*, 12 December 1711.

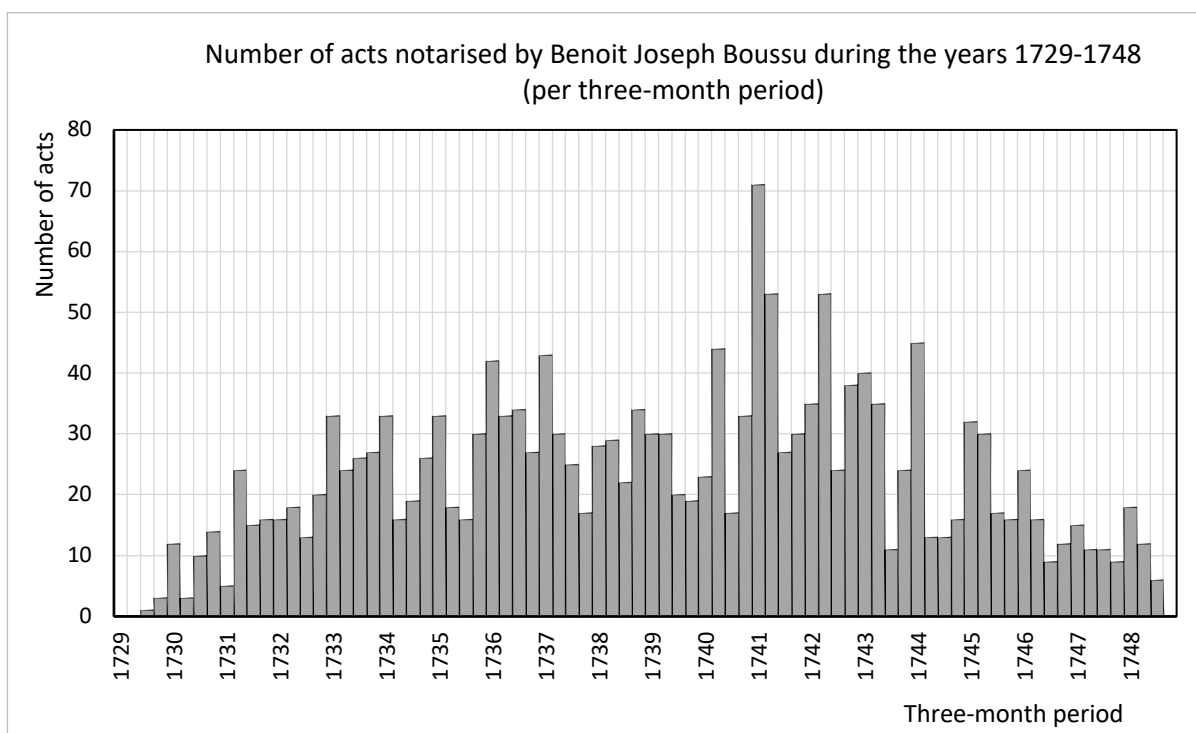
We can trace his notarial activity by the number of acts he drafted. It has to be noted that his acts *en minute* are only conserved from 4 January 1733 onwards,¹²⁰ although his *répertoire* starts mentioning acts from September 1729 onwards.¹²¹ It can be assumed that this latter register is complete. Boussu would continue to work as a notary until August 1748, when he transferred his *office* (see Section 3.10) and left for Liège soon afterwards. In order to obtain a better idea about the chronological distribution and frequency with which Boussu practised as a notary, for the period 1729-1748, the number of acts per year (Graph 3.2) and per three-month period (Graph 3.3) are displayed, based on the entries in Boussu's *répertoire*.



Graph 3.2. Distribution of acts notarised by Benoit Joseph Boussu for the period 1729-1748 (per year).

¹²⁰ Archives départementales du Nord, Lille, France, inv. nos. 2E39/80-87: Archives des tabellions d'Avesnes, notary B.J. Boussu, Avesnes-sur-Helpe, acts *en minute*, 4 January 1733 to 15 August 1748.

¹²¹ Archives départementales du Nord, Lille, France, inv. no. 2E39/500: Archives des tabellions d'Avesnes, notary B.J. Boussu, Avesnes-sur-Helpe, *répertoire*, 30 September 1729 to 15 August 1748.



Graph 3.3. Distribution of acts notarised by Benoit Joseph Boussu for the period 1729-1748 (per three-month period).

According to Graph 3.2, during the first three full years following his appointment, the clientele gradually grows. Likely, the people of Avesnes had to get familiar with the new notary, who originally came from the neighbouring village of Wignehies. Similar start-up periods have been reported for beginning notaries by Favier¹²² and Bruneel.¹²³ The growth in confidence of the potential clients is reflected in the annual increase in acts drafted by Boussu. From 1733 until 1740, the number of issued acts per year is fairly steady: generally between around 100 to 120 acts per year. This rate matches the information given in Section 3.5.2 for the typical provincial notary. In 1741 and 1742, Boussu's overall activity was significantly higher compared to the previous years. This sudden rise in activity could have resulted from a relocation of Boussu within Avesnes. As will be demonstrated in Section 3.9, Boussu's father-in-law donated his house to Boussu and his wife in October 1741. This house was located in the very centre of Avesnes, just behind the city's collegiate church. It can be imagined, though, that the Boussu family had already moved in with their benefactor several months earlier. In that case, the favourable new location of Boussu's practice could have resulted in the observed increase in clientele. From 1744 onwards, a decline sets in, with the yearly number of acts dropping below 100. In the final three years, between 1746 and 1748, a further decrease is observable. The emergence, resignation and popularity of other notaries in the city of Avesnes during Boussu's active

¹²² Favier (2008), pp.139-152, at p.76.

¹²³ Bruneel, 'De uitoefening van het ambt' (1998), p.126; Bruneel (2010), pp.72-74.

years may also have had an effect on the frequency with which he drafted deeds. His direct colleagues (or competitors...) were Thomas Beviere (active between 1699 and 1742), Henri Louis de Renly (active from 1743 until 1767), Charles Louis Gossuin (active from 1715 until 1736), Thomas Joseph Lebeau (active from 1736 until 1771) and Thomas Leclerq (active between 1745 and 1751).¹²⁴ The activities of various further notaries in the surrounding villages of Avesnes may have had an additional influence as well.

A similar three-phase development as observed in Graph 3.2 is visible in Graph 3.3, however with a more fluctuating course due to the smaller time interval. Local spikes in the graph are often (but not always) present at the first quarter of a year. As will be explained below, the enhanced agricultural activity in springtime had its effect on the notarial activity.

The observed decrease in activity of Boussu's notarial practice around 1744 may possibly be explained by circumstances concerning his second marriage. Boussu's first wife, Marie Charlotte Heisne, had died in August 1742. As explained in Section 2.4, two years later, a son named Jean Baptiste Louis was born out of wedlock, in June 1744. In order to legitimise the child, Boussu married the mother, Marie Anne Jugier originating from the nearby village of La Capelle, on 11 July of the same year. In the marriage contract¹²⁵ of two days earlier, the bride is said to be "*filie majeure*" (she was 25 years of age¹²⁶ at the time of the marriage) and "*demeurante et [sic] le premier comparant audit Avesnes*". This information suggests that *mademoiselle* Jugier lived in the same house as Boussu, and that she was thus most likely his housekeeper and/or nanny for the children of his first marriage. Given the date of birth of son Jean Baptiste Louis, in late June 1744, the mother's pregnancy must have become visible from her posture in the months before the birth. When we look at Graph 3.3, a clear dip occurs at the second quarter of this year (as well as at the two subsequent ones). It is very well possible that Boussu turned down many potential clients for the second quarter of 1744, keeping people out of his home-based office, in order to conceal the illegitimate pregnancy of his female cohabitant. Once the child was born, many clients apparently stayed away, or were kept away, for the rest of 1744, a circumstance that may have been the result of the strong shame and taboo that rested on extramarital relationships in French eighteenth-century society.

McManners argues that: "social rootlessness, geographical displacement, poverty and helplessness were causes of rural illegitimacy. In the cities, the figures were high because displacement and rootlessness were a mass phenomenon. The surges of immigration

¹²⁴ Cordonnier (2015), pp.22-29.

¹²⁵ Archives départementales du Nord, Lille, France, inv. no. 2E39/111: Archives des tabellions d'Avesnes, notary T. Lebeau, Avesnes-sur-Helpe, act *en minute*, 9 July 1744.

¹²⁶ Archives départementales du Nord, Lille, France, inv. no. La Capelle BMS [1711-1747], 5 Mi 0730: La Capelle parish, baptismal register, baptism record of Marie Anne Jugier, 5 November 1718.

were creating a whole class of people outside the parochial structure, deprived of the sense of community. And in any case, the towns had always had a large population of female servants [...] liable to the seduction by their masters and the sons of the family”.¹²⁷ At the time the woman had to give birth, according to the same McManners, “the magistrate would appear when the woman was in labour to demand the name of the father, pain and shame conjoined being regarded as operating like a truth drug [...] In some provinces, especially Languedoc, there was a communal custom to bring the father to book: a procession of the girl’s family to his door [...] Yet, while the law was being tempered, the forces of communal disapproval remained arrayed to humiliate the girl, and, if known, her paramour”.¹²⁸ The baptismal records reflected further disapproval: a remark was added about the illegitimacy, and often no one from the community was prepared to act as godparent. This last aspect illustrates the intertwined rejection of religion and society regarding this subject.¹²⁹

The words of the barrister Jean Marie Ricard, in his highly influential¹³⁰ publication *Traité des donations entre-vifs et testamentaires* (first published in 1652, and continuously reprinted in the eighteenth century), also express moral condemnation. As a legal consequence, “bastards” (as Ricard describes them) should be deprived from their right to inherit from the familial patrimony (see footnote for translation):¹³¹

“ce seroit couronner le vice, que de souffrir qu’un pere qui a méprisé le mariage en violant en mesme temps [...] pût transmettre entierement sa fortune & sa succession sur la teste de celuy qu’il ne peut considerer qu’en aimant le fruit de son peché [...] N’estant pas à propos de souffrir qu’une personne priue vne famille des biens qui luy sont destinez, par le principe d’une passion aueugle, & qui l’empesche de voir ce qu’il doit faire dans les termes d’une conduite réglée.”

¹²⁷ John McManners, *Oxford history of the Christian church - Church and society in eighteenth-century France*, vol. 2: *The Religion of the people and the politics of religion* (Oxford: Oxford University Press, 1998), p.294. According to McManners (see p. 294), in rural France in the eighteenth century, illegitimate births did not occur frequently. In general, less than 1% of the births took place out of wedlock, although there was a tendency for the numbers to rise from the second half of the century onwards. In the cities, illegitimacy occurred much more frequently. In rural society, the mothers were mostly over 20 years of age, but poor, illiterate and orphans, where the loss of the father was an important factor.

¹²⁸ McManners (1998), pp.295-296.

¹²⁹ McManners (1998), p.296.

¹³⁰ Matthew Gerber, ‘Illegitimacy, natural law, and legal culture on the eve of the French Revolution’, *Proceedings of the Western Society for French History*, vol. 33 (2005), pp.240-257, at p.248.

¹³¹ Jean Marie Ricard, *Traité des donations entre-vifs et testamentaires* (Paris: Guignard, 1669), p.91. Translation of the cited fragment: “It would be a coronation of vice to suffer that a father who has detested marriage by violating at the same time [...] could transfer his entire fortune and succession on the head of him which he can only consider the fruit of his sin [...] It is not appropriate to suffer that a person deprives a family of goods which are destined for him, because of a blind passion, and which has prevented him from seeing what he should do according to the terms of good conduct.”

As already discussed in Section 2.4, the first child of Boussu and Jugier was legitimised by their quickly organised marriage, three weeks after the birth. However, as may be concluded from the data presented in Graph 3.3, Boussu's notarial activity did not return to the previous level after these events. It may have been his unconventional private life conditions that made certain customers avoid his services. After all, a notary was expected to be the personification of family values, reliability and respectability,¹³² whereas Boussu had, at some point, lived in contradiction with these esteemed virtues. In the course of 1748, Boussu gave up the *office* all together. The shrinking clientele may have forced him to abandon his practice. Alternatively, he may have lost interest in his work in the years leading up to 1748 – making violins in his mind already, so to speak – which made him decide to scale down his notarial activities.

In order to get some idea about the working schedule of Boussu, and the type of acts he drafted, his output for a selected number of years has been analysed in more detail, based on his extant *répertoire*,¹³³ see Figure 3.8 for a sample page, which contains the integral chronological listing of the acts notarised by Boussu, including their subject and involved parties. Four years, 1734, 1738, 1739 and 1742, have been arbitrarily picked for this analysis, although in such a way that the selection was distributed over Boussu's most productive decade (1733-1743). Furthermore, years with an exceptionally high or low number of acts have been avoided. For each of the four investigated years, the following attributes were determined: distribution of drafted acts over the days of the week (to get an idea of how Boussu's notarial activities were spread over the week), distribution of drafted acts over the months of the year (to see if Boussu was more active in some months than others), the distribution of the drafted acts over the categories (1) family-related, (2) economic and (3) other, and finally the location associated with the acts.

¹³² Vytautas Gaivenis, *From the scribe to the notary* (Vilnius: R. Paknio leidykla, 2007), pp.26-27.

¹³³ Archives départementales du Nord, Lille, France, inv. no. 2E39/500: Archives des tabellions d'Avesnes, notary B.J. Boussu, Avesnes-sur-Helpe, *répertoire*, 30 September 1729 to 15 August 1748.

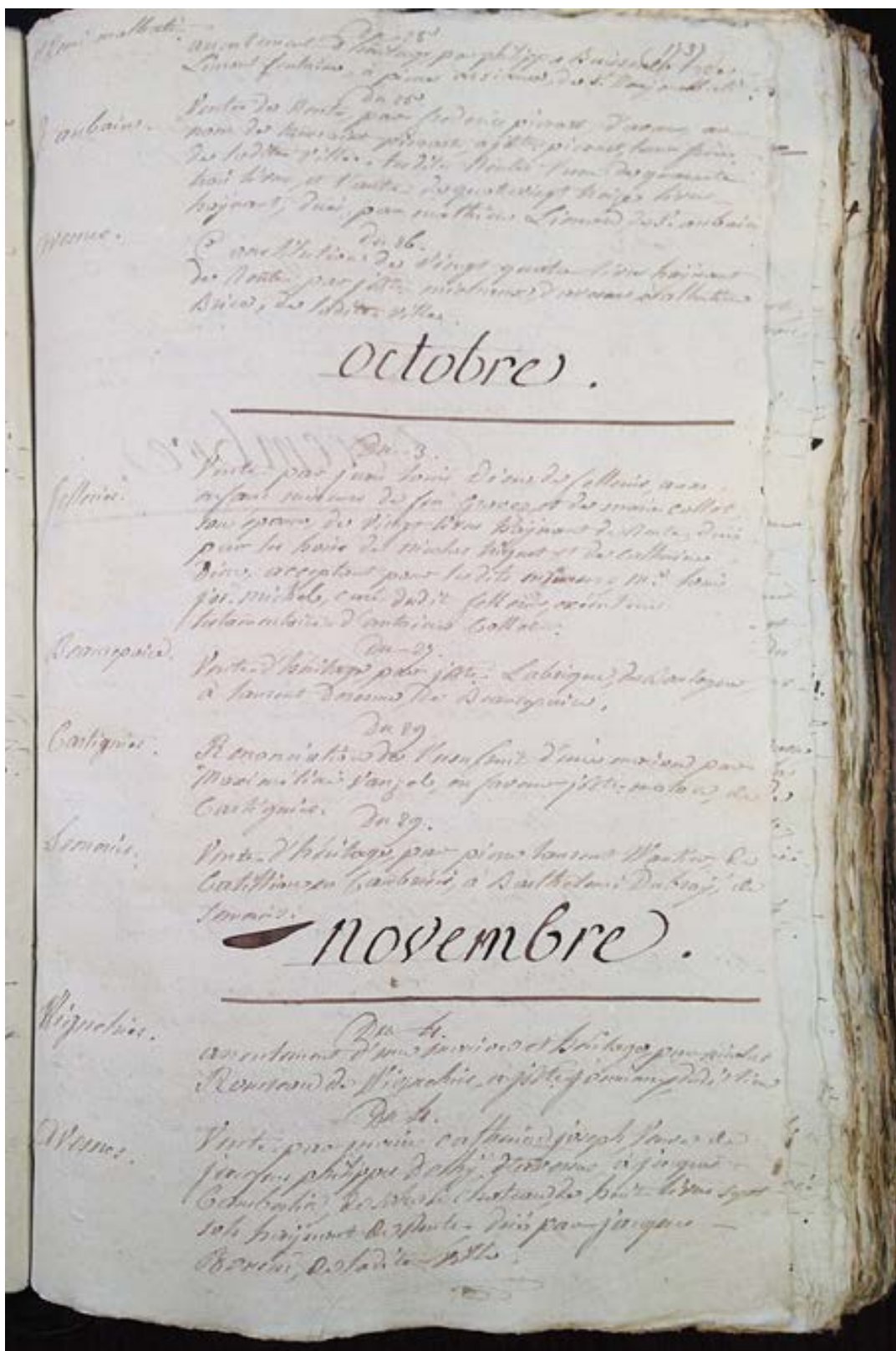


Figure 3.8. Sample page from the *répertoire* of Benoit Joseph Boussu. The handwriting shown is not by Boussu, but by the *tabellion* of Avesnes, who was in charge of archiving and registering the acts *en minute* (Archives départementales du Nord, Lille, France, inv. no. 2E39/500).

Graphs 3.4 through 3.7 show the distribution of drafted acts over the days of the week, for each of the four studied years respectively. Days of the week, according to the Gregorian calendar, were determined from the dates of the acts (as registered in the *répertoire*) using an online tool.¹³⁴ The range of the scale of the vertical axis is identical for all four graphs, to make mutual comparison easier. For the year 1734 (94 acts in total), the activity is almost equal for the days Monday through Saturday. Boussu did not draft any acts on Sunday for this year. For the other three investigated years, 1738 (113 acts), 1739 (99 acts) and 1742 (150 acts), for the Monday and Tuesday, a higher activity is observed than for the other days. This is especially the case for the year 1738. For the years 1739 and 1742, the Saturday shows an enhanced activity as well, comparable to that of the Monday and Tuesday. No specific explanation can be given for these observations, however, Bruneel¹³⁵ claims that every notary had his own rhythm, while local market-days could give rise to raised activity in the notary office. According to Lebeau,¹³⁶ around 1765, a market was held on Avesnes' *Petite-Place* on Wednesdays. Assuming that this particular market had been organised there for at least decades, any enhancing effect on the activity in Boussu's *comptoir* cannot be observed in the Graphs 3.4 through 3.7. For 1738, 1739 and 1742, Boussu drafted only few acts on a Sunday. This observation agrees with Bruneel,¹³⁷ who maintains that the notary's peace on Sunday would only be disturbed for an urgent matter, such as the testament of a person on his or her deathbed. In our case, the eleven acts that Boussu drafted on Sundays during the four investigated years comprised one testament, one property partition and four acts related to marriage, while the rest was of a varied nature, including economic transactions.

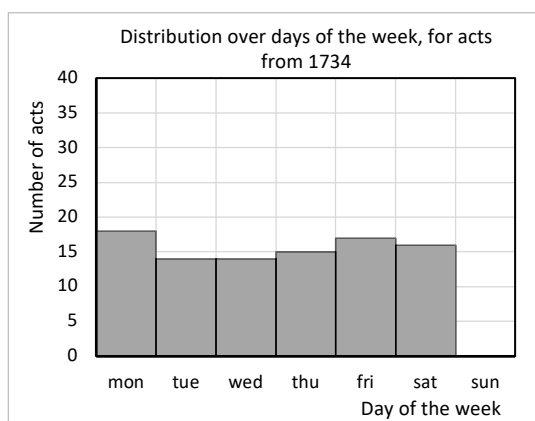
The difference in profile of the graph for the year 1734, compared to the other three graphs may possibly be explained by a gradual evolution in Boussu's clientele, and thus the change in the days of the week on which they preferred to visit the notary. Another possible explanation could be provided by a change of the location of Boussu's office within the city. As yet, however, for the period prior to October 1741, no information regarding his residential house(s) has been found, so it is not possible to substantiate the latter assumption.

¹³⁴ Time and Date, <https://www.timeanddate.com/calendar/monthly.html> (accessed April 2019).

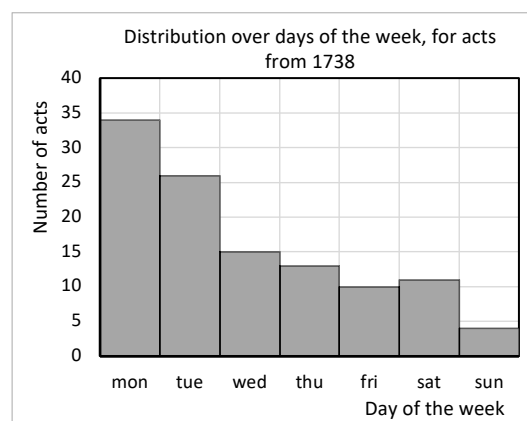
¹³⁵ Bruneel, 'De uitoefening van het ambt' (1998), p.127.

¹³⁶ Lebeau (1836), p.191.

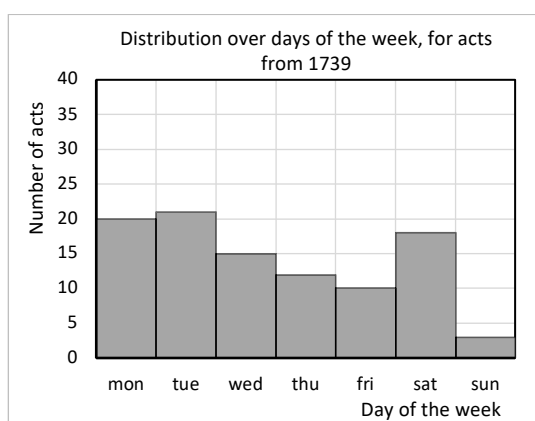
¹³⁷ Bruneel, 'De uitoefening van het ambt' (1998), p.127.



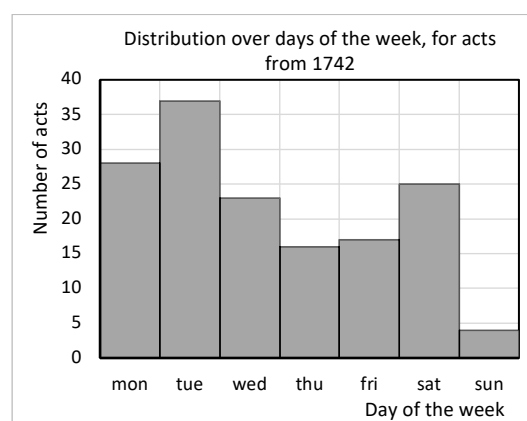
Graph 3.4. Distribution over days of the week, for acts drafted by Benoit Joseph Boussu in 1734.



Graph 3.5. Distribution over days of the week, for acts drafted by Benoit Joseph Boussu in 1738.



Graph 3.6. Distribution over days of the week, for acts drafted by Benoit Joseph Boussu in 1739.

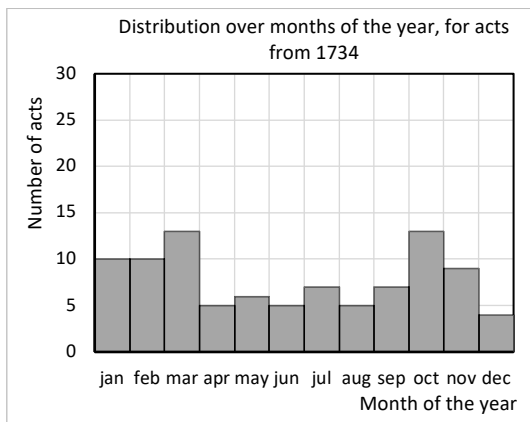


Graph 3.7. Distribution over days of the week, for acts drafted by Benoit Joseph Boussu in 1742.

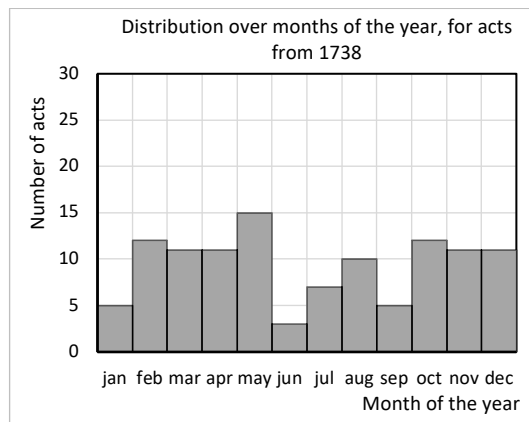
Bruneel further puts forward that for smaller cities in rural regions, the periodicity of the agricultural seasons is reflected in the notarial activity: peaks can be observed from February to April, and again in October and November. The stronger the influence of the agriculture in a community, the larger the impact on the activities of the notaries.¹³⁸ In the Graphs 3.8 through 3.11, the distribution of drafted acts by Boussu over the months of the year is displayed, for each of the four studied years respectively. In Graph 3.8, the spring and autumn peaks as mentioned by Bruneel, can be observed, suggesting that for that year, Boussu's clientele consisted for a large part of people with an agricultural background. For both the years 1738 and 1739, see Graphs 3.9 and 3.10, again an enhanced activity for the spring time (February to May) is noticeable. Besides the observed overall higher activity in 1742, two months of that year particularly stand out. The month of April

¹³⁸ Bruneel, 'De uitoefening van het ambt' (1998), p.127.

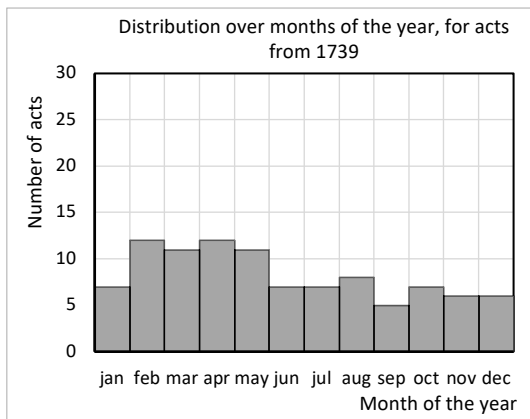
appears to have been exceptionally busy, with the double amount of acts compared to the other months of that year. No plausible explanation can be provided for this observation, it may just be an extraordinary case of ‘spring activity’. For July 1742, the *répertoire* mentions “neant”. It thus appears that Boussu did not issue any acts at all during this month. No clear explanation can be given for this, although it must be noticed that his first wife was in a late stage of pregnancy at that time, and would die days after having given birth in August 1742. It is imaginable that these difficult personal circumstances may have had an effect on Boussu’s practice. The continuous activity throughout the entire years 1734, 1738 and 1739 indicates that the notary did not leave the area for long trips away from home. Apparently, the summer holiday season as we know it today was not yet established in Boussu’s days.



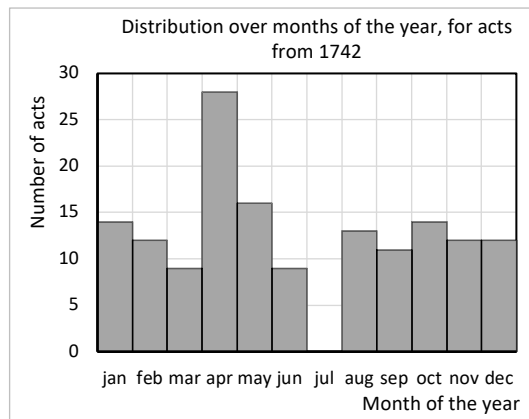
Graph 3.8. Distribution over months of the year, for acts drafted by Benoit Joseph Boussu in 1734.



Graph 3.9. Distribution over months of the year, for acts drafted by Benoit Joseph Boussu in 1738.

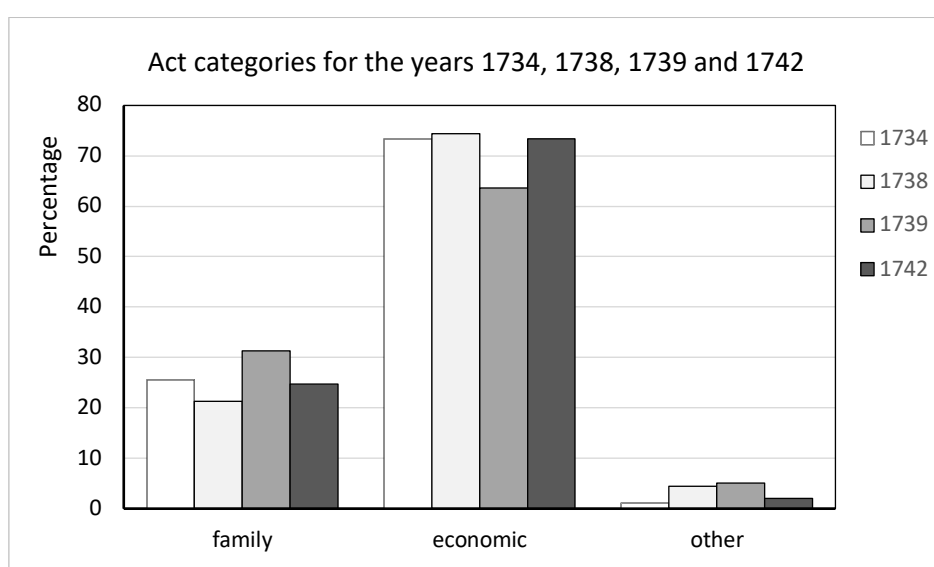


Graph 3.10. Distribution over months of the year, for acts drafted by Benoit Joseph Boussu in 1739.



Graph 3.11. Distribution over months of the year, for acts drafted by Benoit Joseph Boussu in 1742.

In the protocol of Boussu we typically find last wills (*testaments*), marriage contracts, establishment and resale of annuities (*rentes*), rental and sale contracts of houses and other immovable property, and property partitions (*partages*). Graph 3.12 shows the distribution of the acts drafted by Boussu within three categories – family-related, economic and other – for each of the four studied years. As can be seen, for all four years the majority of acts is dealing with economic matters. The percentages in this category for each individual year, especially those for 1734, 1738 and 1742 correspond surprisingly well to the information provided by Poisson and Bruneel (see Section 3.5.1). The same thing can be said for the observed percentages for the acts concerning family-related matters. This indicates that Boussu’s *office* operated under conditions similar to those valid for most of his contemporary French counterparts.



Graph 3.12. Categorisation of acts drafted by Benoit Joseph Boussu, for the years 1734, 1738, 1739 and 1742.

The *répertoire* also includes the location(s) associated with each act. In case of transactions involving immovable property, the registered location refers to the location of the property. In case of family-related acts, the place or places of residence of the involved parties will be present. In order to get a broader idea of the locations associated with the acts, Graph 3.13 shows, for each individual examined year, the percentage of acts associated with Avesnes as well as of acts associated with locations outside the city walls of Avesnes. As can be seen, for all four studied years, the majority of acts is related to locations outside Avesnes, thus the rural villages and communities surrounding the city, which suggests that many of the affairs for which Boussu drafted acts had a relation to the agricultural activities and inhabitants of the countryside. Only a minority of acts is associated with people and/or property from inside the city walls. Although the applied approach does not allow for a very refined and exact analysis, it nevertheless gives an

indication of the nature of the matters that Boussu encountered. The abundance of acts associated with rural locations is in accordance with the assumed influence of the agricultural cycle on Boussu's notarial activities, as apparent from the Graphs 3.8 to 3.11.



Graph 3.13. Location(s) associated with acts drafted by Benoit Joseph Boussu, for the years 1734, 1738, 1739 and 1742.

As was evident from Graph 3.2, Boussu drafted the modest amount of 100 to 120 acts annually during most years in the core period of his notarial activity, which could give him an income of around 220 to 265 *livres* per year (based on the estimation method presented in Section 3.5.2). These earnings were hardly more than the income of an unskilled labourer or beginning craftsman. Of course, he could supplement his revenues with commissions on transactions and other additional fees. Also, evidence has been found showing that he also worked as a *procureur*,¹³⁹ besides his activities as a notary. First of all, in the marriage contract for his second marriage, dated 9 July 1744, Boussu is described as “*notaire rojal et procureur*”.¹⁴⁰ In a later feudal court act, dating from October 1749, when he already had resigned from his notary *office*, he is described as “*cÿ devant notaire et procureur au bailliage dudit Avesnes*”.¹⁴¹ The actual acquisition contract for the

¹³⁹ “*PROCUREUR (procurator, en angl. proctor), représentant, mandataire; - (aujourd’hui avoué), officier qui postule, et qui défend en justice les intérêts de ses clients.*”. Source: M. Dupin, M. Edouard Laboulaye, *Glossaire de l’ancien droit français* (Paris: Durand/Videcoq, 1846), p.101; and: “*PROCUREUR - En partic. [Sous l’Ancien Régime] Avoué. Procureur au Châtelet; clerc de procureur. Près des tribunaux il y a des procureurs dont l’unique occupation est de représenter les plaideurs, et de suivre pour eux tous les détails de la procédure (Say, Écon. pol., 1832, p.99). La profession des procureurs, désormais appelés avoués, devint libre (Lefebvre, Révol. fr., 1963, p.175).V. décret ex. 2.*”. Source: Centre National de Ressources Textuelles et Lexicales, <https://www.cnrtl.fr/definition/procureur> (accessed November 2019).

¹⁴⁰ Archives départementales du Nord, Lille, France, inv. no. 2E39/111: Archives des tabellions d’Avesnes, notary T. Lebeau, Avesnes-sur-Helpe, act *en minute*, 9 July 1744.

¹⁴¹ Archives départementales du Nord, Lille, France, inv. no. 11B/152: Fonds du Bailliage royal d’Avesnes, registre d’embrefs de la pairie d’Avesnes, *embref*, 13 October 1749.

office de procureur from 1741 has also been identified,¹⁴² although remarkably, no *lettre de provision* for Boussu for this *office de procureur* could be found in the archives of the *Grande Chancellerie* in Paris.¹⁴³ These latter archives did however contain a *lettre de provision* from 1753 for Jean Baptiste Carton, for the “*office de procureur postulant en la ville et baillage d’Avesnes*” previously exercised by one “Benoit Jacques [sic] Boussu”.¹⁴⁴ Likely, Boussu had to exercise this secondary job from 1741 onwards in order to support his growing family. As mentioned in Section 3.5.2, notaries would often have a side job in the legal field.

Like many of his contemporary colleagues, Boussu came in conflict with a local entity that also acted as a public scribe. A record was identified from the archive of the royal court of the bailiwick of Avesnes, containing documents on a case of the notaries of Avesnes versus the mayor and aldermen of that same city.¹⁴⁵ In May 1741, Benoit Joseph Boussu and his colleague Thomas Joseph Lebeau submit a request at the court of justice of the bailiwick of Avesnes, demanding for the summoning of the mayor and aldermen, because these latter have hindered the notaries in performing their activities. According to the request, the registrar of the mayor and aldermen, Pierrard, refuses to perform the registration of *deshéritance* and *adhéritance* for the acts drafted by the local notaries. Boussu and Lebeau demand that this obstruction will end. In this possessory action (of the notaries regarding the provision to operate their *office*), the court of the bailiwick of Avesnes instantly decides, that for the time being, until further notice, the notaries are authorised to draft acts, which must subsequently be ‘realised’ by the aldermen council. Two further documents in the record of the trial, dated late June 1741 and including the reply of the king’s intendant, make mention of the disobedience of the magistrates of Avesnes – the mayor and aldermen – who apparently are not willing to conform to the verdict. The intendant threatens to impose unpleasant measures on the magistrates, in case of further opposition.

Interestingly, Cacheux refers to another trial that took place almost simultaneously in Avesnes, this time between Guislin, ‘*tabellion garde-notte*’ of the city, and the same Pierrard.¹⁴⁶ In contrast to the case involving Boussu and Lebeau, this time the registrar won; on 16 June 1741 the *Chevalier de Séchelles* ordered that the magistrates of the walled cities would preserve the sole right to deliver executable acts by adding the unique seal of the city. Cacheux continues by mentioning that, according to the *Livre Rouge* of the city

¹⁴² Archives départementales du Nord, Lille, France, inv. no. 2E39/106: Archives des tabellions d’Avesnes, notary T. Lebeau, Avesnes-sur-Helpe, act *en minute*, 16 June 1741.

¹⁴³ Archives nationales de France, Paris, France, sous-séries V/1/1-544. These records were examined for the period between 1720 and 1755 using the database PROF (Provisions d’Offices 1720-1755). I thank Dr. France-Odile des Mazery for her help with the search in PROF.

¹⁴⁴ Archives Nationales, Paris, France, inv. no. V/1/377, pièce 166: Grande Chancellerie, Paris, lettres de provision d’office, *Lettre de provision d’office de procureur postulant* for Jean Baptiste Carton, 7 December 1753.

¹⁴⁵ Archives départementales du Nord, Lille, France, inv. no. C9313/393.

¹⁴⁶ Cacheux (1960), p.54.

of Avesnes,¹⁴⁷ notary Lebeau is also informed about this ordinance, in order to make sure that he and his notarial colleagues are aware and will not ignore the decision. It thus appears as if three groups of public officers, operating in the same field of document drafting and legalisation, were in mutual competition and dispute in Avesnes in the middle of the eighteenth century.

The above trial shows that Boussu and his colleague Lebeau were competitive and determined, ready to defend their professional position. In the end, they emerged as winners in this legal joust. The two men must have had a good personal relationship as well. Lebeau notarised most acts concerning Boussu's affairs from 1737 onwards and became his representative in Avesnes during almost the entire period that Boussu was living outside Hainaut. After Lebeau's death in 1771, his son and successor Antoine Joseph took over this intermediary role, and finally acted as one of the two witnesses on Boussu's burial record.

3.7. Additional income: '*rentes constituées*' and '*rentes d'héritage*'

In absence of a centralised banking system during the *Ancien Régime*, various constructions between individuals existed to enable the exchange of money or immovable property from one party to another. In relation to the study on Boussu, several of these are relevant, since Boussu was involved in such transactions, mostly as creditor but in a few cases as debtor. Before we will look in more detail to his particular situation, first the most common financial constructions will be briefly discussed, in order to explain their characteristics and particularities.

The majority of financial credit in France during the *Ancien Régime*, until the end of the eighteenth century, was realised by means of a '*rente constituée*',¹⁴⁸ which will be translated here as 'established annuity'. When an annuity was established ('*constituée*'), the creditor provided the debtor with an amount of money, the principal capital, and thereby, the creditor obtained the right to collect a yearly sum of money from the debtor. This yearly sum, payable on a fixed date, was expressed as a percentage of the principal capital, e.g. for an annuity established against '*denier vingt*', the debtor had to pay a yearly sum equal to 5 $(= (1/20) \times 100)$ % of the principal capital. By definition, the annuity continued perpetually ('*perpétuelle*'), but the contract also stated that the debtor (or his heirs) could

¹⁴⁷ Archives municipales, Avesnes-sur-Helpe, France, Registre 2, p.115 verso.

¹⁴⁸ For more information on the '*rente constituée*', see: Paul Servais, 'De gevestigde rente', in Bruneel et al., ed. (1998), pp.138-139; Johan Dambuyne, 'De Gentse immobiliënmarkt en de economische trend, 1590-1640', *Bijdragen en mededelingen betreffende de geschiedenis der Nederlanden*, vol. 104, no. 2 (1989), pp.157-183, at p.160.

liberate himself (themselves) at any time from the annuity by reimbursing the principal capital to the creditor. Annuity contracts were registered by a notary, and in addition by a local council or court, in case immovable property was involved as a pledge.

The *rente constituée* was exchangeable (saleable) between creditors, therefore not binding the creditor in the long term. In case of such a sale ('*vente de rente*'), the new creditor paid the initial creditor the principal capital, and from then on, the debtor had to pay the yearly sums to the new creditor. Furthermore, the annuity was often secured by immovable property (real-estate) of the debtor, and could thus only be taken by owners of such property (in most cases, however, this property was acquired with the money of the capital received from the creditor). Therefore, the creditor was secured: the pledge could be seized in case the debtor failed to pay the annual sum. The moment of reimbursement of the annuity was solely decided by the debtor, he could redeem at any time. The creditor could not force the debtor to reimburse, but by selling the annuity, the former could regain his capital. This option provided the construction with the required flexibility.

The *arrentement d'héritage* (also called *rente foncière* or *bail à rente*, translated here as 'immovable property annuity') was a contract, whereby a creditor ('*bailleur*', the lessor) provided the debtor ('*preneur*', the lessee, tenant) with an immovable property, usually a house or farmland, and as a result of this, the creditor obtained the right to collect a yearly sum of money from the debtor.¹⁴⁹ As with the *rente constituée*, the *arrentement d'héritage* was in principle a contract for perpetuity. However, since the fifteenth century, more and more contracts contained a clause which allowed the tenant to redeem, by paying a sum of money usually equal to 20 yearly instalments (in case of an annuity agreed on the condition of '*denier vingt*'). Through this amortisation, the lessee would acquire the full ownership of the immovable property.¹⁵⁰ The lessor could not claim use of the property, unless the lessee failed to pay the instalments. For farmers, who did not have enough capital to buy land, the *arrentement d'héritage* was a way to get access to land to grow their crops and earn an income. They could, however, get in trouble in case of a bad harvest, since then no revenue would be available to pay the yearly instalments. In addition to the allocation of farmland as described above, many smaller farmlands were rented out without any form of contract.

As explained earlier, several authors have argued that the pursuits of eighteenth-century notaries comprised an accumulation of functions and financial activities, in order to

¹⁴⁹ For more information on the '*rente d'héritage*', see: Dambruynne (1989), pp.160-161; Philippe Godding, *Le droit privé dans les Pays-Bas méridionaux du 12^e au 18^e siècle* (Brussels: Académie Royale de Belgique, 1987), pp.173-174.

¹⁵⁰ Godding (1987), p.184.

supplement the basic income from their notarial practice. The case of Boussu clearly conforms to this broader picture. He too had to accept a side-job as *procureur* and participated in the financial system of his era. From many archive documents identified during this study, it has become clear that Boussu was, from the early days of his notarial career, involved in both affairs concerning *rentes constituées* as well as *arrentements d'héritage*. An overview of Boussu's financial transactions, and the amounts of money and/or the immovable properties involved, is given in Appendix IV, with further information on the corresponding acts provided in Appendix III.

The first document related to such activities is a settlement between Boussu and his stepmother, Anne Fontaine, dated 14 November 1732. This act¹⁵¹ is dealing with the succession of the deceased Robert Boussu, their father and husband respectively. Apparently, there were problems regarding this succession, which escalated to such extent that a lawsuit was required at the *Parlement de Flandre*. In the act, there is mention of an act of property partition from 1722 for the inheritance of father Robert, as a result of which son Benoit Joseph was allotted “*biens et rentes [...] qu'ils se trouvent declarez en son lot de partage*”. Although the partition act itself was not found during the current study, despite targeted search, and no details regarding the property are provided in the settlement act of 1732, it nevertheless is clear that Benoit Joseph Boussu had certain annuities and immovable property from his patrimony at his disposal. Indeed, in a *rapport* act of 1734¹⁵² (describing the expropriation of goods and annuities by Boussu in favour of his first wife and their future children), three lots of land and two small annuities are described in detail. These very likely originated from his father's legacy. Furthermore, the settlement act of 1732 also mentions “*la charge de notaire dont le second comparant [Boussu] est pourvue*” as part of the dispute between Boussu and Fontaine, which implies that Boussu also inherited the notarial *étude* from his father.

For the period between February 1734 and June 1743, eight cases have been identified, by retrieving the corresponding notarial acts and/or local council or court acts, where Boussu made available farmland (in the area of Fourmies) to tenants by means of an *arrentement d'héritage* (see Appendix IV). According to the acts, these lands came from his “*patrimoine*”, i.e. his father's legacy. It could well be that he also rented out some additional farmlands without any form of contract.¹⁵³ During the same period, in six transactions he had the role of creditor for *rentes constituées* or of buyer of such annuities

¹⁵¹ Archives départementales du Nord, Lille, France, inv. no. 2E39/54: Archives des tabellions d'Avesnes, notary C.L. Gossuin, Avesnes-sur-Helpe, act *en minute*, 14 November 1732.

¹⁵² Archives départementales du Nord, Lille, France, inv. no. 11B/143: Fonds du Bailliage royal d'Avesnes, registre d'embref de la pairie d'Avesnes, *embref*, 29 January 1734.

¹⁵³ Archives départementales du Nord, Lille, France, inv. no. 2E39/174: Archives des tabellions d'Avesnes, notary N. Prissette, Avesnes-sur-Helpe, act *en minute*, 19 April 1774. The property partition registered after Boussu's death lists some minor annuities and some farmlands for which no contracts of *arrentement d'heritage* have been found.

(see again Appendix IV). In 1743, his cumulative annual revenue for the identified *arrentements* and *rentes* was (rounded) 387 *livres*, income that added to his earnings as notary. At only one occasion during these years, he sold an annuity (through which he regained the capital), and in another case, he was the debtor of an annuity. In this last occasion, however, the creditor was the local chapter of canons, which might suggest a charitable motif on the part of Boussu. All in all, it is clear that Boussu's financial transactions in the years up to 1743 were mainly aimed at investing his monetary surpluses in annuities and providing land to farmers in exchange for annual revenues. This indicates that he must have been doing well financially.

Identified acts concerning the period March 1746 through April 1751 show a rather different pattern. Instead of investing by means of acting as creditor in newly established or acquired annuities, now Boussu sells several of his annuities, in order to retrieve his invested capital (see Appendix IV). From what can be derived from the identified acts, over 3,600 *livres* flow back in his possession. In addition, Boussu even is the debtor in a newly established annuity in 1749, which provides him with a sum of 1,013 *livres*,¹⁵⁴ while an act from 1748 concerning the transfer of his notarial *office* also mentions two of his debts (36 and 24 *livres* to be paid annually).¹⁵⁵ Clearly, he needed cash money in these years, likely because of his expanding family, the diminishing clientele for his notarial practice (between 1743 and 1748, see Section 3.6) and the start-up of his violin making activities (1749-1751). These transitional years must have been a period of frugality for Boussu and his family.

Between 1753 and 1760, coinciding with his most active period of violin making inside the city walls of Brussels, not much proof has been found for new economic activities of Boussu in his birth area. Apparently, the now established luthier could live well from his instrument-making business – as we will see in Section 4.5 – and did not bother to invest his money in annuities. In the first half of the 1760s, his investments in annuities in the area of Avesnes begin to resurge. Acts have been identified for four such transactions, performed between April 1761 and March 1764,¹⁵⁶ although only minor annual revenues are involved. Nevertheless, this indicates that Boussu was experiencing some degree of financial plenitude, a condition from which he may have wanted to profit by arranging

¹⁵⁴ Archives départementales du Nord, Lille, France, inv. no. 2E39/121: Archives des tabellions d'Avesnes, notary T. Lebeau, Avesnes-sur-Helpe, act *en minute*, 12 November 1749.

¹⁵⁵ Archives départementales du Nord, Lille, France, inv. no. 2E39/93: Archives des tabellions d'Avesnes, notary H.L. de Renly, Avesnes-sur-Helpe, act *en minute*, 16 August 1748.

¹⁵⁶ Archives départementales du Nord, Lille, France, inv. no. 11B/163: Fonds du Bailliage royal d'Avesnes, registre d'embref de la pairie d'Avesnes, *embref*, 11 April 1761; Archives départementales du Nord, Lille, France, inv. no. 2E39/149: Archives des tabellions d'Avesnes, notary T. Lebeau, Avesnes-sur-Helpe, act *en minute*, 11 August 1763; Archives départementales du Nord, Lille, France, inv. no. 11B/226: Fonds du Bailliage royal d'Avesnes, registre d'embref Avesnes, *embref*, 21 January 1764; Archives départementales du Nord, Lille, France, inv. no. 11B/226: Fonds du Bailliage royal d'Avesnes, registre d'embref Avesnes, *embref*, 3 March 1764.

some provisions for his retirement. Besides these annuities, Boussu also rented out his former family house in Avesnes, which provided additional revenues (see Section 3.9). After 1764, Boussu must have almost completely abandoned the production of instruments, given the very limited number of surviving examples from those later years (see Chapter 4). Again, Boussu suffered the consequences of a reduced income. He may even have been supported by his two daughters and their husbands in Amsterdam, although no direct proof has been found for that assumption. This time, however, he would avail himself of the knowledge he gained as a notary, and apply these insights for his personal financial gain. How he achieved this? That is something that will be explained later on in Section 3.11.1.

3.8. Acts concerning Boussu's marriages

As presented in Section 2.4, Boussu's two marriages were identified based on the marriage records in the register of the parish of Avesnes. In a later stage of research, additional documents have been found, respectively the *ravestissement de mariage* for the first marriage, and the *traité de mariage* for the second marriage. In this section, these two documents will be discussed in more detail.

Boussu married for the first time on 13 April 1733, with Marie Charlotte Heisne (b1703¹⁵⁷), the daughter of Louis Alexandre Heisne, an advocate ('*avocat en parlement*') who lived in Avesnes. Although in general a certificated advocate (like Heisne) would be higher in social status than an uncertificated notary (like Boussu), the newlyweds both came from a family of legal officials in a provincial community, so their social background was not dissimilar (especially since Boussu's father and grandfather had already been notaries). As Moreau points out, marriages in eighteenth-century France often took place between spouses of similar social background: "*le mariage ne constitue pas une occasion de brassage social, rares étant les unions hors du milieu du mari. Les conjoints sont généralement issus de la même province ou de la même paroisse*".¹⁵⁸ The identified *ravestissement de mariage*,¹⁵⁹ a mutual donation between the husband and wife in which each spouse granted both his/her property and the community goods to the survivor of the marriage,¹⁶⁰ reflects this

¹⁵⁷ Archives départementales du Nord, Lille, France, inv. no. Avesnes-sur-Helpe BMS [1694-1711], 5 Mi 001 R 001: Avesnes-sur-Helpe parish, baptismal register, baptism record of Marie Charlotte Haisne [Heisne], 9 August 1703.

¹⁵⁸ Moreau, *Les métamorphoses du scribe* (1989), p.70.

¹⁵⁹ Archives départementales du Nord, Lille, France, inv. no. 11B/218: Fonds du Bailliage royal d'Avesnes, registre d'embrefs Avesnes, *embref*, 21 January 1734.

¹⁶⁰ Godding (1987), p.276. Godding states: "*Ainsi s'affirme d'emblée l'« esprit communautaire » qui marque très fort le droit hainuyer et dont l'expression la plus typique est le ravestissement, par lequel le patrimoine entier du ménage est attribué au survivant [...] Le ravestissement de sang a cet effet dès que des enfants sont nés du mariage. Le ravestissement par lettres [...] permet aux époux, s'ils n'ont pas d'enfants, de laisser tout leur avoir en usufruit au survivant, quitte à ce qu'il soit partagé à son décès entre leurs héritiers*".

apparent social equality between Boussu and Heisne. The document was issued by the mayor and aldermen of Avesnes on 21 January 1734, nine months after the marriage took place, and just six days before the baptism of their first child, son Louis Benoist Joseph. The act contains the following short statement:

“*Comparu personnellement maitre Benoit Joseph Boussu notaire au baillage de cette ville accompagné de D^{lle}. Marie Charlotte Heyns son epouse suffisamment autorisée de son mary a l[']effet des presentes, lesquels ont fait et passé le ravestissement de mariage en telle sorte que le dernier vivant d'eux deux, demeurera possesseur des tous biens meubles, or, argent, joyaux et cattels et de tout ce qui peut estre réputé meuble qui se trouveront au jour de trepas du premier mourant, sans quiconque que ce soit y puisse pretendre part et aucun droits quoy qu[illegible] y auroit contract antenuptail au contraire, auquel ils ont en tout cas derogez par le present ravestissement; pardevant [now follow the names of the mayor and aldermen, their signatures, and the signatures of the married couple]”*

The timing of this *ravestissement par lettre* is not surprising. Such a written version – as opposed to the *ravestissement par sang*, which according to the rules of the customs of Hainaut would naturally come into effect when offspring was first born from the marriage – was done right before the birth of the first child. Since childbearing in the eighteenth century was accompanied by high risk for the mother, the arrangement of such a commitment was a sensible decision just prior to the childbirth. If no such document existed, and the mother would die during giving birth, the conjugal property would be divided between the surviving husband and the inheritors of the deceased.

The text thus states that in case of the death of one of the two spouses, the surviving spouse will become the possessor of all movable property. The fact that both “*or*” and “*argent*” are mentioned could signify that the couple had at least some jewellery or precious metals in other forms (e.g. coins), and it indicates a certain degree of wealth. Interestingly, the text only mentions movable property; immovable property is not mentioned. This may suggest that the family of the wife was wealthier than the husband’s side. Nevertheless, two days after the baptism of the newborn son, on 29 January 1734, Boussu visits the court of the *pairie* (feudal jurisdiction) of Avesnes, in order to register the expropriation of three lots of land (4 *rasières*¹⁶¹ and 5.5 *carrés*¹⁶² in total) and two small annuities (with a revenue of in total 27 *livres* per year) from his patrimony, in favour of his wife and their newborn child.¹⁶³ During his life, Boussu can still dispose of these properties and annuities, while his wife can enjoy them during her life only. After their

¹⁶¹ 1 *rasière* (in Douai) = 0.4523 hectare = 4523 m². See: Horace Doursther, *Dictionnaire universel des poids et mesures anciens et modernes* (Brussels: Hayez, 1840), p.463.

¹⁶² The conversion factor to modern units for the *carré* has not been found.

¹⁶³ Archives départementales du Nord, Lille, France, inv. no. 11B/143: Fonds du Bailliage royal d’Avesnes, registre d’embrefs de la pairie d’Avesnes, *embref*, 29 January 1734.

deaths, these items will go to their children. A guardian (*'mambour'*), who will be responsible for the execution of the will after Boussu's death, is appointed as well. This way, Boussu provided a certain financial security for his wife and children, in case he would die untimely. Arrangements like this were common, due to the absence of regulated social security, pensions and insurances.¹⁶⁴

After the death of his first wife in 1742, Boussu married Marie Anne Jugier in 1744. She was the daughter of a merchant, and was born in 1718 in La Capelle,¹⁶⁵ a village 15 km south of Avesnes. The circumstances surrounding this second marriage, including the preceding extramarital pregnancy, have been discussed in Sections 2.4 and 3.6. The marriage contract (*'traité de mariage'*) contains the following text:¹⁶⁶

“Pardevant le notaire Roÿal au Bailliage d’Avesnes presens les temoins avec luÿ sousigné furent presens M^e. Benoit Joseph [illegible, likely: Bous]su aussÿ notaire Roÿal et procureur d’une [illegible, likely: part] et Marie Anne Jugier[,] fille majeure, native de la Capelle en Tierache, demeurante et le premier comparant audit Avesnes lesquels ont par ces presentes fait les traité et conventions de mariage que suivent[.] sçavoir[:] Qu’ils se sont promis épouser en face de la S^{te}. Eglise le plutot que faire se pourra et c’est du consentement de Gillette Audry [,] veuve de Ph[i][i]pp[es]. Jugier[,] mere de la future epouse[,] ainsÿ qu’il est apparû par son acte sous signature prive sur papier timbré du sept du courant, certifié par le sieur Decosse curé de la Capelle residence delad.[ite] Audry. Seront les futurs epoux uns et communs en tous biens meubles et conquets immeubles qu’ils feront pendant leur communauté[,] le survivant d’eux sera heritier des meubles qui se trouveront leurs appartenir au jour du decés du precedé[.] Retient led.[it] M^e. Boussu pouvoir de disposer de ses charges ou offices par actes tels qu’il trouvera convenir et des meubles cÿ dessus jusqu’a concurrence de la valeur de cent trente livres Haynaut par testament ou autrement[.] Promettans les comparans d’entretenir les presentes qu’ils ont respectivement acceptées, ÿ obligeant tous leurs biens presens et a venir a toutes justices: aÿant observé le serment informa. Fait et passé aud.[it] Avesnes ou le papier timbré, controle des actes et petit scel ne sont en ûsage[.] Le neuf juillet mil sept cens quarante quatre et ont signé [now follow the signatures of B.J. Boussu, M.A. Jugier, two witnesses and the notary]”

¹⁶⁴ Moreau, *Les métamorphoses du scribe* (1989), p.72.

¹⁶⁵ Archives départementales du Nord, Lille, France, inv. no. La Capelle BMS [1711-1747], 5 Mi 0730: La Capelle parish, baptismal register, baptism record of Marie Anne Jugier, 5 November 1718.

¹⁶⁶ Archives départementales du Nord, Lille, France, inv. no. 2E39/111: Archives des tabellions d’Avesnes, notary T. Lebeau, Avesnes-sur-Helpe, act *en minute*, 9 July 1744.

According to the above contract, the marriage had to take place as soon as possible. This urgency was needed to legitimise the child. Further, the spouses had a shared ownership over all movable goods and over the immovable property they would acquire during their marriage. Boussu retained the control over his notary and *procureur offices*, as well as the possibility to dispose by last will over movable property up to a value of 130 *livres*. The conditions of this contract are less favourable for Jugier, which may be a reflection of the difference in position between the two spouses of this second marriage. Marie Anne Jugier was much younger than Boussu, came from a different community and social group, had probably been the servant of her future husband and above all, had become pregnant from him out of wedlock. All these factors introduced a social inequality into the relation. Interestingly, one of the two witnesses who signed the act was an in-law family member from the first marriage, Louis Joseph Heisne, which demonstrates that at least part of the family of Boussu's first wife accepted his marriage to Jugier, and supported him despite the unusual course of events.

3.9. Boussu's house(s) in Avesnes

Boussu must have lived in Avesnes from at least September 1729, since in that month he drafted there his earliest act *en minute*. For the first half of his presence in that city, until 1741, no indications have been found for his residential location. He may have rented a house, although no rental contract has been identified, nor has a buying contract been found.

Due to the acts concerning a gift by his father-in-law, it is possible to know the residential house of the Boussu family in Avesnes from 1741 onwards. On 30 September of that year, Louis Alexandre Heisne and his son-in-law appear in front of notary Lebeau. At that occasion, it is documented that Heisne donates two houses and furthermore all his movable properties, annuities and rights to his son-in-law and his daughter, thus Boussu and his wife, the latter named in the act as "Carolinne" Heisne.¹⁶⁷ Both the Boussu family, as well as the old *avocat* will live in the house mentioned first in the act, as is clear from the following fragment: "*Ledit S^r. Boussu et sa famille [...] resterons en la premiere maison cy déclaré et que ledit S^r. donateur aura sa chambre ou il est actuellement, et qu'il vivera avec eux ainsy et comme ils vivent, pendant sa vie*". Furthermore, the donation is done under the following stipulation: "*et comme il [Heisne] est en procès de grosses pretentions[,] ledit S^r.Boussu fournira audit S^r. donateur[,] son beau pere[,] jusqu'a la concurrence de soixante escus de quarante huit patars piece, pour solliciter ce procès*". Clearly, Heisne is involved in a court trial, likely as

¹⁶⁷ Archives départementales du Nord, Lille, France, inv. no. 2E39/106: Archives des tabellions d'Avesnes, notary T. Lebeau, Avesnes-sur-Helpe, act *en minute*, 30 September 1741.

party, but the details of this process remain unclarified. Boussu has to provide Heisne with an amount of money to cover (part of) the costs of this trial. The subsequent transfer of ownership (expropriation/appropriation) of the two houses and the other property is done at the aldermen council of Avesnes¹⁶⁸ and the court of the *pairie d'Avesnes*¹⁶⁹ respectively. These acts, as well as several later acts, provide the following description for the house (mentioned as first in the act of 1741), that would be the residence for the Boussu family between at least 1741 and 1748:

“Une maison[,] jardin [,] edifices gisante audit Avesnes en la rue du cimetiere [vis-a-vis le cimetiere¹⁷⁰] allent au corps de garde de la Magdeleine y tenante [a une maison du¹⁷¹] Chapitre de lad[it]^{te} ville, a la maison et jardin du lieutenant du roy de cette place, et au [jardin du¹⁷²] sieur Delaleu”

Clearly, the family had prestigious neighbours: the “*lieutenant du roy*” (the governor, the chief of the civil administration¹⁷³) and *subdélégué de l'intendant* Delaleu, another eminent man, according to Mossay.¹⁷⁴

Given the above description, it is possible to locate the supposed house for the Boussu family on a detailed map from the year 1767, see Figure 3.9. A house at this location can also be found on a relief map (*plan-relief*) of Avesnes, from 1826, see Figure 3.10. The current address of the location where Boussu lived is *Square de la Madeleine*, no. 1 in Avesnes-sur-Helpe, and a recent image of the house nowadays present at this location is provided in Figure 3.11. The model of the house included in the relief map from 1826 (see Figure 3.10) shows significant similarities to the house currently present (see Figure 3.11), especially the number and placement of the windows in the front wall. The roof's dormers and the plasterwork of the facade might be late nineteenth-century modifications.¹⁷⁵ The structural similarity suggests that the house currently present was constructed at latest in 1826 (the year the relief plan was made). It is doubtful, however, that this same house was already present, at least in its current form, in the middle of the eighteenth century, since the explosion of the gunpowder depot near the *Pont des Dames* in June 1815

¹⁶⁸ Archives départementales du Nord, Lille, France, inv. no. 11B/221: Fonds du Bailliage royal d'Avesnes, registre d'embrefs Avesnes, *embref*, 3 October 1741.

¹⁶⁹ Archives départementales du Nord, Lille, France, inv. no. 11B/147: Fonds du Bailliage royal d'Avesnes, registre d'embrefs de la pairie d'Avesnes, *embref*, 3 October 1741.

¹⁷⁰ Archives départementales du Nord, Lille, France, inv. no. 2E39/162: Archives des tabellions d'Avesnes, notary P.L. Lenseigne, Avesnes-sur-Helpe, act *en minute*, 21 March 1767.

¹⁷¹ Archives départementales du Nord, Lille, France, inv. no. 2E39/96: Archives des tabellions d'Avesnes, notary H.L. de Renly, Avesnes-sur-Helpe, act *en minute*, 14 June 1756.

¹⁷² Archives départementales du Nord, Lille, France, inv. no. 2E39/162: Archives des tabellions d'Avesnes, notary P.L. Lenseigne, Avesnes-sur-Helpe, act *en minute*, 21 March 1767.

¹⁷³ Mossay (1969), p.92.

¹⁷⁴ Mossay (1969), pp.143, 146.

¹⁷⁵ Personal communication on 11 June 2019 with Ir. Jan Weyts, architect and architectural historian.

destroyed 140 houses in Avesnes (40 % of the city),¹⁷⁶ including reportedly a partial destruction of the house of the *lieutenant de roi*,¹⁷⁷ which was located adjacent to the (former) house of Boussu (see Figure 3.9). Likely, the latter house must also have been heavily damaged.

The cemetery mentioned in the description of the house was closed and abolished after the Revolution.¹⁷⁸ Lebeau wrote, in 1836: “*le cimetière de l’intérieur [de la ville], fermé pendant nombre d’années, ne s’est rouvert que pour être converti en un marché aux bestiaux*”.¹⁷⁹ Currently, a parking lot is situated at this location. The photograph presented in Figure 3.11 was taken from this square.



Figure 3.9. Detail from a map of Avesnes from 1767 (Bibliothèque nationale de France, Paris, France, inv. no. CB407211985). According to the accompanying legend of the map, no. 72 is the “*Logement du Lieutenant de Roy*”, no. 82 is the “*Cimetiere de la ville*” and no. 45 is the “*Corps de garde [de la Magdeleine]*”. The lot indicated by the author with the letter ‘B’ must then be the location of the proposed house of Boussu between at least 1741 and 1748. The *Chapitre* owned several houses behind the church and adjacent to the cemetery,¹⁸⁰ thus in the area indicated by the letter ‘C’, for the housing of *chanoines* (canons).

¹⁷⁶ Mossay (1969), pp.220-221.

¹⁷⁷ Mossay (1969), p.220, footnote 19. According to Mossay, “*la maison du lieutenant de Roi était également dévasté. Elle avait perdu ses tourelles [small towers]*”. This quote suggests that at least part of the house of the lieutenant was still preserved. The former house of Boussu was located behind the house of the lieutenant, as seen from the perspective of the exploded gunpowder depot.

¹⁷⁸ Mossay (1969), p.144.

¹⁷⁹ Lebeau (1836), p.137.

¹⁸⁰ Piérart, Peter (1930), p.56.

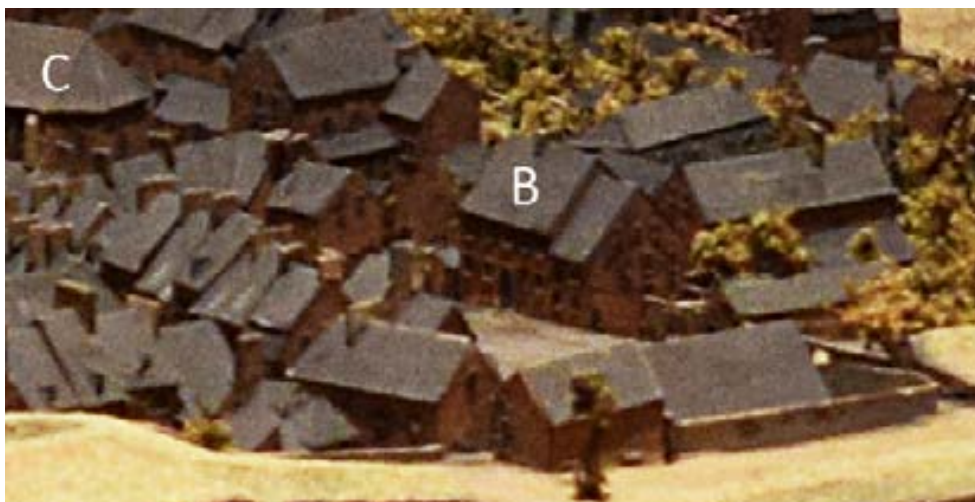


Figure 3.10. Detail of a scale 1:600 relief map of Avesnes from 1826 (Palais des Beaux-Arts de Lille, Lille, France, inv. no. D 2004.1.4). The house at the proposed location of Boussu's house (between at least 1741 and 1748) is marked with the letter 'B', whereas the backside of the St. Nicolas church is marked with the letter 'C'. Photo: author.



Figure 3.11. Recent photograph (May 2016) of the house located at *Square de la Madeleine*, no. 1, Avesnes-sur-Helpe. The adjacent house to the right is built, according to an inscription above the front door, in 1835. Photo: Google Maps (accessed April 2019).

Soon after he abandoned his notarial activities in August 1748, Boussu, his wife and their children left Avesnes for Liège. Louis Alexandre Heisne must have stayed in Avesnes, since he died there in December 1749 at 83 years of age.¹⁸¹ From what is evidenced by several identified letting contracts, Boussu rented out the house after Heisne's passing: between 1756 and 1759 to Pierre de Gaussen ("*commandant pour le roi*" in Avesnes, likely

¹⁸¹ Archives départementales du Nord, Lille, France, inv. no. Avesnes-sur-Helpe BMS [1746-1766], 5 Mi 001 R 004: Avesnes parish, burial register, burial record for Louis Alexandre Heisne, 29 December 1749.

for use by one Claude Dutemple)¹⁸² and for the periods 1761-1767 and 1767-1770 to Jean François Bruneau (“*visiteur au bureau des fermes*”),¹⁸³ for renting sums of respectively 90, 72 and 84 *livres* per year. After the demise of Benoit Joseph Boussu, the house became jointly owned by the children of his first marriage.¹⁸⁴ Finally, the house is given in use to Antoine Gossuin, “*avocat en parlement*”, by means of an (immovable property) annuity. In June 1779, Gossuin frees himself from this financial obligation, by paying to Boussu’s four eldest children a capital of 2,480 *livres Hainaut* (paid in cash as 1,550 French *livres*), thereby becoming the full owner of the house.¹⁸⁵

The second house mentioned in the donation acts of 1741 is described as being located in the *Rue des Recollets* (the current *Rue de Prés*). Maybe, this was the previous home for the Boussu family (before October 1741), assuming that Heisne allowed them to live in it, although no archival evidence for this assumption has been found.

3.10. The termination of Boussu’s notarial activities and transfer of the office

The transfer of Boussu’s *office* in 1748, after he decided to terminate his notarial activities, was the starting point for a series of subsequent transfers and financial transactions that illustrate to what degree of intricacy a system of annuities could evolve. Therefore, these events will be discussed in this section in more detail.

On 15 August 1748, Boussu drafts his final act in his qualification as a notary, his only one in that month, the testament of a sister of the beguinage of Avesnes.¹⁸⁶ One day later, Boussu transfers the notary *office* to one Antoine Demorgny, through an “*arrentement*”, thus by means of an annuity. The act for this transfer was drafted by notary De Renly in Avesnes.¹⁸⁷ It is agreed that Demorgny pays an annual sum of 180 *livres* to Boussu,

¹⁸² Archives départementales du Nord, Lille, France, inv. no. 2E39/96: Archives des tabellions d’Avesnes, notary H.L. de Renly, Avesnes-sur-Helpe, act *en minute*, 14 June 1756.

¹⁸³ Archives départementales du Nord, Lille, France, inv. no. 2E39/99: Archives des tabellions d’Avesnes, notary H.L. de Renly, Avesnes-sur-Helpe, act *en minute*, 10 July 1761; Archives départementales du Nord, Lille, France, inv. no. 2E39/162: Archives des tabellions d’Avesnes, notary P.L. Lenseigne, Avesnes-sur-Helpe, act *en minute*, 21 March 1767.

¹⁸⁴ Archives départementales du Nord, Lille, France, inv. no. 2E39/174: Archives des tabellions d’Avesnes, notary N. Prissette, Avesnes-sur-Helpe, act *en minute*, 19 April 1774.

¹⁸⁵ Archives départementales du Nord, Lille, France, inv. no. 11B/94bis: Fonds du Bailliage royal d’Avesnes, registre d’embrefs Avesnes, *embref*, 21 June 1779.

¹⁸⁶ Archives départementales du Nord, Lille, France, inv. no. 2E39/500: Archives des tabellions d’Avesnes, notary B.J. Boussu, Avesnes-sur-Helpe, *répertoire*, 30 September 1729 to 15 August 1748.

¹⁸⁷ Archives départementales du Nord, Lille, France, inv. no. 2E39/93: Archives des tabellions d’Avesnes, notary H.L. de Renly, Avesnes-sur-Helpe, act *en minute*, 16 August 1748.

redeemable by paying 20 times this annuity sum (3,600 *livres*).¹⁸⁸ Part of the annual sum, 60 *livres*, is paid by Demorgny to two creditors of Boussu. Demorgny's father-in-law and registrar of Wignehies, Jacques Fontaine, acts as a guarantor by pledging a house in Wignehies. In the act, there is also mention of the "*procuracion ad resignandum*" by Boussu, a declaration of resignation, drafted the same day by the same notary. This act has not been found in the collection of acts *en minute* of notary De Renly, however. Curiously, in the *répertoire* of notary De Renly,¹⁸⁹ a remark is added to the entry of the act concerning the transfer of the *office*, saying "*cet acte n'a pas eu de suite*".

Demorgny indeed never practised as a notary, as evidenced by the absence of a *répertoire*, acts *en minute* and a *lettre de provision d'office de notaire* on his name (and which may clarify the added remark in the act of 16 August 1748). Instead, in May 1749 he renounces from his rights to operate the *office* in favour of Jacques Fontaine,¹⁹⁰ his father-in-law and guarantor for the annuity. The transfer is performed as a "*retrocession*"; from now on, Fontaine is obliged to pay Boussu the yearly annuity sum. Apparently, Fontaine's guarantee in 1748 was provided in anticipation of the current transfer. Fontaine receives his *lettre de provision* on 18 November 1749,¹⁹¹ and is active as a notary in Wignehies from November 1749 until shortly before his death in February 1755.¹⁹²

In February 1756, Margueritte Dubois, Fontaine's widow, subsequently transfers the notarial *office* to one Jacques Renaut,¹⁹³ who will be a notary for at least the next 36 years.¹⁹⁴ The transaction is made through a "*bail a rente*", as a result of which Renaut commits himself to pay an annuity sum of 172 *livres* and 16 *sols* per year. Part of this sum, 60 *livres*, again has to be paid to the two aforementioned creditors of Boussu, the remainder (112 *livres*, 16 *sols*) is paid to Dubois. Renaut can redeem the annuity by making a reimbursement "*au denier vingt*", thus by paying an amount equal to 20 times the annuity sum. Although Dubois now receives an annual revenue from Renaut, her obligation to pay Boussu, remains in effect. Actually, the yearly amount she has to pay to Boussu is somewhat higher than the amount she receives from Renaut.

¹⁸⁸ This value of Boussu's notarial *office* agrees with values given by several authors, quoted in Section 3.5.3, for *offices* in provincial cities.

¹⁸⁹ Archives départementales du Nord, Lille, France, inv. no. 2E39/500: Archives des tabellions d'Avesnes, notary H.L. de Renly, Avesnes-sur-Helpe, *répertoire*, registration on 16 August 1748.

¹⁹⁰ Archives départementales du Nord, Lille, France, inv. no. 2E39/93: Archives des tabellions d'Avesnes, notary H.L. de Renly, Avesnes-sur-Helpe, act *en minute*, 30 May 1749.

¹⁹¹ Archives Nationales, Paris, France, inv. no. V/1/360, pièce 301: Grande Chancellerie, Paris, lettres de provision d'*office*, *lettre de provision d'office de notaire* for Jacques Fontaine, 18 October 1749.

¹⁹² Archives départementales du Nord, Lille, France, inv. no. 2E39/501: Archives des tabellions d'Avesnes, notary J. Fontaine, Wignehies, *répertoire*, 24 November 1749 to 5 February 1755.

¹⁹³ Archives départementales du Nord, Lille, France, inv. no. 2E39/96: Archives des tabellions d'Avesnes, notary H.L. de Renly, Avesnes-sur-Helpe, act *en minute*, 20 February 1756.

¹⁹⁴ Archives départementales du Nord, Lille, France, inv. nos. 2E39/508, 514, 520: Archives des tabellions d'Avesnes, notary J.J. Renaut, Féron, *répertoire*, 25 July 1756 to 27 Novembre 1792.

Around 1760, problems start to arise regarding the financial construction just described, as is evident from the content of an act from January 1764.¹⁹⁵ Apparently, Renault has foreseen stagnation in the payments which the widow Dubois has to make to Boussu. Such payment issues could threaten Renault's exploitation of his notary *office*. In order to secure the continuation of his professional activities, the responsibilities of Dubois have to be excluded from the payment chain. According to the act, in July 1760, the mother of Renault has given 2,256 *livres*, the main capital of the annuity Renault owed to Dubois, plus payment advantages for the upcoming four years, in consignment at Jean Philippe Preseau, "*lieutenant general*" in Avesnes. By doing so, Renault is freed from his annual payment obligations and becomes the rightful owner of the notarial *office* (on the notarial *office* still rest, however, the two residual debts with the total value of 60 *livres* per year). As affirmed by the act from January 1764, Preseau subsequently provides Jean Baptiste Joseph Delannoy, "*conseiller procureur du Roy au bailliage Royal de cette ville d'Avesnes*", with a sum of 2,256 *livres*, and in return, Delannoy will now pay the annual sum of 112 *livres* and 16 *sols* to Boussu. An annuity is thus established to ensure that the annual payments to Boussu are continued. In Boussu's last will, captured on 13 September 1773,¹⁹⁶ days before his demise, the annuity that Delannoy owes to Boussu is still mentioned, which indicates that Delannoy maintained the debt until at least that date.

And how did things end for the successors of Jacques Fontaine? We find an answer in an act dated 22 July 1769.¹⁹⁷ First of all, this document reveals that Margueritte Dubois, Fontaine's widow, had meanwhile died herself as well. Her heirs, including Antoine Demorgny, the initial acquirer of the notarial *office*, agree on a settlement with Benoit Joseph Boussu. The latter will waive any claims, through seizure of goods, on compensation for the discrepancy in the annuity sum¹⁹⁸ and arrears due by the heirs of Fontaine, as long as they pay Boussu 200 *livres*. It is further confirmed by the heirs of Fontaine that the annuity currently indebted by Delannoy is owed to Boussu, as is the money for four years instalments given in consignment to Preseau by Renault's mother. Interestingly, the settlement act of 1769 suddenly mentions "*le procès qu'il y avoit pendant au Chatelet de Paris entre ledit Boussus (qui a obtenu gains de cause) et ses freres et ses frere et soeure consanguin*", although no relation between this lawsuit and the settlement between Boussu and the heirs of Fontaine could be established. No attempt has been made to trace the archive documents concerning the case of Boussu against his (half-)brothers and

¹⁹⁵ Archives départementales du Nord, Lille, France, inv. no. 11B/226: Fonds du Bailliage royal d'Avesnes, registre d'embrefs Avesnes, *embref*, 21 January 1764.

¹⁹⁶ Archives départementales du Nord, Lille, France, inv. no. 2E39/168: Archives des tabellions d'Avesnes, notary J.B. Cornet, Avesnes-sur-Helpe, act *en minute*, 13 September 1773.

¹⁹⁷ Archives départementales du Nord, Lille, France, inv. no. 2E39/165: Archives des tabellions d'Avesnes, notary J.B. Cornet, Avesnes-sur-Helpe, act *en minute*, 22 July 1769.

¹⁹⁸ The original yearly annuity sum, due by Fontaine to Boussu, was 180 *livres*; the annuity sum that Renault owed Fontaine's widow was 172 *livres*, 16 *sols*.

sister due to the labour-intensive nature of such investigations in Parisian archives, which would fall outside the time frame of the current study.

The above-described case, involving the transfers and payment issues regarding Boussu's former notarial *office*, illustrates that the mutations of an annuity, exchanged multiple times, could become rather complex. Such transfers could give rise to ambiguities and the evasion by some of their financial obligations. In this particular case, the problems had possibly worsened because of Boussu's absence from the region.

3.11. Boussu's lawsuits

3.11.1. Boussu's lawsuit against the mayor and aldermen of Fourmies

While living in Amsterdam, Boussu was involved in a lawsuit which took place in his region of birth. As is evident from a document from June 1771, containing a ruling ('*arrêt*') by the *Parlement de Flandre*,¹⁹⁹ Boussu was involved in a legal dispute with the mayor and aldermen of Fourmies, the latter in their role as administrators of the goods of the poor. According to the ruling's text, Boussu had opposed against the execution of an earlier court ruling from 1768 concerning the same dispute, and was the claimant '*par évocation*' (i.e. at the same court) in 1769 (unfortunately, both documents for these earlier legal steps have not been found, despite targeted search).²⁰⁰ The actual judgment in the 1771 document is short, and orders that within one year, the mayor and aldermen of Fourmies have to come up with confirmation of ownership ('*lettres patentes*') of, from what will become evident from follow-up documents discussed hereafter, certain immovable goods in Fourmies. In case this proof could not be provided within a year, Boussu would gain control over the goods.

The outcome of this impasse is described in a notarial act from July 1772.²⁰¹ Indeed, this act follows one year after the court ruling of June 1771. First of all, the act, a settlement between Boussu and the magistrates of Fourmies, informs us that the latter have not been able to present proof of ownership. In other words, the property will therefore come into

¹⁹⁹ Archives départementales du Nord, Lille, France, inv. no. 8B2/564: Archives du Parlement de Flandre, *arrêt*, 20 June 1771.

²⁰⁰ A notarial "*procuratie*" act from 9 November 1769 states: "*l'instance qu'il [Boussu] soutient au Bailliage Royal du dit Avesnes comme demandeur par requête du 30^e Novembre 1768, contre les Maïeur et Echevins de Fourmies administrateurs de la pretendue fondation de M^e Bulto [...] [and] comme oposant contre l'arrêt de la cour du Parlement de Flandres du dixseptieme decembre mil sept cent soixante huit, sur la requête des Mayeur et Echevins de Fourmies en leur qualité predite et en evocation de l'instance susmentionnée pendante au Bailliage Royal d'Avesnes*". Source: Amsterdam City Archives, Amsterdam, The Netherlands, inv. no. 5075/11480A: Notarissen ter standplaats Amsterdam, notary T.D. de Marolles, Amsterdam, act *en minute*, 9 November 1769.

²⁰¹ Archives départementales du Nord, Lille, France, inv. no. 2E39/209: Archives des tabellions d'Avesnes, notary A. Lebeau, Avesnes-sur-Helpe, act *en minute*, 6 July 1772.

the hands of Boussu, without any further judicial interventions. The settlement affirms that Boussu can now dispose of the properties, and it is also arranged that he will receive from his opponents an amount of 540 *livres*, for overdue revenues and for compensation for the lodging of a nun in one of the houses.

In order to fully understand this case, we first have to go more than 50 years back in time. Already in 1717, one Lambert Bulto, priest of the local parish church, created a foundation for the establishment of a school for poor girls in Fourmies.²⁰² In the act describing this establishment, Bulto invests two houses and eight lots of farmland into the foundation. The operation of the school has to be financed with the revenues from these properties. Arrangements are described regarding the appointment of a curator, and Bulto further appoints his sister Marie and her daughter Marie Anne Mah[i]eu as the teacher and assistant of the school. In return, these two women are entitled to live from the revenues of the properties.

What was the basis for Boussu's claim on the real-estate in Fourmies, the village where he was born? The identified documents from 1771 and 1772, described in the beginning of this section, do not provide us with these details. The connection between Boussu's court cases from between 1768 and 1771 on the one hand, and the school foundation from 1717 on the other hand only became manifest from documents issued between July 1772 and June 1773 in the context of the affairs following Boussu's acquisition of the property (see Section 3.11.2). These sources explicitly refer to the school foundation by Bulto, as well as to the associated real-estate. Boussu apparently considered himself and his offspring entitled to the assets in Fourmies, most likely as result of his relationship with Bulto through the latter's niece Marie Anne Mah[i]eu. Presumably, she must have been a (close) relative of Boussu's mother, Marie Catherine Mahieu. Our current research has not resulted in the identification of documents that could directly confirm this assumed relationship, though.

His prosperity in this case illustrates that Boussu was well-informed regarding the heritage present in his family, and that he had the required legal insight and sagacity, which allowed him to successfully oppose the mayor and aldermen of Fourmies. The fact that he was prepared to deprive a welfare initiative – the school foundation aimed at underprivileged girls – from their main source of income, may reveal that he judged his personal profit above communal interest. Unless, of course, the school had fallen into disuse in the course of the years... As we shall see in the following section, the aftermath of his judicial victory over the authorities of Fourmies would occupy Boussu in the final year of his life.

²⁰² Archives départementales du Nord, Lille, France, inv. no. 11B/414: Fonds du Bailliage royal d'Avesnes, registre d'embrefs Fourmies, *embref*, 23 November 1717.

3.11.2. Boussu's lawsuit against his sons

In July 1772, during the settlement of his case against the mayor and aldermen of Fourmies, described in the previous section, Boussu was present in Avesnes. By winning this case, Boussu had acquired the control over a number of real-estate items in his native village. He could now sell or rent out these items. However, in order to do so, Boussu needed the consent of the four children of his first marriage, Pierre Antoine, Jean François, Marie Gabriel(le) and Françoise, since the property was (also) part of their patrimony.

The two daughters, living in Amsterdam, immediately provided their consent by means of a procuration, passed before the Amsterdam notary Mijlius.²⁰³ In this document, drafted in French language, the daughters (and their husbands) declare that they appoint their father as their representative (“*procureur*”), and authorise him to perform, in their name, the expropriation (“*deshéritance*”) of their heritage. Indeed, the document states that Boussu has plans to organise a public auction in Fourmies, where the properties will be allotted (through “*arrentement d’héritage*”) to the highest bidder. The remainder of the document describes in detail the properties concerned. From this list, we learn that it includes all the goods that were also described in the act for the 1717 school foundation by Bulto!

The two sons, on the other hand, are less prone to cooperate. Either by indifference or reluctance, they do not respond to their father's requests to supply their written consent. At that time, they live in Brussels and Paris respectively, and these geographical restrictions may have contributed to their disoperative attitude. Whatever the reason, Boussu senior does not accept the standpoint of his sons, and a next lawsuit is born: he files a lawsuit against his sons in order to force them to cooperate.

In the series 8B1 in the Archives départementales du Nord in Lille, the complete file for this case has been found,²⁰⁴ which allows us to follow the entire course of the process. As part of the file of the case, a copy is included of the school foundation act of 1717, which definitely proves the link between the benefactor Lambert Bulto and Boussu's lawsuits. Before the court of the bailiwick of Avesnes, Boussu is represented by the advocate Hannoeye and the *procureur* C. Lebeau. In the request of this case, several interesting statements by Boussu can be read. He asserts that “*la médiocrité de sa fortune, son grand âge de soixante dix ans, qui multiplie ses besoins, et lui empeche de se les procurer par ses travaux*”.

²⁰³ Amsterdam City Archives, Amsterdam, The Netherlands, inv. no. 5075/15591: Notarissen ter standplaats Amsterdam, notary A. Mijlius, Amsterdam, act *en minute*, 15 July 1772.

²⁰⁴ Archives départementales du Nord, Lille, France, inv. no. 8B1/19558: Archives du Parlement de Flandre, court case file of the case of Benoit Joseph Boussu against his two eldest sons, August and September 1772.

Regarding his two daughters and their husbands, he declares that they have consented “*amiablement et conjointement*”. Boussu goes on by saying that his son Jean François from Paris “*á prétendre qu’il étoit propriétaire du bien, et qu’a l’age de vingt cinq ans il pouroit s’en mettre en possession, en quoÿ il se trompe grossièrement, puis que son père est véritablement propriétaire*”. Boussu continues by stating that he hopes his son will return to the duty of compassion, that he will understand that his father has the best intentions for his children, and that he has the opportunity to multiply the current revenues of the goods. These arguments appear to have initially had an effect on the son from Paris, making him promise to come to Avesnes to give his consent. However, as we can read, he later changed his mind “*sous les pretextes les plus ridicules qu’il soit possible d’imaginer*”. About the other son, Pierre Antoine, the request mentions: “*celui de Bruxelles ne fit pas autant de difficultés, et cependant son refus équivaut á celui du fils resident á Paris. D[’]abord il écrivit honnetement qu’il voudrait être sur les lieux pour prendre ses avis mais qu’il conviendrait lui envoyer un demÿ Louis*”. He thus was prepared to come to Avesnes, but only after having stipulated compensation for his travelling costs. Boussu concludes his request by arguing that “*le grand age du suppliant [Boussu] exigeant plus de besoins, c’est une ingratitude et une inhumanité de la part de ses enfans de ne vouloir point consentir á l’exécution d’un moyen qui ne doit tourner qu’a leur avantage*”.

Of course, it is imaginable that Boussu was personally upset by the obstinacy of his sons. It is more likely, however, that he used the above affected expressions in an attempt to win the sympathy of the judges. This strategy must have been effective, since the court orders that letters are sent out to the two sons, summoning them to appear in Avesnes and to speak out regarding their father’s demand. Finally, as is apparent from the lawsuit documentation, son Pierre Antoine from Brussels provides his consent relatively soon after the summons, in August 1772. The other son, Jean François from Paris, ignores repeated requests to provide his approval. Finally, his consent is assumed *in absentia*, in September 1772. On 10 September, the court of Avesnes judges that Boussu senior is authorised to auction the properties previously included in the foundation established by Bulto, which opened the door for a public auction of the goods.

This auction took place on 1 and 2 June 1773 in Fourmies. Just ten days before the event, in an act drafted by notary A. Lebeau, the mayor and aldermen of Fourmies declared their acceptance of the judgment of the court of Avesnes from 10 September 1772. Apparently, their predecessors had issued a protest against this verdict, in a final attempt to hinder the old notary.²⁰⁵ Boussu himself was not present at the auction, probably due to his frail

²⁰⁵ Archives départementales du Nord, Lille, France, inv. no. 2E39/210: Archives des tabellions d’Avesnes, notary A. Lebeau, Avesnes-sur-Helpe, act *en minute*, 20 May 1773.

health, but was represented by Joseph Eliet.²⁰⁶ Eight of the nine lots auctioned that day were given in *arrentement d'héritage*,²⁰⁷ i.e. the acquirer obtained the right to occupy and use the land or house, and would in return pay an annual amount of money, due perpetually, unless the debtor (or his heirs) would decide to free himself (or themselves) from the debt by reimbursing the principle sum. Only one of the two houses failed to be given in *arrentement*. The auction resulted in a total yearly revenue, for the eight successfully auctioned properties, of 638 *livres*, money that would revert directly to Boussu, and after his demise, to his four eldest children. Interestingly, one of the acquirers of such an *arrentement*, Simon Eliet, redeems already three weeks after the auction by reimbursing the total principle capital, thereby becoming the owner of the property.²⁰⁸ Two others follow this example, reimbursing entirely within months after the auction.²⁰⁹ That way, Boussu received 5,500 *livres Hainaut*, of which he soon reinvests 3,434 *livres* in a new annuity due by Nicolas Dequesne.²¹⁰

So, it had to come to a lawsuit to convince Boussu's sons to cooperate. The report of the trial reveals that, except for some obduracy by Jean François, they did not vigorously oppose the wishes of their father. The fact that the father went to court against his sons does not necessarily mean that the relationship between the father and his sons was totally disturbed; from his background as notary, Boussu may have been used to solve disputes or affairs before court. Nevertheless, from the described chain of events, the impression arises that Boussu had a better relationship with his daughters, a surmise that is confirmed when we consider his final testament in the following section.

²⁰⁶ Archives départementales du Nord, Lille, France, inv. no. 2E39/210: Archives des tabellions d'Avesnes, notary A. Lebeau, Avesnes-sur-Helpe, *embref*, 29 May 1773. This document is an *embref* issued by the mayor and aldermen of Avesnes. It was added to a notary act of notary A. Lebeau.

²⁰⁷ Archives départementales du Nord, Lille, France, inv. no. 2E39/210: Archives des tabellions d'Avesnes, notary A. Lebeau, Avesnes-sur-Helpe, eight acts *en minute*, 1 and 2 June 1773; Archives départementales du Nord, Lille, France, inv. no. 11B/419: Fonds du Bailliage royal d'Avesnes, registre d'embrefs Fourmies, eight *embrefs*, 2 June 1773.

²⁰⁸ Archives départementales du Nord, Lille, France, inv. no. 2E39/168: Archives des tabellions d'Avesnes, notary J.B. Cornet, Avesnes-sur-Helpe, act *en minute*, 19 June 1773; Archives départementales du Nord, Lille, France, inv. no. 11B/173: Fonds du Bailliage royal d'Avesnes, registre d'embrefs de la pairie d'Avesnes, two *embrefs*, 19 June 1773.

²⁰⁹ Archives départementales du Nord, Lille, France, inv. no. 2E39/168: Archives des tabellions d'Avesnes, notary J.B. Cornet, Avesnes-sur-Helpe, act *en minute*, 5 July 1773; Archives départementales du Nord, Lille, France, inv. no. 11B/173: Fonds du Bailliage royal d'Avesnes, registre d'embrefs de la pairie d'Avesnes, *embref*, 5 July 1773; Archives départementales du Nord, Lille, France, inv. no. 2E39/168: Archives des tabellions d'Avesnes, notary J.B. Cornet, Avesnes-sur-Helpe, act *en minute*, 24 August 1773; Archives départementales du Nord, Lille, France, inv. no. 11B/173: Fonds du Bailliage royal d'Avesnes, registre d'embrefs de la pairie d'Avesnes, *embref*, 24 August 1773.

²¹⁰ Archives départementales du Nord, Lille, France, inv. no. 11B/173: Fonds du Bailliage royal d'Avesnes, registre d'embrefs de la pairie d'Avesnes, *embref*, 24 August 1773.

3.12. Boussu's economic legacy

3.12.1. Boussu's testaments and *rappports*

At various stages of his life, Boussu made a testament, apparently at moments when changes occurred in his personal situation. In addition to making these testaments (or codicils), he also registered at several occasions, by means of a '*rapport*', the expropriation ('*deshéritance*') of immovable goods and annuities in favour of specific family members. In case of these *rappports*, a guardian is appointed to oversee the allocation of the properties after Boussu's passing.

Two such identified *rappports* date from 17 August 1748. This is one day after Boussu transferred his notarial *office*, prior to his departure for Liège. One act was issued by the municipal council of Avesnes, the mayor and aldermen, the other by the court of the *pairie* (peerage) of Avesnes. In the first of these two acts,²¹¹ Boussu expropriates himself from the house in Avesnes, situated in front of the cemetery (see Section 3.9), so that after his death, this house will become the property of the children of his first marriage. Boussu's second wife will have the usufruct during her life. Furthermore, the same house is registered as the pledge for the payment of 800 *livres* as a *formorture*²¹² to the children of the first marriage. In the second act,²¹³ Boussu expropriates from immovable property and annuities that he owns in the area under the *pairie* of Avesnes, in favour of the children of both his first and second marriage. The conditions for the distribution of the goods are described. In both acts, arrangements are described for the guardianship and tutorship of the children.

The earliest testament found is dated 20 November 1762, and is signed personally by Boussu, indicating that he was present in his former domicile.²¹⁴ The timing of this testament may coincide with Boussu's departure from Brussels towards Holland, although in the document, he is still described as "*cÿ devant notaire audit baillage [illegible, possibly: presenteme]nt maitre et marchand luthier demeurant a Bruxelles*". The top part of this document is completely deteriorated, therefore, several lines of the text have been lost, especially those where the nature of the concerned property is described. We nevertheless can understand that by means of this rather short testament, Boussu assigns

²¹¹ Archives départementales du Nord, Lille, France, inv. no. 11B/223: Fonds du Bailliage royal d'Avesnes, registre d'embrefs Avesnes, *embref*, 17 August 1748.

²¹² "FORMORTURE C. - "Somme d'argent ou meuble qu'une personne veuve laisse à ses enfants du premier lit, en se remariant, pour qu'ils en jouissent après son décès"". Source: Centre National de Ressources Textuelles et Lexicales, <http://www.cnrtl.fr/definition/dmf/FORMORTURE> (accessed April 2019).

²¹³ Archives départementales du Nord, Lille, France, inv. no. 11B/152: Fonds du Bailliage royal d'Avesnes, registre d'embrefs de la pairie d'Avesnes, *embref*, 17 August 1748.

²¹⁴ Archives départementales du Nord, Lille, France, inv. no. 2E80/107: Archives des tabellions d'Avesnes, notary T. Lebeau, Avesnes-sur-Helpe, act *en minute*, 20 November 1762.

to the three children of his second marriage (Alexandre, Joseph and Benoit), and to Magdaleine Jugier, the sister of his deceased second wife, the annual revenues or even the principal capital – unclear given the incompleteness of the text – of a large sum of money given in consignment to Preseau. This consignment, resulting from the troubled course of affairs surrounding the transfer of the notary *office*, has been discussed earlier in this chapter, see Section 3.10. According to the testament, the capital concerned has to be reinvested in new annuities. Jugier can only enjoy the usufruct; after her death, her quarter part passes to Boussu’s three youngest children. Added to this first testament is a codicil, a mutation of the earlier testament, dated 17 August 1768. Since this text is written on the same piece of paper, again several lines of the text are missing. From what is left, we can read that, regarding the testament of 1762, Boussu “*l’annulez en tout son contenu spécialement le leg par lui fait en faveur de [illegible]*”. From the few remaining words that are readable, it appears that a guardian is appointed, to curate the properties, located in Hainaut, of the children of the second marriage. Curiously, the testament from 1762 and its added codicil are stored at the Archives départementales du Nord in an unusual location (under the small sub-series 2E80 instead of under the usual sub-series for acts *en minute* of notaries from the region of Avesnes, 2E39), while no entry of both the testament and its codicil is included in the *répertoire* of the notary involved, T. Lebeau.²¹⁵ This makes one wonder whether this testament and codicil were ever meant to be effectuated at all.

Only few days before the codicil was added, on 13 and 16 August of 1768 respectively, Boussu had also registered two *rappports*, both in front of the mayor and aldermen of Avesnes. In the first of these,²¹⁶ he expropriates from his house in Avesnes (facing the cemetery) and all other goods and annuities that he can dispose of freely in Avesnes. These unspecified goods and annuities were, according to the act, acquired with a redemption for his notarial *office*. After his death, the properties will be shared in equal parts over all his children, both from the first and the second marriage. Interestingly, he adds, as a warning to his two eldest, contumacious sons: “*au cas que l’un ou l’autre ne veuille entretenir et suivre cette disposition[,] et laisser suivre part egale aux filles et aux enfants du second lit en tous biens que delaissera ledit S.[ieu]r Boussu en quelque lieu qu’ils soient situés*”. Three days later, Boussu must have reflected on the earlier *rappport*, since a new version is registered,²¹⁷ which only differs from the previous one by the addition of a clause concerning his sister-in-law, Magdaleine Jugier. This newly added part obliges the children to pay their aunt a “*pension viagre*” of 36 *livres* annually. For these documents from August 1768, the timing does not seem to be tightly connected to a moment of

²¹⁵ Archives départementales du Nord, Lille, France, inv. no. 2E39/504: Archives des tabellions d’Avesnes, notary T. Lebeau, Avesnes-sur-Helpe, *répertoire*, 1755 to 1772.

²¹⁶ Archives départementales du Nord, Lille, France, inv. no. 11B/227: Fonds du Bailliage royal d’Avesnes, registre d’embrefs Avesnes, *embref*, 13 August 1768.

²¹⁷ Archives départementales du Nord, Lille, France, inv. no. 11B/227: Fonds du Bailliage royal d’Avesnes, registre d’embrefs Avesnes, *embref*, 16 August 1768.

drastic change in Boussu's life: when he temporarily returned from Amsterdam to Avesnes to make these arrangements regarding his legacy, he had already been living in the Dutch city for at least one-and-a-half years.

At the end of January 1773, Boussu is once more present in Avesnes. Two new expropriation acts have been drafted on his request, one from 28 January by the magistrates of Avesnes, and the other from 29 January by the seignorial court. The first document²¹⁸ states that Boussu is “*demeurant cy devant a Amsterdam et presentement en cette ville d’Avesnes[,] gisant en son lit[,] malade[,] mais sain d’esprit memoire*”. Through this *rapport*, he expropriates from the family house (facing the cemetery, also mentioned in the previous *rapports*) and an annuity (with an annual revenue of 5 *livres*), in favour of Joseph and Benoit, the two remaining children of his second marriage (Alexandre had died in 1767). To his sister-in-law, he assigns the usufruct of an annuity with a revenue of 112 *livres* and 16 *sols* per year, to acknowledge her for her “*bons services qu’elle luy a rendu*”. Apparently, she took care for him while he was staying in Avesnes and his health likely was declining. With the second document,²¹⁹ drafted one day later, Boussu expropriates from a piece of farmland under the jurisdiction of Boulogne, three small annuities with a total annual revenue of 38 *livres*, 2 *sols* and 6 *deniers*, and further all the other lands and annuities that he has personally acquired in the villages Cartignies, Fayt-ville, Avesnelles and Beugnies. The three specified annuities are assigned to his two daughters (Marie) Gabriel(le) and Françoise, and the rest reverts to the two sons of his second marriage. The two eldest sons, from the first marriage, are not mentioned.

Had Boussu already registered the *rapports* of January 1773 as a result of his declining health, he dictates his final testament (and its codicil) in September that same year, just days before his demise. The testament, drafted on 13 September by notary Cornet,²²⁰ describes Boussu again as “*gisant en son lict[,] malade de corps*”. First, Boussu describes his wishes regarding his funeral. He wants to be buried on the cemetery of Avesnes (thus right across his former house), with a ceremony “*au petit etat des bourgeois*”. Eight “*recolets*” must be present, four to carry the coffin, and four others for the celebration of the mass. Then the distribution of personal belongings and several annuities is described. To his sister-in-law Magdaleine Jugier, “*avec qui il reside*”, Boussu leaves his bed, with its curtains “*de serge verte*”, a mattress, pillow, a blanket “*de laine blanche*”, sheets and other garniture. She also is given the usufruct of four annuities, with a total annual revenue of (rounded) 160 *livres*, including the annuity already allocated to her in the *rapport* of 28 January 1773.

²¹⁸ Archives départementales du Nord, Lille, France, inv. no. 11B/228: Fonds du Bailliage royal d’Avesnes, registre d’embref Avesnes, *embref*, 28 January 1773.

²¹⁹ Archives départementales du Nord, Lille, France, inv. no. 11B/173: Fonds du Bailliage royal d’Avesnes, registre d’embref de la pairie d’Avesnes, *embref*, 29 January 1773.

²²⁰ Archives départementales du Nord, Lille, France, inv. no. 2E39/168: Archives des tabellions d’Avesnes, notary J.B. Cornet, Avesnes-sur-Helpe, act *en minute*, 13 September 1773.

She further receives a sum of 280 *écus* of 48 *patars*, equal to 1,344 *livres*, money Boussu inherited from his brother Bruno from Paris, to invest in annuities for her lifetime pension. After her death, all items comprising her usufruct should revert to Boussu's youngest sons, Joseph and Benoit. These latter two also receive the (unspecified) remainder of the money from the inheritance of Bruno Boussu, to be invested in annuities. His eldest daughter, Marie Gabrielle from Amsterdam, receives “*tous les outils[,] bois et ouvrages commencés et à achever concernants son art de l’hutier*”, under the condition that she pays the creditors her father might have in Amsterdam. She thus receives all his tools and materials regarding the violin making business, which may imply that the violin workshop was located in the house in the *Pijlsteeg* where Marie Gabrielle lived with her husband, the gunmaker Jean Rousseau. Unfortunately, the testament does not separately specify any instrument-making tools or instruments. Boussu donates his silver watch with its case to his son Jean Joseph from Amsterdam (likely the above-mentioned ‘Joseph’). Interestingly, this son is described as “*son fils aîné*”, another indication that the two elder sons from the first marriage are literally ignored. His furniture and further belongings in Holland are divided between his daughters Marie Gabrielle and (Marie) Françoise. His other movable property, after subtraction for any debts and expenses, is donated to his sister-in-law Magdaleine. Notary Antoine Lebeau, son of Boussu's long-time colleague notary and presumed friend Thomas Joseph Lebeau (deceased in 1771), is appointed as executor of the testament. To the testament from 13 September 1773, a codicil is added from one day later.²²¹ Through this modification, Boussu leaves to his sister-in-law an additional sum of 200 *écus* of 48 *patars* (equivalent to 960 *livres*), again from the heritage of his brother Bruno. From this sum, a small part has to be used by Jugier to pay off an ongoing annuity.

On the final testament, and especially on the codicil from one day later, the signatures of Boussu reveal that the old man endured his last moments. The shaky way in which his signatures are executed shows that they were certainly done with his last bits of strength (see Figures 3.12 (a) and (b)). One day later, on 15 September,²²² Boussu would pass away.

From the objects mentioned in the final testament, the impression arises that Boussu was not a man with many valuable (movable) possessions. No books are mentioned, nor are paintings or expensive clothes. The only luxury item presented in the testament is a silver watch, which may indeed have been somewhat of a precious and exclusive possession given the selling price of such an item of 60 to 90 *livres*,²²³ thus bringing a certain status to

²²¹ Archives départementales du Nord, Lille, France, inv. no. 2E39/168: Archives des tabellions d’Avesnes, notary J.B. Cornet, Avesnes-sur-Helpe, act *en minute*, 14 September 1773.

²²² Archives départementales du Nord, Lille, France, inv. no. Avesnes-sur-Helpe BMS [1767-1786], 5 Mi 001 R 005: Avesnes-sur-Helpe parish, burial register, burial record for Benoit Joseph Boussu [sic], 16 September 1773.

²²³ Laurence Fontaine, ‘The circulation of luxury goods in eighteenth-century Paris: social redistribution and an alternative currency’, in Maxine Berg, Elizabeth Eger, ed., *Luxury in the eighteenth century - Debates, desires*

the owner. On the other hand, this timekeeper must have been an indispensable part of his professional equipment during his days as a notary: a portable indicator of time allowed him to punctually welcome or visit his clients.

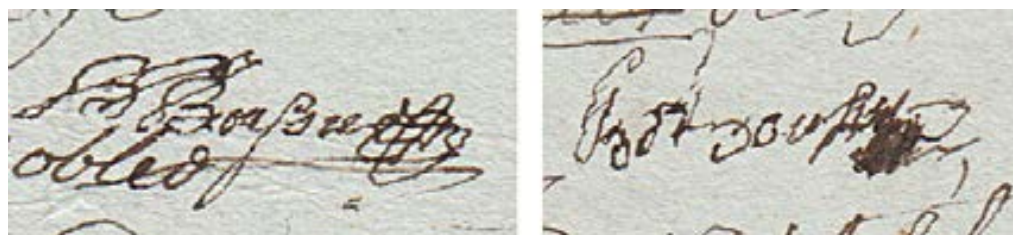


Figure 3.12. Boussu's signatures on his deathbed. Left to right: (a) on his final testament from 13 September 1773, (b) on a codicil from 14 September 1773 (Archives départementales du Nord, Lille, France, inv. no. 2E39/168: Archives des tabellions d'Avesnes, notary J.B. Cornet, Avesnes-sur-Helpe, acts *en minute*, 13 and 14 September 1773).

When considering the documents mentioned above, it is evident that Boussu intended to leave his belongings more and more in favour of his sister-in-law and his two youngest sons. It appears that he wanted to thank his second wife's sister for her care towards him. The two sons of the first marriage are completely absent from the final testament, a reflection of the cooled-down relation between them and their father, likely fuelled by their unwillingness in the Bulto succession case. Instead, the two remaining children of his second marriage, Joseph and Benoit, seem to benefit increasingly with each subsequent version.

From the identified documents discussed in this section, it becomes clear that Boussu had thoughtfully considered his legacy, especially at times in his life when changes in his personal situation or place of residence occurred. Probably, such events were hazardous in the eighteenth century; long and uncomfortable travelling introduced chances of accidents and robberies, while changing living conditions, especially from the countryside to a big city, may have introduced health risks. The fact that he made such arrangements shows that he felt responsible towards his family and that he cared for their well-being.

and delectable goods (Houndmills/New York: Palgrave Macmillan, 2003), pp.89-102, at p.101, endnote 12. By comparison, Fontaine states that gold watches were sold for between 160 to over 1,000 *livres*, depending on the features, while cheap watches with a price of around 10 *livres* were available as well (see Fontaine, p.101).

3.12.2. After Boussu's death: partition of property

For the years following Boussu's death, many documents have been found concerning the settlement of his inheritance. Mostly, documents have been identified which describe the affairs of the four children of the first marriage. They came back to Avesnes several times during the 1770s, alone or together, to arrange and secure their heritage part: leastwise in November 1773, January 1774, March-May 1774 and July 1777. This is remarkable, especially in case of the sons Pierre Antoine and François, since they were less willing to make this journey when their father asked them to come over and provide their approval in the case of the acquisition of Bulto's legacy in 1772.

Almost immediately after their father had passed away, the four eldest children start to sell property from their father's patrimony. In November 1773, they sell a house in Fourmies – the former school from the legacy of Bulto – for a price of 750 French *livres*,²²⁴ as well as a house in the *Rue de Recollets* in Avesnes, the second house donated by their grandfather Louis Alexandre Heisne, which fetched 300 *livres*.²²⁵

On 11 March 1774, the children of Boussu's first marriage sell eight gardens, located just outside Avesnes' city walls in a place called *Banlieue-basse*,²²⁶ all from their father's heritage. In total, these sales yield 318 *écus* of three French *livres* (954 French *livres*). Then, on 9 April 1774, the same children together receive an amount of 3,433 *livres* and 10 *sols*, for the total reimbursement of an annuity which one Mr. Dequesne owed their father.²²⁷ Finally, on 12, 13 and 14 April 1774, they have organised a public auction, by which they monetise eleven lots of farmlands from the patrimony of Benoit Joseph Boussu located in the villages surrounding Avesnes, either by sale ('*vente*'), lease through an annuity ('*arrentement*') or a combination of the two forms ('*vente et arrentement*'). The sales yield 1,630 French *livres* and 244 *livres Hainaut* profit, while established annuities will bring in a total annual revenue of 152 *livres* and 13 *sols*, money of Hainaut.²²⁸

²²⁴ Archives départementales du Nord, Lille, France, inv. no. 2E39/210: Archives des tabellions d'Avesnes, notary A. Lebeau, Avesnes-sur-Helpe, act *en minute*, 11 November 1773; Archives départementales du Nord, Lille, France, inv. no. 11B/173: Fonds du Bailliage royal d'Avesnes, registre d'embrefs de la pairie d'Avesnes, *embref*, 24 January 1774.

²²⁵ Archives départementales du Nord, Lille, France, inv. no. 11B/228: Fonds du Bailliage royal d'Avesnes, registre d'embrefs Avesnes, *embref*, 26 November 1773.

²²⁶ Archives départementales du Nord, Lille, France, inv. no. 11B/228: Fonds du Bailliage royal d'Avesnes, registre d'embrefs Avesnes, *embref*, 11 March 1774.

²²⁷ Archives départementales du Nord, Lille, France, inv. no. 11B/174: Fonds du Bailliage royal d'Avesnes, registre d'embrefs de la pairie d'Avesnes, *embref*, 9 April 1774.

²²⁸ Archives départementales du Nord, Lille, France, inv. no. 2E39/174: Archives des tabellions d'Avesnes, notary N. Prissette, Avesnes-sur-Helpe, 11 acts *en minute*, 12, 13 and 14 April 1774; Archives départementales du Nord, Lille, France, inv. no. 11B/174: Fonds du Bailliage royal d'Avesnes, registre d'embrefs de la pairie d'Avesnes, 11 *embrefs*, 12, 13 and 14 April 1774.

Several days after the auction of the farmlands, the four eldest children visit notary Prissette in Avesnes, in order to agree on and register a partition of property (*'partage'*) among the four of them.²²⁹ Included in this document are 31 annuities (both *rentes constituées* and *rentes d'héritage*), five pieces of farmland, an amount of cash money of 458 French *livres* and 10 *sols* (the remainder of the earnings of the sale of the gardens on 11 March 1774), and finally the family house in Avesnes near the cemetery. Of the 31 listed annuities, in 19 cases the original act of establishment or acquisition has been identified during the current study, mostly those for the lots auctioned on 1-2 June 1773 and 12-14 April 1774. For the other 12, no such document has been found, which may suggest that these are annuities which were established by Benoit Joseph Boussu's father or grandfather, and were inherited by him. However, no documents have been identified during the current study describing such inheritance. Eight of the listed annuities were established through the auctions of mid-April 1774, thus after the death of Boussu senior.

According to the partition document, the eldest son Pierre Antoine, obtains eight annuities and three pieces of farmland, which should provide him with a total annual revenue of 231 *livres*. His brother François is allotted with ten annuities and two pieces of land, providing him a similar yearly revenue of 231 *livres*. Daughter (Marie) Gabrielle obtains six annuities, while her sister is granted with five annuities, both lots with a total revenue of 123 *livres* per year. The cash money listed in the document will be divided over the four children, one-third for each son, and one-sixth for each of the daughters. As for the family house, this will remain collective property until a sale is decided, meanwhile, the revenues of renting will be divided between the four, according to the same fractions as applied for the cash money.

Curiously, among the items listed in the partition document are three annuities that Benoit Joseph Boussu had allocated to his sister-in-law according to his testament of 13 September 1773. It appears as if the children of the first marriage ignored their father's testament in this respect.

As was described in Section 3.12.1, Boussu senior expropriated himself, through various *rappports*, from several goods in favour of the surviving children of his second marriage. However, whereas such a *rappport*, describing expropriation, was an important step to facilitate the execution of a testament, only in the testament itself the donation of goods could be legally established. In case of Boussu's legacy, we find several examples of goods and annuities, intended - by a *rappport* - for the children of the second marriage, although those properties finally ended up in the possession of the children of the first marriage due to the omission by Boussu senior to describe the goods in his last will. In the partition

²²⁹ Archives départementales du Nord, Lille, France, inv. no. 2E39/174: Archives des tabellions d'Avesnes, notary N. Prissette, Avesnes-sur-Helpe, act *en minute*, 19 April 1774.

act of 19 April 1774, one annuity is listed that the father had assigned, in his *rapport* of 28 January 1773, to his youngest sons Joseph and Benoit. Furthermore, it appears that the four eldest children sold, on 12 April 1774, a piece of farmland near Boulogne that their father had allotted (in his *rapport/condition* of 29 January 1773) to Joseph and Benoit. Even more remarkable, the partition act also states that the family house becomes the property of the four eldest children, which seems in contrast with the expropriation of the house by the father in favour of his two youngest sons, as declared in the *rapport* of 28 January 1773. It is unknown why Benoit Joseph Boussu refrained, in his last will, from granting to the children of his second marriage the goods he had expropriated himself from in favour of them in the earlier *rapports*. This negligence in doing so seems to be in contrast with the steadfast and meticulous way of acting that we have seen from him so far. The cause of this apparent inconsistency in behaviour can only be guessed, although the children from the first marriage may have complained, in particular about their father's intentions regarding the family house, which came from their mother's family line of heritage. In the end, the two youngest children, from the second marriage, appear to have inherited very little from their father's properties.

In the years after the property partition, the four eldest children were involved in various transactions involving items from their father's legacy, such as the sale of properties and sale or establishment of annuities. In 1779, they eventually sold the family house (for 2,480 *livres Hainaut*), as was already mentioned in Section 3.9.

From the above discussion of Boussu's possessions at the time of his death (summarised in Table 3.2), it can be concluded that he owned immovable property and cash money with a value of at least 3,500 French *livres* and 7,000 *livres Hainaut*, supplemented with annuities with a total yearly revenue of 1,000 *livres Hainaut*. At an interest rate of 5 %, these annuities represented a capital of 20,000 *livres Hainaut*. In total, the possessions of the notary-turned-violin maker, at the time of his death, were thus worth at least around 33,000 *livres Hainaut* (assuming a conversion ratio from the French *livre* to the *livre Hainaut* of $20/12.5 = 1.6^{230}$). This represents roughly 45 times the yearly income of a craftsman or lower priest (see Section 3.5.2). The value of the heritage assigned to the two sons of the second marriage and to their aunt haven't even been included in this estimation, due to lack of information. It may therefore be concluded that Boussu was not impecunious, and could have lived – at least potentially – a reasonably comfortable life from the revenues of his annuities alone. Boussu's estimated assets at the time of his death fall inside the fortune-range of 20,000 to 50,000 French *livres*, as given by Sabot (based on several sources)²³¹ for French eighteenth-century cloth merchants, practitioners of free

²³⁰ Gabriel Antoine Joseph Hécart, *Dictionnaire rouchi-français* (Valenciennes: Lemaitre, 1834), p.277.

²³¹ Sabot (2012), p.31. Sabot presents a hierarchy of fortunes for the various socio-economic groups in eighteenth-century France. In Sabot's overview, the two groups adjacent to the group in which we can

professions, rentiers and royal officers. This observation both confirms the validity of our estimation and demonstrates that Boussu belonged to the middle class by the end of his life.

	Item	Yearly revenue	Value
Immovable property	House Avesnes (facing cemetery)	-	2,480 <i>livres Hainaut</i>
	House Avesnes (Rue de Recollets)	-	300 French <i>livres</i>
	House Fourmies (former school)	-	750 French <i>livres</i>
	Gardens near Avesnes (sale March 1774)	-	954 French <i>livres</i>
	Farmlands (auction April 1774)	-	1,630 French <i>livres</i> 244 <i>livres Hainaut</i>
Cash money	Redemption by Simon Eliet (June 1773)	-	2,071 <i>livres Hainaut</i>
	Inheritance from Bruno Boussu		at least 2,304 <i>livres (Hainaut?)</i>
Annuities	Annuity owed by Delannoy	112 <i>livres</i> , 16 <i>sols</i>	2,256 <i>livres Hainaut</i>
	Annuity owed by Dequesne	171 <i>livres</i> , 13 <i>sols</i> , 6 <i>deniers</i>	3,434 <i>livres Hainaut</i>
	Various annuities mentioned in partition act (April 1774)	708 <i>livres</i>	14,160 <i>livres Hainaut</i>

Table 3.2. Overview of Boussu's possessions at the time of his death.

categorise Boussu are: (a) traders and high-ranked officers, with fortunes valued at 100,000 to 400,000 *livres* and (b) master cloth makers, manufacturers, minor clerks and proctors ("avoués"), with fortunes valued at 2,000 to 15,000 *livres*.

Chapter 3

Chapter 4

Boussu's oeuvre: comparative analysis of all identified instruments

4.1. Introduction and instrument database

Since the start of the study on Boussu, around 2009, a substantial number of instruments by this maker has been identified and studied. Besides the dozen of instruments in museum collections, predominantly preserved at the Musical Instruments Museum (MIM) in Brussels, almost forty have been identified in private ownership or at dealers. In order to document and archive information for this whole group of instruments, a database has been set up of all instruments investigated between late 2008 and March 2020. This database contains descriptions, basic measurements and external and internal photographs. Also included in this database are several instruments that could not be investigated personally, but for which sufficient information was available to properly document them and attribute them with confidence to Boussu. This database is included in Appendix V of this thesis, and thus contains instruments that can be attributed to Boussu with a high degree of certainty. In addition, Appendix VI includes instruments which have been mentioned (in personal communication, in books, catalogues or on websites) to have been made by Boussu, but which could not be personally examined and/or for which not enough convincing information was available to confirm their authenticity.

Hence, the inventory of identified instruments has been divided into four categories:

- (1) examined instruments containing a reliable, original dating (see Appendix V);
- (2) examined instruments containing no (reliable) dating (see Appendix V);
- (3) instruments, known to exist, of a fairly reliable attribution or provenance but which could not be examined personally as part of the current study, and/or for which not sufficient information was available to properly document them (see Appendix VI - part A);

(4) instruments of less reliable attribution or provenance, mentioned in auction catalogues, books, advertisements, websites or by musicians or dealers, but which could not be located nor examined or documented (see Appendix VI - part B).

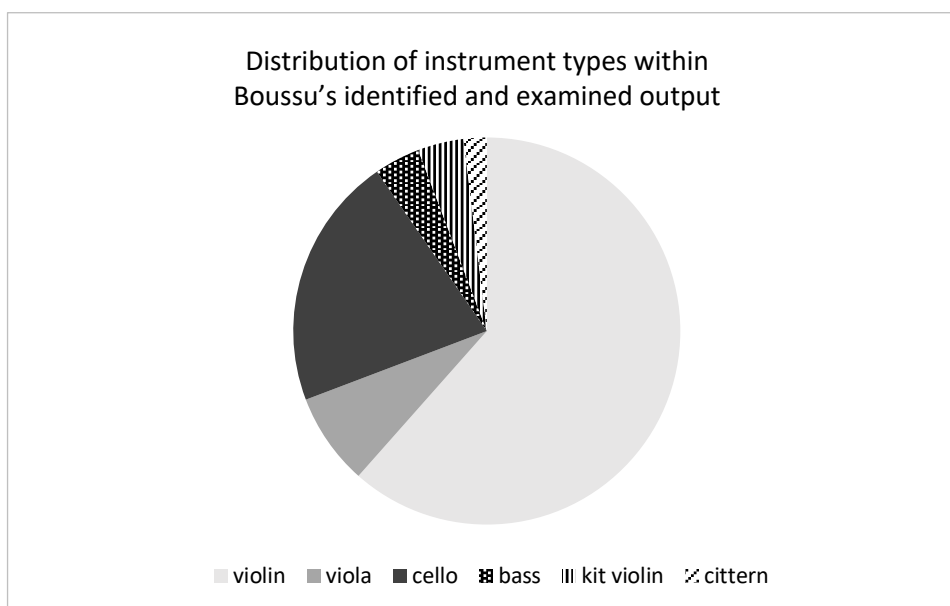
Table 4.1 gives an overview of the instruments included in the Appendices V and VI. It has to be noted that some of the instruments mentioned under the third and fourth categories may well have already been included in the first or second categories, without awareness of this double inclusion (due to the lack of sufficient information regarding the unexamined instruments).

Inventory category	Appendix	Instruments included in inventory category	Number of instruments in inventory category
Category 1: examined instruments containing a reliable, original dating	V (database)	17 violins, 1 viola, 6 cellos, 1 double bass, 2 kit violins, 1 cittern	28
Category 2: examined instruments containing no (reliable) dating	V (database)	15 violins, 3 violas, 5 cellos, 1 double bass	24
Category 3: instruments of an attribution or provenance of reasonable reliability, known to exist, but which could not be examined as part of the current study	VI - part A	4 violins, 2 violas, 1 cello	7
Category 4: instruments of less reliable attribution or provenance, mentioned in auction catalogues or by musicians, which could not be located nor examined	VI - part B	7 violins, 3 violas, 2 cellos	12

Table 4.1. Overview of the instruments included in Appendices V and VI.

For the instruments included in the first two inventory categories (1 and 2), thus those of which we are convinced were created by Boussu and could be examined and documented as part of our study, Graph 4.1 displays the distribution of the various instrument types. Over 60 % of the identified and examined instruments consists of violins and around one-fifth part of cellos. These two instrument types together thus constitute the vast majority of the surviving identified oeuvre. Less than 10 % of the detected production consists of violas, while double basses, kit violins (*pochettes*) and a single cittern – Boussu’s only known plucked string instrument – are present in even smaller amounts.

Instruments



Graph 4.1. Distribution of instrument types within Boussu's identified and examined output (inventory categories 1 and 2, as included in the database of Appendix V).

Instruments from the first two inventory categories (thus those included in the database of Appendix V) have been assigned a newly proposed code, in order to make their future identification unambiguous. This identification code (or database code) is composed as follows:

BJBppqrr

Where:

BJB: Initials of the instrument's maker (Benoit Joseph Boussu).

pp: Year of making (e.g. when *pp* = '52', the year of making is 1752).
For undated instruments, *pp* = 'nd'.

qq: Database index number for an individual instrument within a certain year of production (e.g. *BJB5302vn* stands for the second instrument as identified to be from the year 1753). For an undated examined instrument, the index number indicates its position within the undated category (e.g. *BJBnd04vn*).

rr: Instrument type (e.g. when *rr* = 'vn', the instrument is a violin).
(*'vn'*: violin; *'va'*: viola; *'vc'*: cello; *'db'*: double bass; *'kv'*: kit violin; *'ci'*: cittern).

In the remainder of this chapter, instruments will be indicated by their database identification code, and, in case they are part of a museum collection, additionally by their museum inventory number.

This current chapter presents the results of a comparative analysis involving all 52 instruments by Boussu examined as part of the PhD study. By comparing various constructional and stylistic aspects between the available instruments, the technical and aesthetic development of their maker can be followed. All instruments incorporated in this analysis are those included in the instrument database presented in Appendix V. Since 28 of the examined instruments contain a reliable dating, and are representing the entire most active period of Boussu between 1749 and 1761, it is possible to follow his evolution throughout time during his most prolific decade. Although it will become evident from the information provided in this chapter that Boussu was a man of strict habits and fixed working modes, the following sections on various aspects of his design, construction and aesthetics will demonstrate that even with such steadfast attitude he was prepared to make subtle adjustments in his instruments, their labelling and the methods with which they were made.

4.2. Label types

During the most prolific part of his instrument-making career, between 1749 and 1761, Boussu made use of various types of paper labels to brand his creations. Of the 52 instruments identified during this study, 25 could be verified as having an original label. For the remaining instruments, no label was present any longer, or the original label was exchanged with a non-original replacement label carrying the name 'Boussu', or with a substitute label carrying the name of another maker, or there was no possibility to inspect the label. In some cases, the presence of an original label could not be determined, due to unavailability of the instrument for direct examination.

Boussu's two earliest known instruments,¹ a cello from 1749 (database code BJB4901vc) and a violin from 1750 (MIM inv. No. 2781; database code BJB5001vn) bear simple handwritten labels, only mentioning the maker's last name, the city and the year. These two labels of this first type are presented in Figure 4.1. It is interesting to note that on the violin's label, the name of the city seems to be left out intentionally, instead showing a row of dots. Possibly, this instrument was made during Boussu's transition from Liège to Etterbeek, leaving him undecided regarding the exact place of construction.

¹ A possible older instrument of 1747 has previously been reported, but could not be located during the current study. See: Mia Awouters, 'Les instruments à cordes', in Malou Haine, Nicolas Meeùs, ed., *Instruments de musique anciens à Bruxelles et en Wallonie - 17^e-20^e siècles* (Liège/Bruxelles: Mardaga, 1985), pp.13-17, at p.16. Furthermore, a violin was identified, see Appendix V, database code BJBnd15vn, which may have been made by Boussu prior to his departure from France. According to the last known French owner, he bought this instrument from a family in Boulogne-sur-Mer (France), of which a forefather had known Boussu well and bought or received the instrument from the maker. This implies that the instrument was made before 1748. Of course, this curious anecdote needs to be investigated further in order to prove the claim.



Figure 4.1. The two only known examples of the first type of instrument label. Left to right: (a) label in a cello from 1749 (database code BJB4901vc), (b) label in a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn).

While working in Etterbeek (a suburb of Brussels) between at least February 1751² and February 1753,³ he still used a completely handwritten label, although the information on this second type of label is more extensive. The maker's full name is mentioned, as are the place of construction, the dating of the signature in day/month/year format and a serial number. It is interesting to note that the violins have a different numbering system than the cellos (compare, for example, in Appendix V the label of the violin with database code BJB5103vn to the label of the cello with database code BJB5201vc). Instrument numbering in relation to estimated production rate will be discussed further in Section 4.5. Currently, six instruments with this second type of labelling have been identified (database codes BJB5102vn, BJB5103vn, BJB5104vc, BJB5201vc, BJB5204vn, BJB5301vn). Two examples of this kind of label are shown in Figure 4.2.



Figure 4.2. Two examples of the second type of instrument label. Top to bottom: (a) label in a violin from June 1751 (database code BJB5103vn), (b) label a violin from February 1753 (MIM inv. no. 2783; database code BJB5301vn).

² State Archives of Belgium, Belgium, inv. no. BE-A0541_006325_006218_FRE, 0316_000_00194_000_0_0052_r: St. Gertrude parish Etterbeek, baptismal register, baptism record for Benedictus Josephus Bo[u]ssu, 1 February 1751.

³ The last known violin to be made in Etterbeek, now part of the MIM collection with inv. no. 2783, carries a label with the text: 'B.J.Boussu, a Etterbeecke / contre Bruxelles Le 11 fevrier / 1753. no. 37.'

After having moved inside the city walls of Brussels, Boussu started using printed labels, possibly to reflect his newly gained urban status. Two types of printed labels have been identified. Curiously, only one instrument, a violin from 1753 (MIM inv. no. 2784; database code BJB5302vn), is known to bear the initial type of printed label, shown in Figure 4.3. This may raise the question of authenticity of this label, although the printing style and execution come across as original, eighteenth-century work. Furthermore, the dating of this label fits seamlessly within the complete array of identified labels. Also, the handwritten ‘3’ with its added dot are typical for Boussu. This third type of label is therefore thought to be authentic, and may have come from a small batch of labels the maker ordered from a printer. The text returns to a more basic statement of information, omitting the day and month of signature, as well as a serial number. Possibly, Boussu started to leave out a serial number to obscure the true quantity of his output, and thus his income, in relation to city tax imposition⁴ or intervention of the guild. On the other hand, the title ‘Maître’ is a new addition, and may have been included by the maker to strengthen his reputation within the instrument-making market of Brussels.



Figure 4.3. The currently only known example of the third type of instrument label, in a violin from June 1753 (MIM inv. no. 2784; database code BJB5302vn).

The final and fourth type of label – and the second printed type – is present in 16 identified instruments. In 12 of these, the handwritten year can still be read, in the four others, the year indication is illegible. This label is significantly smaller in size compared to the three other types, about 10 × 41 mm, and it first appears in surviving instruments from 1754. The last instrument containing this type of labelling is a violin from 1761 (database code BJB6101vn), possibly one of Boussu’s last creations from Brussels. Two examples, an early and a late one, are presented in Figure 4.4. The information on this fourth label type is similar to the text on the third label type, except that the word ‘Maître’ has now been replaced by the abbreviation ‘Me.’. As in the third label type from 1753, the last digit of the year is handwritten, while the other three digits of the year have been printed. Remarkably, for instruments made from 1760 onwards, Boussu has overwritten

⁴ According to Heyde, “as soon as the production of musical instruments became an economic factor for the cities, it became taxable”. See: Herbert Heyde, ‘Entrepreneurship in pre-industrial instrument making’, in Boje E. Hans Schmuhl, Monika Lustig, ed., *Musikalische Aufführungspraxis in nationalen Dialogen des 16. Jahrhunderts - Teil 2: Musikinstrumentenbau-Zentren im 16. Jahrhundert* (Michaelsteiner Konferenzberichte, vol. 72, no. 2) (Augsburg: Michaelstein, 2007), pp.25-63, at p.26.

the printed digit 5 by a handwritten digit 6 (see Figure 4.4), in order to save his outdated label stock from the fire stove. This may also indicate that around 1760, Boussu was already thinking about closing down his Brussels workshop (which he in fact did not much later, around late 1762), thus making the purchase of updated labels unnecessary. In all labels of the fourth type, Boussu also added some handwritten punctuation marks, like dots and commas.

Another fascinating detail in the fourth type of label is the slight deviation in layout between various labels within this sub-type, as exemplified by the font of the letter ‘t’ of the word ‘Benoit’. For some labels, a lower case font is used here, while other labels show a capital font (compare, for example, both labels in Figure 4.4). Likely, several of these labels were typeset to be printed at once on a single sheet of paper, each individual label on the resulting print having its own slight variations in layout.



Figure 4.4. Two examples of the fourth type of instrument label. Top to bottom: (a) label in a violin from 1754 (database code BJB5401vn), (b) label in a violin from 1761 (database code BJB6101vn).

Lindeman and Stam mention that around 1999 “a violin by Boussu was found with a label ‘Leiden 176..’”.⁵ This reference implies that possibly a fifth type of label for this maker exists. Unfortunately, during the current study, the violin mentioned by Lindeman and Stam could not be located and identified with full certainty. It might very well be the instrument with the inscribed dating ‘1765’, included in Appendix V under database code BJB6501vn, which was sold from Europe to the Taiwanese private Chimei Museum in 2010. If this assumption is correct, the label of the instrument was removed between 1999 and 2010, since currently the violin in the Chimei collection no longer contains a label.

⁵ Fred Lindeman, Serge Stam, ‘Well-known Dutch violin makers’, in Jaap Bolink et al., ed., 400 jaar vioolbouwkunst in Nederland (Amsterdam: NGV/Papyrus, 1999), pp.169-225, at p.179.

Some of the instruments identified during this study contain labels mentioning the name 'Boussu', although these labels cannot be placed in one of the four above categories. Examples are given in Figure 4.5. Possibly, these are considered substitutions applied by collectors, restorers or dealers to replace lost original labels.

Several other instruments carry labels with names of other – often more well-known – makers, such as the instruments with the database codes BJBnd01vn, BJBnd02vn, BJBnd07vn, BJBnd08vn, BJBnd09vn and BJBnd10vn. Obviously, these false identifications have been applied in the past to increase the market value of the instruments.



Figure 4.5. Three examples of non-original substitute labels. Top to bottom: (a) label in a cello from 1757 (MIM inv. no. 1372; database code BJB5701vc), (b) label in a double bass (database code BJBnd24db), (c) label in a viola (database code BJBnd17va).

4.3. Internal signing inscriptions

While working in Etterbeek, and during his initial days in Brussels, Boussu wrote an inscription at the interior of his instruments, applied by ink directly onto the wood. In nine instruments made in Etterbeek and two instruments made in Brussels, violins from 1753 and 1754 with database codes BJB5302vn and BJB5401vn, we could detect such an inscription. This inscription is found on the back plate, either left from the upper block, or both left and right from that block. The wording usually almost literally repeats the information of the label. Three examples are given in Figure 4.6. No such inscriptions were found in the cello and violin made in respectively 1749 and 1750, nor in identified bowed string instruments made by Boussu later in 1754, and onwards.

Instruments

For the violin from the MIM collection with inv. no. 2785 (database code BJB5101vn), a paper label is not (or no longer) present, but the inscription ('Boussu, a / Bruxell[.] / 1751.') most likely represents the text that must have been present on the lost label (see Figure 4.7). Although the inscription states that the instrument is made in Brussels, it is more likely that it was made in that city's suburb Etterbeek, since archival information and both labels and inscriptions in other instruments suggest that Boussu was living and working in Etterbeek from at latest February 1751 onwards. In any case, it can be assumed that this violin is one of the earliest instruments made by Boussu upon his arrival in the area of Brussels, since the sparse formulation of its inscription text closely corresponds with the similarly brief signing found on the labels of the 1749 cello (database code BJB4901vc) and the 1750 violin (MIM inv. no. 2781; database code BJB5001vn).



Figure 4.6. Three examples of internal inscriptions. Top to bottom: (a) inscription in a cello from 1751 (database code BJB5104vc), (b) inscription in a cello from June 1752 (database code BJB5202vc), (c) inscription in a violin from 1754 (database code BJB5401vn).



Figure 4.7. Internal inscription in a violin from 1751 (MIM inv. no. 2785; database code BJB5101vn).

It may well be that, in the first years in Brussels, the multiple and detailed signing with both a label and internal inscription came forward from Boussu's urge to properly document his output, a habit that could be explained from his background as notary. The

elaborate way of signing also expresses a certain pride for his considerable production. In this respect, both Heyde and Sennett have interpreted the personal mark of a craftsman as an expression of “self-realization”⁶ and “presence”.⁷ After having established himself as a maker in Brussels in the mid-1750s, Boussu’s instruments only received a label (fourth type) containing a more basic kind of information, a possible indication that his initial ambition had tempered. Moreover, due to industrious activities in the workshop, the involvement of co-workers and the possible parallel assembly of multiple instruments (as will be discussed in Section 5.4), it may have become impracticable to keep track of the exact order and day of completion of instruments, which resulted in the abandon of numbering in early 1753, along with the omission of the internal inscription with exact dating that same year. From that moment onwards, only a more generic label was applied (with dating solely expressed as the year of production), accompanied a few years later by a simple brand stamp (see Section 4.4).

The violin (database code BJB6501vn) and cittern (database code BJB7101ci) identified as the two ‘youngest’ surviving instruments of Boussu, made after he left Brussels, also contain handwritten identifications, see Figure 4.8. For the violin, only the (presumed) year of production, 1765, is legible. Possibly, other information, such as the maker’s name and place of production, has been erased as the result of repairs or water damage to the back (in the soundpost area, where the remaining inscription was found, stains resulting from exposure to liquid are present). In case of the 1771 cittern, the maker’s last known instrument, the formulation of the handwritten inscription reverts to the concise format found in the two earliest known instruments by Boussu. Thus, only the last name of the maker, the city of production and the year are stated. In contrast with the earliest labels, however, the name is applied with a branding iron and the remainder of the text is handwritten directly onto the back’s surface. The use of the branding tool will be discussed in more detail in the following section. The absence of a printed label may indicate that by 1771, Boussu’s activities as a manufacturer of new instruments had waned. Due to a diminished production rate, in combination with his advanced age, he may no longer have felt the need to order a stock of labels from an Amsterdam printer.



Figure 4.8. Internal inscriptions in two instruments from Boussu’s late career. Left to right: (a) inscription ‘1765’ in a violin (database code BJB6501vn), (b) inscription in a cittern from 1771 (database code BJB7101ci).

⁶ Heyde (2007), p.30.

⁷ Richard Sennett, *The craftsman* (New Haven: Yale University Press, 2008), pp.130-135.

4.4. Branding marks

Surviving, reliably dated instruments from 1759 onwards display another kind of identification sign: a small mark 'BOUSSU' (approximately 13 mm wide) applied by a branding iron. Examples are given in Figures 4.8(b) and 4.9. In five of the eight identified instruments branded this way, the mark is applied on the outside of the back plate, just below the button. In other cases, it is solely or additionally applied inside the sound box, on central part of the back plate.



Figure 4.9. Four examples of the branding mark 'BOUSSU'. Left to right: (a) mark on a violin from 1759, ruler in millimetres (database code BJB5903vn), (b) mark in a double bass from 1760 (MIM inv. no. 2014.324; database code BJB6002db), (c) mark in a violin from 1761 (database code BJB6101vn), (d) mark on a violin from 1765 (database code BJB6501vn).

A violin from 1758 (database code BJB5801vn) does not carry the branding mark, so we can assume that Boussu did not use this identification at the time of the instrument's construction. The fact that one instrument from 1759 is branded (database code BJB5903vn), and another one is not (database code BJB5901va) may indicate that Boussu started to use the marking tool during that year. Remarkably, though, one of two known instruments from 1760 (a violin, MIM inv. no. 1338; database code BJB6001vn) does not carry the branding mark either. No explanation can be devised for this absence. A double bass in private ownership (database code BJBnd24db), with an atypical handwritten label stating that the instrument was made in 1756, also carries the branding mark. Given the above conclusion that Boussu only started using the branding iron from c1759, we can assume that the dating on the label is incorrect, and the label thereby non-original.

During the currently presented study, several instruments (both attributable to Boussu and not) were encountered carrying irregular branding marks dissimilar to the original mark shown in Figure 4.9. Examples are given in Figure 4.10. It can be assumed that such an aberrant marking was not applied by Boussu, but by someone else in an attempt to mimic the original mark. Remarkably, the two marks shown in Figure 4.10 are strikingly similar, and may thus have been applied by the same person. Although the violin with database code BJBnd11vn shows many characteristics of a genuine Boussu instrument, the violin with MIM inv. no. 1975.047 does not. Therefore, it is plausible that these branding marks were not applied at the time of the construction of the instruments, but at a later date, possibly by a dealer who wanted to affirm that the instrument was made

by Boussu (in case of the first-mentioned violin), or to make it appear as an instrument by that maker (in case of the second-mentioned violin).



Figure 4.10. Examples of non-authentic branding marks 'B BOUSSU'. Left to right: (a) mark on a violin attributed to Boussu (database code BJBnd11vn), (b) mark on an anonymous violin (MIM inv. no. 1975.047).

Since markings (written inscription, brand stamp) have only been found on back plates, it is not likely that these were applied as a form of coding related to a presumed modular making system and division of labour in the workshop (see Section 5.4) or even subcontracting. More plausibly, the brand stamp may have come in use as a way to authenticate the work against counterfeits. Two newspaper announcements from 1752 and 1756 respectively, by Boussu's Brussels contemporary Jean Hyacinthe Rottenburgh, a woodwind instrument maker, illustrate that fake instruments were indeed a problem. Rottenburgh warns the readers against bad imitations of his instruments and those of his son, which carry also an imitation marking with their names.⁸ Today, a branding mark containing the name "ROTTENBURGH" is found on extant instruments that are believed to be authentic, both by father and son.⁹ This indicates that brand marks were in use for authentication purposes. So, very likely Boussu too applied a branding mark from 1759 onwards to certify his production.

4.5. Instrument numbering and production rate

As explained in Section 4.2, Boussu only applied a serial number in his instruments during his three-year stay in Etterbeek. Table 4.2 gives an overview of all numbered instruments. As can be seen, the violins and the cellos have a separate numbering system. Although only seven numbered instruments have been identified, this limited amount of

⁸ Jean-Philippe Van Aelbrouck, 'Annonces concernant la musique dans les gazettes et périodiques bruxellois au XVIIIe siècle (1741-1780)', *Tradition wallonne*, vol. 4 (Brussels: Ministère de la communauté française de Belgique, 1987), pp.761-799, at pp.765-766.

⁹ Mia Awouters, 'ROTTENBURGH', in Malou Haine, Nicolas Meeùs, ed., *Dictionnaire des facteurs d'instruments de musique en Wallonie et à Bruxelles du 9^e siècle à nos jours* (Liège/Brussels: Mardaga, 1986), pp.350-352; Stefaan Verdegem, *The Brussels Musical Instruments Museum Oboe Collection* (2011). Available from: <http://brusselsmimoboecollection.kcb.be/> (accessed February 2020).

information may nevertheless be used to make a tentative estimate of the potential production capacity of Boussu's workshop during its initial days. Between late May 1751 and late August 1752, the workshop produced 18 violins, implying that on average, the workshop delivered a violin every four weeks. In September and October 1752 four violins (with serial nos. 33 to 36) were made, which indicates an even higher output rate of two violins per month. Curiously, the next violin (with serial no. 37) was signed three and a half months later. Possibly, during late 1752 and early 1753, Boussu was occupied with preparations to move his household and workshop to the intramural part of Brussels; these activities may have had an effect on his workshop's output. Most remarkably, however, is the apparent completion of three violins (nos. 15, 16 and 17) within the two weeks between 22 May and 7 June 1751.

Instrument	Instrument ID	Date of signing	Number
Violin	Database code BJB5102vn	22 May 1751	14
Violin	Database code BJB5103vn	7 June 1751	17
Violin	Database code BJB5203vn	30 August 1752	32
Violin	MIM inv. no. 2782; database code BJB5204vn	20 October 1752	36
Violin	Database code BJB5301vn	11/12 February 1753	37
Cello	Database code BJB5104vc	21 [possibly: February] 1751	3
Cello	MIM inv. no. 2863; database code BJB5201vc	27 January 1752	6

Table 4.2. Overview of the identified instruments by Boussu containing a serial number.

In addition to this considerable violin production, by early 1752, the sixth cello was finished. An additional unnumbered cello from 1752, signed on 7 June, is known (database code BJB5202vc). Assuming that Boussu built his first few instruments in 1749 and 1750, and that his full production only took off in early 1751 (after he moved to Etterbeek), we can estimate that the newly established workshop also could produce around three cellos per year in addition to the violins.

From the above analysis, it seems safe to conclude that when the workshop ran at full capacity, in total 12 to 15 violins (or violas) per year could be created, alongside three cellos. These considerable production numbers strongly suggest that Boussu was not the only craftsman in the workshop. Possibly he had one or two assistants, at a certain stage maybe even including his two eldest sons Pierre Antoine and Jean François (born respectively in 1739 and 1742). The observation that several violins could be delivered within a very short time span, as must have been the case for the instruments with the

serial numbers 15, 16 and 17, points towards a parallel production, as will further be discussed in Sections 5.3 and 5.4.

Buyens¹⁰ provides some information, based on contemporary sources, regarding the prices of bowed string instruments in Brussels in the middle of the eighteenth century. When in 1770 a violin was stolen from the Brussels court chapel's inventory – an instrument described as the best one from the collection – its value was about 150 guilders. The replacement instrument was bought for around 105 guilders. Other prices provided are 63 guilders for a cello in 1761, 130 guilders for a violin in 1766 and 67 guilders for a double bass in 1774. The given prices, according to Buyens, correspond with the income of several months of a court musician; the price of said double bass would have equalled four months of wage for the court's double bass player. Taking these market prices into account, by selling the annual number of instruments as estimated above, Boussu could acquire considerable earnings, even after the expenses for materials and for the wages of his assistants had been deducted.

From all 52 extant instruments identified during the current study, 20 instruments can be assigned with reasonable to high certainty to the period 1754-1761, since they all contain the fourth label type (used from 1754 onwards) and/or the small branding mark (used from c1759 onwards).¹¹ The number of surviving instruments produced between 1754 and 1761 may even be higher, since a substantial part of the 18 remaining undated instruments could have originated from this period as well. However, based on the number of instruments to be dated with certainty, on average, for this eight-year period, at least 2.5 instruments per year have survived. For the three-year period 1751-1753 (for which the production rate was estimated above), ten surviving instruments have been identified with certainty based on reliable dating inside their sound box. So, for this early period, on average 3.3 instruments per year have been found. For both evaluated periods (1751-1753 and 1754-1761), the average number of identified surviving instruments per year is thus comparable in order of magnitude. Based on this observation, it is permitted to assume that the annual output of Boussu's workshop for both periods must have been approximately similar as well.

Following this reasoning, between 1751 and 1761 – the most prolific period of the workshop – in total an estimated 130 to 160 violins and violas may have been produced,

¹⁰ Koen Buyens, *Musici aan het hof. De Brusselse hofkapel onder Henry-Jacques De Croes (1749-1786): een sociaalhistorische studie* (Brussels: VUBPRESS, 2001), p.166.

¹¹ Within this group of 19 instruments, 13 instruments can be assigned with certainty to the period 1754-1761, due to their exact dating. From the 24 undated instruments, six can be assigned with reasonable certainty to the period 1754-1761 (database codes BJBnd04vn, BJBnd05vn, BJBnd06vn, BJBnd13vn, BJBnd16va and BJBnd24db), due to the presence of the type four label and/or the branding mark 'BOUSSU', combined with stylistic characteristics for Boussu's Brussels period.

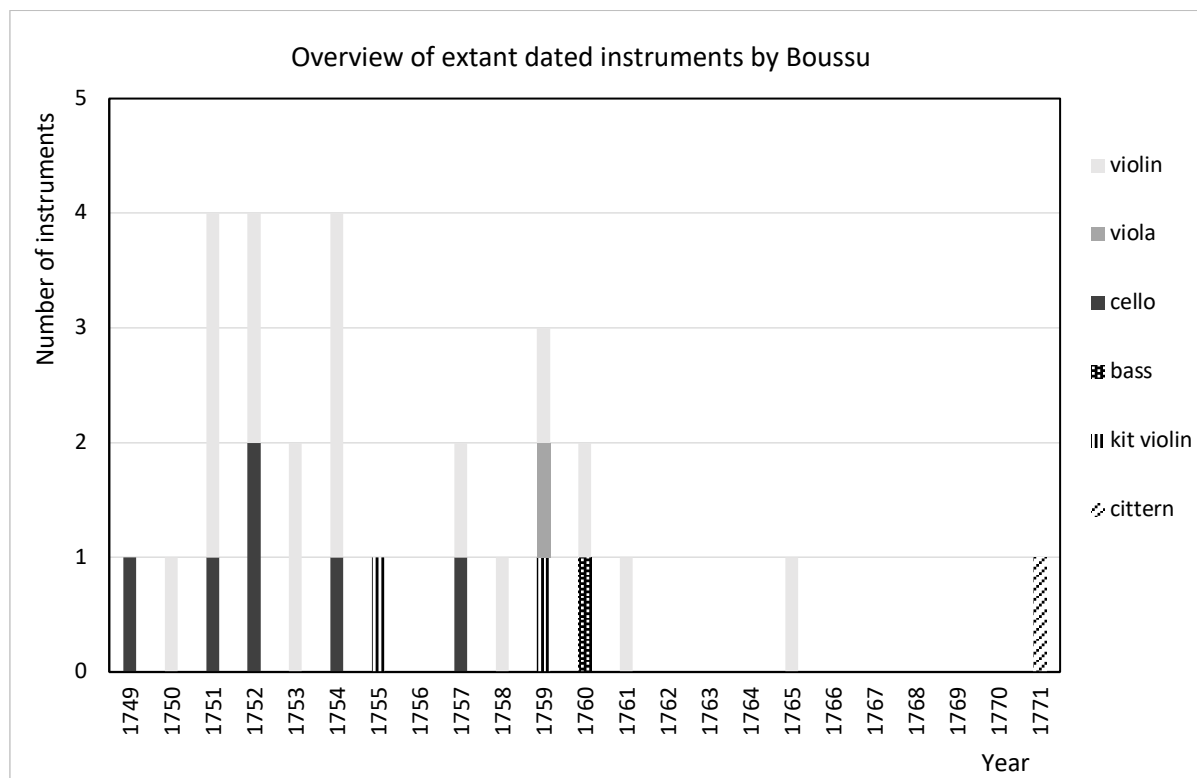
along with 30 cellos. In addition, at least two double basses and two kit violins left the Brussels workshop as well, since two of each of these instrument types from this period are known today. In the database of identified, examined instruments (see Appendix V), 32 violins are present. Based on the above calculations, this pool represents around 20 % of Boussu's estimated total violin production. Similarly, the 11 identified cellos must embody around one-third of the total cello output.

In order to get an idea of the evolution in instrument types produced by the Boussu workshop throughout time, all reliably dated instruments are displayed by category in a year-based chart, in Graph 4.2. From a first look at this chart, it may seem that the (average) annual number of extant instruments for the period 1749-1753 is higher than the annual number of instruments for the period 1754-1761. However, this chart does not include four violins, one viola and one double bass, which can be assigned with fair confidence to the period 1754-1761 due to the presence of the fourth label type (although the exact year on this label is illegible) and/or the small branding mark. The sudden interruption in occurrence of extant instruments around 1760-1761 may be explained by the personal circumstances of Boussu and his family during that period. As explained in Section 2.5, his wife and three of his children had died soon after each other between 1758 and 1760, and this difficult situation may have resulted in the termination of Boussu's professional activities and his subsequent departure from Brussels around late 1762 or in the course of 1763. When Pierre Antoine Boussu, the violin maker's eldest son, married in Brussels on 14 January 1764, neither his father nor any other family members were among the witnesses,¹² which suggests that the Boussu family (except the eldest son) had already left Brussels by early 1764.

Graph 4.2 shows that for the period up to 1754, only violins and cellos have been identified. After 1754, the output seems to become more diverse, with a viola, two kit violins (*pochettes*) and one double bass added to the surviving workshop output. This tendency is further emphasised when we take into account the extra four violins, one viola and one double bass, of which we can assume with reasonable certainty that they were produced between 1754 and 1761, but which were not included in the graph due to their non-precise dating. Maybe the demand for orchestral instruments like the viola and the double bass increased after Boussu moved inside Brussels due to the presence of larger ensembles in that city. Similarly, the duo of surviving kit violins produced after 1754 may have found their way to the city's dancing masters. In contrast, the number of surviving cellos for the Etterbeek period is higher than for the Brussels-city period. That said, the database in Appendix V contains five additional cellos that cannot be dated

¹² State Archives of Belgium, Belgium, inv. no. BE-A0541_006325_006218_FRE, 9998_998_00479_000_0_0001_r: St. Nicolas parish Brussels, marriage register, marriage record for Petrus Antonius Bossu and Maria Magdalena Josepha Jonniau, 14 January 1764.

exactly, but which may well have been constructed in the second half of the 1750s in the Brussels workshop.



Graph 4.2. Distribution in time of the various categories of extant, reliably dated instruments from the Boussu workshop for the period 1749-1771. Instruments that carried no unambiguous dating have been left out of this graph.

According to the items available in the instrument database (Appendix V), Boussu's production was almost completely composed of instruments of the violin family. Except for the late cittern from 1771, no plucked string instruments, like guitars or mandolins, are known for this maker. Similarly, no viola da gamba family instruments have been identified so far. This uniformity of output may either be due to the maker's personal preferences and apparent rigid habits, or to the local market conditions and customer demands. In comparison, for example, the output of Gérard Joseph Deleplanque, Boussu's contemporary who worked in the city of Lille between 1761 and 1784, was much more varied, as was demonstrated recently by Hemmy *et al.*¹³ Moreover, Milliot maintains that the output of the eighteenth-century Parisian makers was diverse: “*violons, violes, luths, guitares, vielles et harpes voisinent dans les ateliers*”.¹⁴ Whether the uniformity of Boussu's

¹³ Christine Hemmy, Philippe Bruguère, Jean-Philippe Echard, 'New insights into the life and instruments of Gérard Joseph Deleplanque, maker in eighteenth-century Lille', *The Galpin Society Journal*, vol. 71 (2018), pp.5-34.

¹⁴ Sylvette Milliot, *Histoire de la lutherie parisienne du XVII^e siècle à 1960*, vol. 2: *Les luthiers du XVIII^e siècle* (Spa: Les Amis de la Musique, 1997), p.22.

manufacture – in contrast to the divergent production of his contemporaries from Paris and Lille – is a reflection of his personality and individual preferences, or of the differences and changes in character of the musical climate of Paris and Lille on the one hand and of Brussels on the other hand remains an interesting objective for further study.

4.6. Soundpost and bridge markings

We have seen in the previous sections of this chapter that Boussu used his quill pen for writing his labels and for the application of internal inscriptions inside his instruments. In addition, Boussu clearly remained true to the ‘man of the pen’ mentality from his notary years by using the writing tool in a few other places inside and on his instruments, as will be explained below.

On several identified instruments, from as early as 1752, markings on the top plate have been found to indicate the position of the bridge, apparently applied with ink below or in between the varnish layers. Several examples are provided in Figure 4.11. When such type of marking was noted for the first time during the recent examinations, it was thought that a past owner had applied the lines. However, when such indications were found on various instruments, always applied in a similar manner as two short parallel lines, the idea arose that the maker himself was responsible for drawing them. The lines are placed in such a way, that when the bridge’s feet are positioned in between them, the front side of the bridge (the side towards the fingerboard) is aligned with the inner nicks of the f-holes. When the bridge is positioned according to the indications, the resulting string length is slightly longer compared to the modern set-up.¹⁵ The presence of the bridge-markings may suggest that the maker was concerned with the position of the bridge with regards to the sound and playability of the instrument, and applied the lines to help the future owner(s) of the instrument find the correct bridge position in case the bridge had fallen down or been removed. As will be discussed in Section 4.20, the markings can also provide information regarding the thickness of the bridge, as intended by Boussu.

Another place where markings may be present, is at the contact location of the soundpost at the back plate. Again, two parallel lines are drawn, between which the soundpost is expected to be placed. Given the length of the lines, there is margin envisioned for repositioning of the post in direction parallel to the centreline of the instrument. In one

¹⁵ The modern default position for the bridge is such, that the line through the centre of the width of the bridge’s feet is aligned with the inner nicks. For set-up of existing instruments, however, it may be necessary to adjust the bridge position in order to achieve the currently preferred string length of 330 mm. See: Chris Johnson, Roy Courtinall, *The art of violin making* (London: Robert Hale, 2003), pp.134, 227. In the seventeenth and eighteenth century, the position of the bridge was not yet standardised (compared to today).

case, in a violin from 1759, an inked dot is present to indicate the soundpost position, instead of the usual two lines. Examples of such marking lines are given in Figure 4.12. Soundpost markings were found in instruments constructed from 1757 onwards. Curiously, in most instances, Boussu added numbers and symbols between or near the lines, as can be seen in the examples in Figure 4.12. The exact meaning of these additional indications is currently unknown, but possibly, some of them may refer to the day and month of production.



Figure 4.11. Five examples of bridge position markings. Top row, left to right: (a) bridge position marking on a violin from October 1752 (MIM inv. no. 2782; database code BJB5204vn), (b) bridge position marking on a cello from 1754 (database code BJB5403vc), (c) bridge position marking on a viola from 1759 (database code BJB5901va). Bottom row, left to right: (d) bridge position marking on a violin from 1760 (MIM inv. no. 1338; database code BJB6001vn), (e) bridge position marking on a bass from 1760 (MIM inv. no. 2014.324; database code BJB6002db).



Figure 4.12. Six examples of soundpost position markings. Top row, left to right: (a) soundpost marking in a cello from 1757 (MIM inv. no. 1372; database code BJB5701vc), (b) soundpost marking in a violin from 1758 (database code BJB5801vn), (c) soundpost marking in a viola from 1759 (database code BJB5901va). Bottom row, left to right: (d) soundpost marking in a violin from 1759 (database code BJB5903vn), (e) soundpost marking in a double bass from 1760 (MIM inv. no. 2014.324; database code BJB6002db), (f) soundpost marking in a violin from 1765 (database code BJB6501vn).

A final, and most peculiar, example of the application of ink markings on an instrument can be found in Boussu's last known creation, a cittern from 1771 made in Amsterdam. On the entire slab cut maple back plate, a pattern of black lines can be noticed. At first, one may think that this back is made from so-called spalted wood, in which black lines occur as a result of a fungus infection, but upon closer inspection it appears that the black lines on the cittern's back have been manually applied below or in between the varnish coats to accentuate the wood's natural pattern. Figure 4.13 shows a close-up photograph of the back plate, on which the ink lines can be clearly seen. Although Boussu traded the pen for the chisel as his main tool in 1748, he never completely abnegated the writing device.



Figure 4.13. Close-up photo of the back of the only known cittern by Boussu (database code BJB7101ci), showing the decorative ink lines most likely applied by the maker.

4.7. Scribe marks

On several instruments, traces can be found of scribe marks – lines scratched in the wood – applied by Boussu during the construction process of his instruments. The most common location to find such marking is on the ridge of the central spine on the back of the pegbox and scroll. Apparently, the maker applied a central scratch line on the maple neck blank, likely with the aid of a marking gauge, right after the contour of the scroll and pegbox had been sawn out and finished to its final outline. In many of the instruments, the scribe line has been partly worn away, but it can nevertheless still be seen in the majority of identified instruments. Examples are given in Figure 4.14.



Figure 4.14. Scribe lines on the spine of the pegbox and scroll. Left to right: (a) scribe line on the central spine of the pegbox on a violin from June 1751 (database code BJB5103vn), (b) scribe line on the central spine of the pegbox on a viola from 1759 (database code BJB5901va), (c) scribe line on the central spine of the scroll on a violin from 1765 (database code BJB6501vn).

Another place where scribe marks can be observed is around the perimeter of top and back plates, halfway between the outer contour of the plate and the inlaid purfling. Boussu applied these markings as a guide for forming the highest point at the boundary of the rounded outer edge of the plate and the re-curve channel of the arching. While shaping the rounded edges and the re-curve (fluting) channel, this marking line indicated where these two curved surfaces were supposed to meet and where Boussu wanted them to come together in a sharp ridge (as still observable today on his instruments, at places of the plate edges where little wear has occurred), and thus where he should not carve or scrape away the wood. Examples of the markings at this location are given in Figure 4.15.



Figure 4.15. Scribe lines at the perimeter of the back plate. Left to right: (a) scribe line between the back plate's outer edge and the purfling on a cello from 1751 (database code BJB5104vc), (b) scribe line between the back plate's outer edge and the purfling on an undated viola (database code BJBnd16va).

Scratch lines have also been found on instruments at less accessible spots. When the undated violin with database code BJBnd01vn was opened, a scratch line at the inside of the top plate, c8 mm inside the plate's outer edge, was observed (see Figure 4.16). Boussu applied this line as an aid prior to the removal of wood from the inside of the plate to create the hollow inner surface (i.e. 'graduating' the plates). The line indicates where the hollowing (i.e. 'graduation') of the plate should stop, in order to retain a flat gluing surface for the ribs and linings.



Figure 4.16. Scribe line at the inside of the top plate of an undated violin (database code BJBnd01vn).

The last spot where scribe lines have been observed is at the underside of the upper block (integrated with the neck), on the surface of the block that is normally glued to the back plate. In the cello with database code BJB4901vc, the original neck has been permanently removed in the near past (around 1990), in order to attach a new, modern-style one.¹⁶ The original neck, with the scroll removed for grafting onto the new neck, has been preserved at the violin maker who performed the modernisation. Pictures of this part, as well the underside of the integrated upper block with scribe lines, are shown in Figure 4.17. From the layout of the scribe lines, it can be seen that prior to shaping the neck, Boussu marked the neck blank in a very organised manner, scratching in all the lines according to which wood had to be sawn or chiselled away.

¹⁶ The motivations behind the choice to modernise the instrument have been explained by the then owner of this instrument, in the spoken interludes included on her CD 'Mein Cello erzählt', boz 14001 (Binzen: Bozarte/Toca Records: 2006).



Figure 4.17. An original neck of a cello from 1749 (database code BJB4901vc). Left to right: (a) entire neck, scroll removed for grafting onto a new neck, (b) underside of the integrated upper block, showing the scribe lines.

4.8. Wood selection

Like most violin makers, Boussu used the two traditional wood types for his instruments: maple for the back plate, sides, neck and scroll and spruce for the top plate. Boussu's choice of wood is exemplified by observing the violins from the MIM collection, see Figure 4.18. In the earliest known violin, from 1750 (MIM inv. no. 2781, database code BJB5001vn), the maple wood of the back is only very lightly figured, see Figure 4.19(a). It is definitely not a piece of wood specifically selected for its decorative qualities, but more likely coming from locally grown, general purpose timber. A similar type of even plainer wood is used for the sides and the neck of this instrument. For violins from 1751 onwards, a more figured maple is used for the back and sides (see for example Figure 4.19(b) and (c)), although the scrolls remain always carved in plain maple (possibly for ease of sculpting). Some violin backs are made from highly flamed maple, as can be seen in a violin in private hands from 1759 (Figure 4.19(d)). The maple wood for the sides of violins made between 1751 and 1759 always shows a similar figure of narrow but pronounced 'flames', which suggests that all this wood came from the same tree. Apparently, when Boussu moved to the Brussels area in 1750 or 1751, he had access to more decorative ('flamed') maple wood, possible even wood that was sold specifically as tone wood. Van Aelbrouck quotes an announcement from 9 April 1743 in the Brussels newspaper *Gazette de Bruxelles*, in which the instrument maker "Jean Hiacinthe Joseph de Rotenbourg" offers for sale – besides "*plusiers sortes d'instrumens de Musique*", also "*toute sorte de bois comme bois de Cedre, bois de Lettre, bois d'Ebene, bois de Sucrier, bois de Plane [plane tree, *Platanus* species¹⁷] Ondé & bois d'Allemagne [possibly: *fiche*], pour faire des Basses & des Violons, de même que des Tables, Dos, Cercles [possibly: rosettes], Manches & toutes les autres parties de ces Instrumens, le tout magnifiquement Ondé*".¹⁸ This proves that the common wood species intended for the

¹⁷ Jan Christiaan Sepp, Martinus Houttuyn, *Houtkunde, behelzende de afbeeldingen van de meest alle bekende, in- en uitlandsche houten* (Amsterdam: Sepp, 1791), Table XX.

¹⁸ Van Aelbrouck (1987), pp.763-764.

Instruments

production of musical instruments were commercially and readily available in Brussels in the middle of the eighteenth century.



Figure 4.18. The six violins by Boussu in the MIM collection in chronological order: oldest (1750) in front, youngest (1760) in back of the image. Front to back: MIM inv. nos. 2781 (1750), 2785 (1751), 2782 (1752), 2783 (1753), 2784 (1753) and 1338 (1760).



Figure 4.19. The back plates of five violins by Boussu, showing the choice of wood. Top row, left to right: (a) back plate of a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), (b) back plate of a violin from 1751 (MIM inv. no. 2785; database code BJB5101vn), (c) back plate of a violin from October 1752 (MIM inv. no. 2782; database code BJB5204vn). Bottom row, left to right: (d) back plate of a violin from 1759 (database code BJB5903vn), (e) back plate of a violin from 1760 (MIM inv. no. 1338; database code BJB6001vn).

Strikingly, a violin from 1760 (Figure 4.19(e)) is made from a similarly plain maple wood as was used for the earliest known violin from 1750 (Figure 4.19(a)). This return to more frugal materials coincides with the decline of Boussu's making activities in Brussels. Maybe, by that time, his financial means to buy the more expensive, decorative wood were depleted, or he may have been using up remaining – visually less attractive – wood stock. It may even be possible that the sober wood choice on the 1760 violin was a

reflection of Boussu's mood; as was explained in Section 2.5, he lost his wife and three of his children between 1758 and 1760.

To illustrate the wood choice for the violin tops, Figure 4.20 shows photographs of the widest area of the top plate for the six violins from the MIM collection. The first violin, from 1750, has a top plate made of two parts of bookmatched spruce, with grain lines that are narrow in the centre of the plate, and become wider towards the sides of the plate (see Figure 4.20(a)). The latewood growth lines are rather pronounced. The next three violins, made in Etterbeek between 1751 and February 1753 show finely grown spruce, where in the instrument from October 1752 (Figure 4.20(c)), the two halves are not bookmatched, while the instrument from February 1753 has a top plate made from one piece. The fifth violin, from 1753 and made inside the city of Brussels (Figure 4.20(e)), has a two-part top plate, where the growth lines on the treble side are wider than on the bass side. The wood choice for the top plate of the final depicted violin, from 1760, matches the plain maple for the back and sides of this instrument: the spruce for the top plate is not bookmatched, while the treble half has unusually wide growth lines. Again, this may indicate that Boussu used some leftovers from his stock. The same is true for a violin from August 1752, reported by Kass,¹⁹ which has a top plate that is "carved from four panels of pine with mixed grains that grow decidedly broad and wavy near the fs". A future analysis of dendrochronological data could shed light on the causes for this observed diversity in quality of the spruce.

When we turn our attention to the cellos, it can be seen that while making his first cello in Liège in 1749, Boussu already had access to suitable wood for a larger-sized instrument. However, the top plate of this instrument appears to be made out of four pieces (see Figure 4.21(a)), indicating that he could not find a wide enough piece to make a two-part table. On one of the rib parts, see Figure 4.21(b), a defect in the wood is visible, which also indicates that at the start of his making career, Boussu was limited in his choice of material. The back plate is made from two bookmatched parts of maple displaying an interesting but somewhat irregular figure pattern, see Figure 4.21(c).

The other ten identified cellos (produced from 1751 onwards) show a rather consistent choice of wood. Their back plates are always made from maple with a narrow and notable figure pattern, as illustrated by two examples from 1751 and 1757 in Figure 4.22, which suggests that the wood came from the same source. The top plates for these ten cellos are made from a relatively narrow-grained spruce without any major knots or resin pockets. In Figure 4.23 this particular wood choice is exemplified by detail photos of the top plates of the same two examples from 1751 and 1757.

¹⁹ Philip J. Kass, 'Eye, eye', *The Strad*, vol. 113, no. 1350 (2002), pp.1100-1101, at p.1100.



Figure 4.20. Detail of the widest part of the lower lobe area of the top plate for six violins by Bousso, showing the choice of wood. Top to bottom: (a) detail of the top plate of a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), (b) detail of the top plate of a violin from 1751 (MIM inv. no. 2785; database code BJB5101vn), (c) detail of the top plate of a violin from October 1752 (MIM inv. no. 2782; database code BJB5204vn), (d) detail of the top plate of a violin from February 1753 (MIM inv. no. 2783; database code BJB5301vn), (e) detail of the top plate of a violin from June 1753 (MIM inv. no. 2784; database code BJB5302vn), (f) detail of the top plate of a violin from 1760 (MIM inv. no. 1338; database code BJB6001vn).

As was observed for the violins, the necks and scrolls for the cellos are always made from the plainest (non-figured) type of maple, which allows for trouble-free carving. We only found one deviation from this pattern: an undated cello (database code BJBnd21vc) has an original scroll made out of what appears to be beech wood.

Instruments



Figure 4.21. Wood choice for a cello from 1749 (database code BJB4901vc). Top row, left to right: (a) detail of the top plate, showing a joint in the middle of the treble-side half, (b) detail of rib part. Bottom row: (c) back plate.



Figure 4.22. Wood choice for the back of two cellos by Boussu. Left to right: (a) back plate of a cello from 1751 (database code BJB5104vc), (b) back plate of a cello from 1757 (MIM inv. no. 1372, database code BJB5701vc).



Figure 4.23. Detail of the widest part of the upper lobe area of the top plate, at the treble side, for two cellos by Boussu, showing the choice of wood. Top to bottom: (a) detail of the top plate of a cello from 1751 (database code BJB5104vc), (b) detail of the top plate of a cello from 1757 (MIM inv. no. 1372, database code BJB5701vc).

Instruments

Around 2012, dendrochronologist Arjan Versteeg, commissioned by the violin dealer Jan Strick, examined eight instruments by Boussu from the MIM collection, along with many other instruments by historical Flemish makers. Although these results have not been published so far, the results for the instruments by Boussu are included here,²⁰ see Table 4.3. First of all, these results are consistent with the dating by label and/or internal inscription found within the instruments, i.e. the dating of the wood falls before the dating on the label or inscription.²¹ Secondly, much of the wood used by Boussu was relatively young. Many pieces must have been harvested in the 1730s or 1740s, so fairly close to the construction date of the instruments. As discussed earlier in this section, for two violins (MIM inv. nos. 2782 and 2784), it was visually established that their top plate was made from two non-bookmatched pieces. The dendrochronology results confirm this observation, most clearly for the violin with MIM inv. no. 2784.

Instrument	Instrument ID	Dating bass side	Dating treble side
Violin 1750	MIM inv. no. 2781; database code BJB5001vn	1738	1736
Violin 1751	MIM inv. no. 2785; database code BJB5101vn	1740	1736
Violin 1752	MIM inv. no. 2782; database code BJB5204vn	1732	1723
Violin 1753	MIM inv. no. 2783; database code BJB5301vn	1734*	
Violin 1753	MIM inv. no. 2784; database code BJB5302vn	1737	1697
Violin 1760	MIM inv. no. 1338; database code BJB6001vn	-#	-#
Cello 1752	MIM inv. no. 2863; database code BJB5201vc	1720	1722
Cello 1757	MIM inv. no. 1372; database code BJB5701vc	1735	1741

*: one piece top plate #: not possible to date due to lack of sufficient number of growth lines

Table 4.3. Dendrochronology results for eight instruments by Boussu from the MIM collection.
Analysis performed by Arjan Versteeg.

An additional dendrochronological analysis, this time performed by British dendrochronologist Peter Ratcliff, on a violin from 1754 with database code BJB5404vn, yielded very similar results: the top plate has its most recent rings from 1728 and 1734 in the bass and treble side respectively. The two halves are not bookmatched, and the wood is “very similar to wood used by makers in Mittenwald”.²²

²⁰ I thank Jan Strick and MIM curator Anne-Emmanuelle Ceulemans for permitting the use of these results.

²¹ It has to be noted that when preparing the top plate wood for joining, several of the youngest growth rings may have been removed. The given dating in Table 4.3 is therefore not the exact date of felling of the tree, but rather the date of the youngest growth ring present in the wood of the violin top plate. Felling of the tree may have occurred several years after the year of the most recent growth ring detected in the violin top plate.

²² Maestronet, ‘Luthier Boussu’, <https://maestronet.com/forum/index.php?/topic/319239-luthier-boussu/> (accessed March 2020).

4.9. Instrument dimensions and proportions

Table 4.4 gives the basic dimensions for 27 violins by Boussu that could be measured during the current study. When we first turn our attention to the 14 dated instruments made between 1750 and 1761, we see that their dimensions show a very high degree of similarity. Scroll widths usually vary between 35.5 and 36.8 mm (except for the unusually wide scroll for the violin with database code BJB5801vn),²³ while back lengths vary between 358 and 363 mm. For the back widths, also very uniform values can be observed. Two measurements of the width of the back across the middle bouts – marked by the symbol * – are somewhat higher than expected, although this may be the result of a different measurement method (using a measuring tape over the arch, instead of callipers). Body stop lengths (defined as the distance from the inner f-hole notches to the upper edge of the top plate) range between 195 and 197 mm, values that correspond exactly or closely to the modern-day standard of 195 mm.²⁴

The uniformity in back plate dimensions becomes even higher when we only look at instruments produced between 1750 and 1759, where back plate lengths vary between 360 and 363 mm (except for the unusually shorter back plate of the violin with database code BJB5801vn). The instruments made in 1760 and 1761 have back plate lengths of 358 and 359 mm respectively, possibly reflecting a tendency for somewhat smaller instruments in the final years of Boussu's Brussels period. The youngest violin, from 1765, has sound box dimensions that differ significantly from the earlier instruments, demonstrating that this particular violin is a late career departure from the norm, produced outside Boussu's prolific 'serial-work' period in the 1750s, or a special order for a somewhat smaller instrument. It should be noted that small observed differences between the measurement values within each dimension category might not only be the result of variations in the design or production process of the instruments, but can also be due to various effects that have taken place after the instrument's construction, such as wear, repairs, modifications or wood shrinkage and deformation.

When we look at the dimensions of the 12 undated instruments, it can be seen that the observed back plate dimensions and body stop lengths are highly in correspondence with those of the dated instruments from the period 1750-1761, except for the violin with the database code BJBnd03vn, which has a somewhat shorter and narrower back plate. Possibly, this reduction in size may have been caused by the re-joining of the two halves of the plate during a restoration, during which process around 3 mm of wood has been removed from the gluing surfaces at the centre joint by planing. Within the group of

²³ In case no scroll width is provided in Table 4.4, the instrument did not retain its original scroll.

²⁴ Johnson, Courtnall (2003), pp.202-203.

Instruments

undated instruments, we see more variation in scroll widths. Three instruments have scroll widths of around 41.0 mm, which is significantly more than the 'usual' 35.5 to 36.5 mm. These wider scrolls could have resulted from experimental or more consistent changes in design. Also, an instrument with a narrower scroll has been encountered (BJBnd04vn). Either, this scroll has originally been made this way by Boussu, due to lack of a wide enough piece of maple, or alternatively, this scroll may have been reduced in width by 2 or 3 mm during a restoration. Given the undisturbed shape of the volute, the first explanation seems most plausible.

Instrument ID	Year	Scroll width (mm)	Back length (mm)	Back width upper (mm)	Back width middle (mm)	Back width lower (mm)	Body stop length (mm)
MIM inv.no.2781; database code BJB5001vn	1750	36.5	362	168	108	205	196
MIM inv.no.2785; database code BJB5101vn	1751	36.0	361	169	108	206	196
Database code BJB5102vn	1751	36.8	361	169	109	207	196
Database code BJB5103vn	1751	35.5	363	169	109	206	-
Database code BJB5203vn	1752	-	362	170	113*	208	-
MIM inv.no.2782; database code BJB5204vn	1752	-	360	169	109	206	196
MIM inv.no.2783; database code BJB5301 vn	1753	36.0	362	168	110	206	195
MIM inv.no.2784; database code BJB5302 vn	1753	36.5	362	170	110	207	196
Database code BJB5401vn	1754	36.5	362	170	112*	207	-
Database code BJB5402vn	1754	-	363	170	110	209	-
Database code BJB5801vn	1758	42.0	358	167	110	207	-
Database code BJB5903vn	1759	36.5	361	169	109	207	196
MIM inv.no.1338; database code BJB6001vn	1760	35.8	358	166	108	206	197
Database code BJB6101vn	1761	35.7	359	167	109	207	197
Database code BJB6501vn	1765	36.6	351	160	104	199	195
Database code BJBnd01vn	17??	36.5	363	168	108	205	-
Database code BJBnd02vn	17??	36.0	360	169	109	207	197
Database code BJBnd03vn	17??	37.4	357	167	107	203	-
Database code BJBnd04vn	17??	33.5	359	168	108	207	-
Database code BJBnd06vn	175?	40.8	363	170	109	206	196
Database code BJBnd07vn	17??	41.0	363	170	109	208	-
Database code BJBnd08vn	17??	-	362	170	108	206	195
Database code BJBnd09vn	17??	-	362	168	108	208	-
Database code BJBnd10vn	17??	-	360	168	109	208	196
Database code BJBnd11vn	17??	-	363	169	108	206	195
Database code BJBnd12vn	17??	36.1	358	166	108	208	197
Database code BJBnd13vn	>c1759	41.5	362	170	110	207	-

*: possibly measured with a tape over the arching, resulting in a measurement value that is around 3 mm too high

Table 4.4. Basic dimensions of 27 violins by Boussu.

The basic dimensions in Table 4.4 thus show us that, with only few exceptions, Boussu made his violin sound boxes according to one single model. The body length of the instruments from the beginning of his career is relatively large, around 360 to 362 mm. The violins of Jacob Stainer, for example, have plates typically between 351 and 354 mm long.²⁵ A tendency towards somewhat reduced dimensions can be recognised in Boussu's later violins. Violin scroll widths are also very uniform, except for four wider scrolls, which may have been the outcome of experimentation or a change in design from Boussu's later career. Especially worth mentioning is the width for the scroll of the violin from 1758, which appears to stand out between the narrower scrolls of the other dated instruments. It can even be imagined that for the few violins with wider scrolls (i.e. wider than the standard width of around 36.5 mm), the neck was made from a dimensioned block of maple that was initially intended for a viola. The three violas that could be measured during the currently presented study have scroll widths of 40.3, 41.5 and 40.5 mm, respectively.

The second most frequently found instrument type within Boussu's surviving output is the cello. Basic dimensions for these instruments are provided in Table 4.5. It must be noted that in this case, the widths across the middle bouts have been omitted, since inconsistent measurement results were obtained due to the alternate use of callipers and measuring tape (the latter used over the arching). The pronounced arch in the middle bout area in case of cellos resulted in divergent values for both methods, which made comparison not possible.

Instrument ID	Year	Scroll width (mm)	Back length (mm)	Back width upper (mm)	Back width lower (mm)	Body stop length (mm)
Database code BJB4901vc	1749	52.5	770	354	432	414
Database code BJB5104vc	1751	54.5	762	337	431	405
MIM inv. no. 2863; database code BJB5201vc	1752	53.3	764	338	434	408
Database code BJB5202vc	1752	55.0	752	339	430	400
Database code BJB5403vc	1754	c60	c750	336	c430	-
MIM inv. no. 1372; database code BJB5701vc	1757	60.3	753	336	429	402
Database code BJBnd19vc	17??	54.7	752	332	430	401
Database code BJBnd21vc	17??	61.3	714	321	420	-
Database code BJBnd22vc	17??	60.8	714	320	420	375
Database code BJBnd23vc	17??	-	c700	-	-	-

Table 4.5. Basic dimensions of ten cellos by Boussu.

²⁵ Rudolf Hopfner, ed., Jacob Stainer, "... kayserlicher diener und geigenmacher zu Absom" (Milan: Skira Editore, 2003), pp.83-95, 172-174.

Table 4.5 shows that, compared to the uniform dimensions of the violins, the cellos were produced with more variety in size.²⁶ The earliest instrument, from 1749, is the largest known cello, with a back length of 770 mm and corresponding ample plate widths, especially at the upper bout. Possibly, in this early stage of his career, Boussu was still searching for the right model, and this one-off large cello represents an early effort. A slight reduction in back length can be seen in the two following instruments, from 1751 and January 1752, with corresponding back lengths of 762 and 764 mm respectively, and their back widths adapted accordingly. The three instruments made between June 1752 and 1757 have back lengths between c750 and 753 mm, a further decrease of c10 mm. Clearly, Boussu was adapting his cello design, evolving towards a somewhat smaller model. The back widths for instruments made between 1751 and 1757 are more or less the same, despite the observed reduction in back length between the earlier and later instruments within this group. Curiously, where the sound box lengths slowly diminish between 1749 and 1757, the scroll widths increase. These opposing trends are clearly noticeable when observing the six dated instruments in Table 4.5, although no reasonable explanation for this surprising observation can be devised.

The first of the four undated cellos in Table 4.5 (database code BJBnd19vc) has dimensions that correspond closely to the instrument made in June 1752 (database code BJB5202vc), suggesting that the former instrument may be dated around the same time. The final three undated instruments are all of a smaller size, with back plates that are significantly shorter. It is not assumable, however, that this reduction in size represents a further continuation of the trend observed for the dated cellos. Rather, these three instruments are believed to be produced as a separate small-size model, made simultaneously alongside the larger models.

In the eighteenth century, cellos were used in different sizes. Leopold Mozart (1756)²⁷ discusses the *Violoncell* as being the most common instrument to play the bass, and mentions that there are larger and smaller models, which only differ a little bit in the power of their sound. According to Quantz,²⁸ an all-round player of the *Violoncell* should own two instruments: a bigger model with thick strings for accompaniment in large ensembles and a smaller model for solo playing.

Italian music written for small ensembles with bowed string instruments in the last quarter of the seventeenth century and onwards, such as the violin and trio sonatas by

²⁶ Again, as for the violins, the dimensions for the cellos may have been affected by events that took place after their initial production. Because of their large plate dimensions, compared to their relatively minute plate thicknesses, cellos are even more susceptible for stress-induced deformation than their smaller counterparts. This phenomena may be reflected in minor variations in sound box dimensions in Table 4.5.

²⁷ Leopold Mozart, *Versuch einer gründlichen Violinschule* (Augsburg: author, 1756), p.3.

²⁸ Johann Joachim Quantz, *Versuch einer Anweisung die Flöte traversiere zu spielen* (Breslau: Voß, 1780), p.212.

Corelli, increasingly contained complex, contrapuntal passages in the lowest part, asking for playing techniques that went beyond those of the harmonically supporting *continuo* role.²⁹ During that same period, unaccompanied compositions for the bowed “single-line bass instrument” were also written in the north of Italy,³⁰ decades before the now famous cello suites by Bach. Such practices would have asked for an instrument that would allow the requisite agility of playing, while tuned C-G-d-a.³¹ For the bigger part of the seventeenth century, a larger-sized ‘cello’ had been in use,³² with a back length of c80 cm, likely referred to as ‘*violone*’.³³ Its dimensions stemmed from the common type of string available at the time, which was solely made of animal gut. Low pitches could only be achieved by using long enough string lengths (resulting in larger instruments), since using shorter, thicker strings would result in reduced sonority,³⁴ intonation issues³⁵ and string inharmonicity³⁶ due to increased string stiffness and/or reduced string tension. Given their sizes, such larger instruments would not permit dexterous playing.³⁷

Advancements in string technology in the last decades of the seventeenth century, in the form of overspinning a gut core with metal wire (adding mass while preserving flexibility),³⁸ led to the availability of bass register strings (e.g. the C-string for an instrument tuned C-G-d-a) that, at a given pitch, could musically function at a shorter vibrating length.³⁹ It is believed that this innovation – according to Bonta initiated in Bologna⁴⁰ – promoted size reduction of bowed string bass instruments,⁴¹ thus making them more suitable for playing the demanding repertoire of that time.⁴² Towards the end of the seventeenth century, this smaller instrument became known under the name ‘*violoncello*’.⁴³ The path of its realisation provides us with a good illustration of how the

²⁹ Ronald Jackson, *Performance practice - A dictionary-guide for musicians* (New York: Routledge, 2005), p.71.

³⁰ David Watkin, ‘Corelli’s op.5 sonatas: ‘*violino e violone o cimbale*’?’, *Early Music*, vol. 24, no. 4 (1996), pp.645-663, at p.645; Paul Laird, *The Baroque cello revival - An oral history* (Lanham/Toronto/Oxford: The Scarecrow Press, 2004), p.3.

³¹ Watkin (1996), p.646.

³² Jackson (2005), p.71.

³³ Stephen Bonta, ‘From violone to violoncello: a question of strings?’ (1977), pp.1-31, at p.11. Online version, available from: <http://earlybass.com/articles-bibliographies/from-violone-to-violoncello-a-question-of-strings-3/> (accessed May 2020).

³⁴ Bonta (1977), p.19.

³⁵ Djilda Abbott, Ephraim Segerman, ‘Gut strings’, *Early Music*, vol. 4, no. 4 (1976), pp.430-437, at p.430.

³⁶ William M. Hartmann, *Principles of musical acoustics* (New York: Springer, 2013), p.258.

³⁷ Bonta (1977), pp.12, 19; Watkin (1996), p.646.

³⁸ Abbott, Segerman (1976), p.430; Bonta (1977), p.17; Watkin (1996), p.646; Marc Vanscheeuwijck, ‘The Baroque cello and its performance’, *Performance Practice Review*, vol. 9, no. 1 (1996), pp.79-96, at p.83; Mimmo Peruffo, ‘Italian violin strings in the eighteenth and nineteenth centuries: typologies, manufacturing techniques and principles of stringing’, *Recercare*, vol. 9 (1997), pp.155-203, at pp.158-159; Laird (2004), p.3; Jackson (2005), p.71.

³⁹ Although more flexible strings of pure gut could also have been achieved by applying a tighter twist to the string. See: Laird (2004), p.39.

⁴⁰ Bonta (1977), pp.18-19.

⁴¹ Watkin (1996), p.646; Peruffo (1997), p.159; Jackson (2005), p.71.

⁴² Watkin (1996), p.646; Peruffo (1997), p.159.

⁴³ Bonta (1977), p.19; Marc Vanscheeuwijck, *Cello stories - The cello in 17th & 18th centuries* (CD booklet), ALPHA 890 (Paris: Alpha Classics, 2016), pp.64-65.

interplay between composers, musicians, string makers and luthiers (along with forces from outside the musical field, as pointed out by Libin⁴⁴) can result in developments in instrument design.

Indeed, coinciding with the appearance of this new string type, makers started to build smaller-sized cello-type instruments. Francesco Rugeri (c1620-c1695) was presumably the first Cremonese maker to employ the design with a back length of c75 cm.⁴⁵ Also in that city, Andrea Guarneri (1626-1698) made similar-sized cellos at the end of his career; his son Guiseppè (1666-1739) continued this practice.⁴⁶ Antonio Stradivari (1644-1737) first made instruments according to a large pattern, before designing his now-famed 'B-form' model with a back length of c75 cm in the first decade of the eighteenth century.⁴⁷ Due to its size, as well as other features, this model would become highly influential,⁴⁸ finally resulting in the broad acceptance of this archetype to the present day. Interestingly, Stradivari is said to have produced a model another 2 to 3 cm shorter at the end of his life.⁴⁹

However, in Italy, throughout the eighteenth century, models in various sizes were still being made. In Brescia, Baptista Rogeri (active 1670-1705) adopted a much smaller model of 71 cm back length,⁵⁰ while in Venice, Matteo Gofriller (1659-1742) made models in various dimensions, ranging from one with 71 cm back length to a model much larger than the present-day standard.⁵¹ Giovanni Battista Guadagnini (c1711-1786), who worked in many places throughout the north of Italy, also built a small model of 71 cm.⁵² A cello of 72 cm back length by Joanes Baptista Tononi (Bologna, 1740), believed to have retained its original, unaltered neck, is depicted by Monical.⁵³ In contrast to these smaller instruments, both David Tecchler (Rome, c1666-c1747) and Giovanni Grancino (Milan, active 1685-1726) adhered to a large model.⁵⁴ So, while in Cremona a model of c75 cm was developed that eventually would become the 'standard', other makers still made cello-type instruments within a range of sizes far into the eighteenth century, a notion shared

⁴⁴ Laurence Libin, 'Progress, adaptation and the evolution of musical instruments', *Journal of the American Musical Instrument Society*, vol. 26 (2000), pp.187-213. Online version, available from: <https://search.proquest.com/docview/207668007> (accessed January 2018).

⁴⁵ John Dilworth, 'The cello: origins and evolution', in Robin Stowell, ed., *The Cambridge companion to the cello* (Cambridge: Cambridge University Press, 1999), pp.1-27, at p.15.

⁴⁶ Dilworth (1999), p.15.

⁴⁷ Dilworth (1999), pp.16-17.

⁴⁸ Vanscheeuwijck (1996), p.80; Laird (2004), p.4.

⁴⁹ Dilworth (1999), p.18.

⁵⁰ Dilworth (1999), pp.18-19.

⁵¹ Dilworth (1999), pp.19-20.

⁵² Dilworth (1999), p.24.

⁵³ William L. Monical, *Shapes of the Baroque - The historical development of bowed string instruments* (New York: Lincoln Center, 1989), pp.84-85.

⁵⁴ Dilworth (1999), pp.22-23.

by both Vanscheeuwijck⁵⁵ and Laird.⁵⁶ Moreover, Bonta suggests that the different sizes each had their purpose: the smaller model for the more demanding *sonata da chiesa*, the bigger model for the less complicated *sonata da camera*.⁵⁷ To summarise, in Italy, we see three global size-categories in the eighteenth century: small (c71 cm), medium (c75 cm) and large (c80 cm). However, we should not see these categories too confined: Vanscheeuwijck, when discussing the ‘cello’ known to Bach, claims that “everywhere in early eighteenth-century Europe, there were various sizes of bass instruments”,⁵⁸ and states that “surviving instruments display a continuum of various sizes, types and models”, “ranging in [body] length from about 72 centimeters to 125 centimeters”.⁵⁹ He also emphasises the importance of considering the geographic location, since in Europe “no one single instrument would be appropriate to function in all these regions”.⁶⁰

Outside Italy, on the British Isles, initially mostly cello-type instruments of a smaller size were in use,⁶¹ until a medium-sized model of 74 to 75 cm became favoured in the 1730s, introduced by makers such as Robert Duncan⁶² and Peter Wamsley.⁶³ Benjamin Banks (Salisbury, 1727-1795) made a reduced Amati-based model (c73 cm) and a Stradivari-based model (c75 cm).⁶⁴ Monical presents a cello by John Preston from 1785 with a back length of c76 cm.⁶⁵ From the Brussels maker Gaspar Borbon (c1635-1710) and Egidius Snoeck (c1660-after 1734), only large (uncut) instruments (c77-c81 cm) have survived,⁶⁶ while for their successor Marcus Snoek (1694-1762), instruments of varied dimensions (between c72 and c81 cm) are known.⁶⁷

To return to Boussu, when comparing the sizes of his extant cellos, see Table 4.5, it is interesting to note that among these ten instruments we can identify the three global size-groups (c71-72 cm, c75 cm and larger than 75 cm) that also coexisted in the first half of the eighteenth century in Italy (the country where the main developments of the cello had taken place). In case of Boussu, smaller instruments may have been intended for

⁵⁵ Vanscheeuwijck (1996), p.80.

⁵⁶ Laird (2004), p.3.

⁵⁷ Bonta (1977), p.12.

⁵⁸ Vanscheeuwijck (2016), p.50.

⁵⁹ Vanscheeuwijck (2016), p.50, footnote 178.

⁶⁰ Vanscheeuwijck (2016), p.38.

⁶¹ Brenda Neece, ‘The cello in Britain: a technical and social history’, *The Galpin Society Journal*, vol. 56 (2003), pp.77-115, 199-214, at pp.79-80.

⁶² Neece (2003), p.97.

⁶³ John Milnes, Tim Baker, John Dilworth, Andrew Fairfax, *The British violin - The catalogue of the 1998 exhibition ‘400 years of violin & bow making in the British Isles’* (Oxford: British Violin Making Association, 2000), p.402.

⁶⁴ Albert W. Cooper, *Benjamin Banks 1727-1795 - The Salisbury violin maker* (Fernhurst: Ashford Publications, 1995), pp.115-117.

⁶⁵ Monical (1989), pp.86-87.

⁶⁶ Lutgart Moens, *De familie Snoeck, vioolbouwers aan het hof te Brussel in de 18^{de} eeuw* (unpublished licentiate thesis, University of Leuven, 1976), pp.61-77.

⁶⁷ Moens (1976), pp.104-115.

playing technically demanding repertoire, or for people of a smaller posture (e.g. women or adolescents), medium-sized instruments for use in small ensembles, while large-sized instruments could have found an application in *basso continuo* accompaniment in larger ensembles. Apparently, Boussu too had to meet these different demands, given the variety of sizes within his extant cellos. Regarding the largest type, we only know one example in his oeuvre, also his earliest known instrument, from 1749. It may well be that Boussu stopped producing this larger model early on in his making career, maybe due to a decreased demand. Otherwise, since the larger model became obsolete in the nineteenth century, further possible instruments of this type by Boussu may have become neglected or discarded, and have therefore not survived. In this respect, it is interesting to note that, while the Brussels composer Henri Jacques De Croes (1705-1786) still describes the more general '*basse continue*' for his trio sonatas,⁶⁸ the description '*violoncello/violoncelle*' is present on editions of chamber music by his successors Pieter Van Maldere (1729-1768) and Eugène Godecharle (1742-1798),⁶⁹ which indicates an increased integration of the cello (likely the medium- to small-sized version) in the eighteenth-century Brussels music scene.

From Table 4.5 it further becomes clear that Boussu adjusted the body stop length to the body length of the cello, i.e. a decrease in body stop length is observed with diminishing body length. The cellos with a body length of around 752 mm (which closely corresponds to the modern-day standard body length for a 4/4 cello of 750 to 755 mm) have a stop length of 400 to 402 mm. These observed measurements equal the modern-day standardised body stop length (for 4/4 instruments) of 400 mm.⁷⁰ It can thus be concluded that Boussu's medium-sized cellos were designed with sound box dimensions and body stop lengths that were already very close or equal to the values that are still in use nowadays.

Since violas, double basses, kit violins and a single cittern occur in more modest numbers within Boussu's oeuvre, no comparative dimensional analysis has been performed for these instrument types. There were simply not enough specimens to conduct such an analysis in a convincing way. However, basic measurements for these instruments are given in the instrument database in Appendix V.

⁶⁸ For example: Henri Jacques De Croes, *Six sonatas en trio pour les violons flutes et basse continue*, opus 1 (Paris: Leclerc, after 1743, first issued in Brussels in 1734); Henri Jacques De Croes, *Six sonatas en trio pour les violons flutes te [sic] basse continue*, opus 5 (Paris: Le Clerc/Boivin, between 1735 and 1746).

⁶⁹ For example: Pieter Van Maldere, *VI. sonatas for two violins with a thorough bass for the harpsicord, or violoncello* (Dublin: author, c1752); Eugène Godecharle, *Six quatuor pour deux violons alto et violoncelle*, opus 6 (Paris: Cornouaille / Brussels: Van Ypen/Mechtler, c1775).

⁷⁰ Henry A. Strobel, *Cello making - Step by step* (Aumsville: H. A. Strobel Publisher, 1995), p.24.

In Table 4.6, three types of proportions are given regarding the sound box, for five instruments with representative dimensions. The ratios provided are: (1) upper bout width divided by back plate length, (2) middle bout width divided by back plate length, and (3) lower bout width divided by back plate length. As can be seen, for the violin and the viola, the found proportions are very congruous. In other words, it can be said that the viola's sound box design is basically a 'blown-up' version of that of the violin. For the cellos, the earlier one (from 1752) has sound box proportions that are slightly smaller than those of the 1757 instrument. Apparently, Boussu chose to (proportionally) widen the sound box a little for the latter instrument, bringing the proportions closer to those present in the violin and the viola. Finally, the given values for the double bass demonstrate that Boussu scaled up his basic design even further without altering the proportions too much: the ratios for the bass show remarkable similarity to those of the smaller instruments... to such extent that we can truly speak of a 'double bass violin'.

Instrument	Instrument ID	Ratio upper bout width : back plate length	Ratio middle bout width : back plate length	Ratio lower bout width : back plate length
Violin 1750	MIM inv. no. 2781; database code BJB5001vn	0.46	0.30	0.57
Viola 1759	Database code BJB5901va	0.46	0.30	0.58
Cello 1752	MIM inv. no. 2863; database code BJB5201vc	0.44	0.28	0.57
Cello 1757	MIM inv. no. 1372; database code BJB5701vc	0.45	0.29	0.57
Double bass 1760	MIM inv. no. 2014.324; database code BJB6002db	0.45	0.30	0.58

Table 4.6. Proportions for the sound box for five bowed string instruments by Boussu.

4.10. Plate thickness

To investigate the thicknesses of the top and back plate of a closed bowed string instrument, a magnetic thickness gauge can be used. During the currently presented study, the plate thicknesses of several instruments by Boussu were examined, using such a device produced by the company Hacklinger.⁷¹ According to the manufacturer, the inaccuracy of this device is maximum 0.1 mm (typically 0.05 mm).

⁷¹ Hacklinger, Germany. Two different gauges were alternatingly used: thickness gauge DBP 3611798, S/N 7346 and thickness gauge DBG M, DBP 3611798, S/N 200D0168.

In Table 4.7, the results of the measurement with the magnetic thickness gauge are summarised. Although these kinds of measurements typically produce plate maps with an array of numerical measurement results per plate presented in a grid-like way, for this thesis, it was decided to only provide three key values per plate, i.e. the maximum thickness in the centre of the plate, the average thickness of the upper plate lobe and the average thickness of the lower plate lobe. Since Boussu typically gave the upper and lower lobe areas of his plates a very even thickness, with only variations of around 0.1-0.3 mm, a summarisation of the plate thickness measurements by giving just three values is justified. As we will see somewhat further in this section, when the thickness maps from CT data are discussed, Boussu did not make the re-curve area of his plates significantly thinner than the adjacent inner areas, thereby finishing the entire upper and lower lobe areas to an even more uniform thickness.

When we look at the plate thickness values for the first six instruments in Table 4.7, violins made between 1750 and 1760 and preserved in the collection of the Musical Instruments Museum in Brussels, we notice two main characteristics. First of all, within each individual instrument, the thickness values for top and back plate are nearly equal. This is a remarkable finding, and the consistency of these results is a strong indication that the plates in all these six instruments have maintained their original thickness pattern. Apparently, Boussu had developed a system of plate graduation according to which he gave both plates within a single instrument the same thickness pattern. We may use this particular characteristic for the judgement of the degree of modification of plate thicknesses in other violins by Boussu. It is noteworthy in this respect that except for the violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), the other five violins from the MIM collection show signs of internal repairs (ranging from a few to a considerable amount of small cleats on the internal surface of the top plate for repair of one or more cracks, see Figure 4.47). Clearly, these instruments have been opened in the past, but during those operations, their plates have not been thinned. The inner wood surfaces of the plates of the six violins from the MIM appear to be smooth and undisturbed (except for scratch-like tool marks around the bass bar in the violin with MIM inv. no. 2784, see Figure 4.45), and no large glued-in patches have been observed.

Secondly, the violin plates made between 1750 and 1753 all show very similar thickness values, especially regarding the thickness of the central area. This suggests that Boussu did not adjust the plate's thickness to the bending stiffness of the wood, or, when taking into account the similar graduations of top and back plates, the species of wood. In the violin from 1760, on the other hand, the central area is much thinner (around 3 mm) in both the top and back plate, although this area is still thicker compared to the upper and lower areas of the plates. The back plate thickness values in the violin with database code BJBnd13vn (likely made after c1759, given its branding mark 'BOUSSU', as was explained

in Section 4.4) are comparable to those in the 1760 violin. A third violin from the later years in Brussels (from 1759, with database code BJB5903vn), discussed later in this section, also has plates with a less thick central area. Although based on observations on a limited number of instruments, a tendency for thinner plates in the later instruments may be noticeable. The other undated violin in Table 4.7, with database code BJBnd02vn, atypically has different thickness values for its top compared to the values for the back, from which we may conclude that the top plate has been thinned. The thickness values of its back plate suggest that this instrument was made in the early- to mid-1750s, a conclusion supported by the absence of a branding mark.

Instrument, plate (t = top, b = back)	Instrument ID	Average plate thickness in upper lobe area (mm)	Maximum plate thickness in central area (mm)	Average plate thickness in lower lobe area (mm)
Violin 1750, t	MIM inv. no. 2781; BJB5001vn	2.7	3.9	2.7
Violin 1750, b	MIM inv. no. 2781; BJB5001vn	2.6	3.9	2.7
Violin 1751, t	MIM inv. no. 2785; BJB5101vn	2.5	3.5	2.4
Violin 1751, b	MIM inv. no. 2785; BJB5101vn	2.5	3.5	2.5
Violin 1752, t	MIM inv. no. 2782; BJB5204vn	2.6	3.8	2.6
Violin 1752, b	MIM inv. no. 2782; BJB5204vn	2.7	3.8	2.8
Violin 1753, t	MIM inv. no. 2783; BJB5301vn	2.8	3.9	2.8
Violin 1753, b	MIM inv. no. 2783; BJB5301vn	3.0	4.0	2.9
Violin 1753, t	MIM inv. no. 2784; BJB5302vn	2.5	3.7	2.6
Violin 1753, b	MIM inv. no. 2784; BJB5302vn	2.6	3.6	2.5
Violin 1760, t	MIM inv. no. 1338; BJB6001vn	2.4*	3.2	2.4*
Violin 1760, b	MIM inv. no. 1338; BJB6001vn	2.4*	3.0	2.5*
Violin 17??, t	BJBnd02vn	2.5 [#]	2.9 [#]	2.4 [#]
Violin 17??, b	BJBnd02vn	2.8	3.8	2.8
Violin >1759, t	BJBnd13vn	-	-	-
Violin >1759, b	BJBnd13vn	2.5	3.0	2.5
Viola 1759, t	BJB5901va	2.7	-	2.8
Viola 1759, b	BJB5901va	2.9*	3.9	2.8
Cello 1751, t	BJB5104vc	-	-	-
Cello 1751, b	BJB5104vc	3.5	4.8	3.7
Cello 1752, t	MIM inv. no. 2863; BJB5201vc	3.3*	4.3	3.2*
Cello 1752, b	MIM inv. no. 2863; BJB5201vc	3.2*	4.6	3.2*
Cello 1752, t	BJB5202vc	3.3*	4.5	3.0
Cello 1752, b	BJB5202vc	3.6	4.4	3.5
Cello 1757, t	MIM inv. no. 1372; BJB5701vc	2.7	4.5	2.8
Cello 1757, b	MIM inv. no. 1372; BJB5701vc	2.7	4.5	2.8*

*: values fall within a somewhat larger margin (c0.3-0.4 mm) #: possibly re-graduated (thinned)

Table 4.7. Summarisation of the plate thicknesses of several bowed string instruments by Boussu. Measurements were performed by using a magnetic thickness gauge (Hacklinger, Germany).

The exercise of comparing the plate thickness patterns of Boussu to those of his eighteenth-century contemporaries is difficult, since little suitable data is available. Instruments from that era that have been preserved in a more or less authentic state (e.g. with their original necks), and where one might expect a higher chance to find the plate thicknesses to be original as well, are rare, but when data has been made available, it is often not explicitly stated whether the given thicknesses are believed to be unmodified. This latter category comprises two violins by Jacob Stainer, from 1668 and 1679, for which thickness maps have been published.⁷² Although no statement by the authors is made regarding whether the plates of these instruments are thought to be thinned or not, it is interesting to notice that in both these violins, the top as well as the back plate have a thicker central area of c4 mm thickness, (as is the case for the above-discussed violins by Boussu, although in the two Stainer violins, the thicker area of the top plate is not as broad). For instruments of lesser-known makers, we have not been able to collect comprehensive sets of plate thicknesses. On the other hand, for antique instruments of well-known makers, information on plate thicknesses is abundant, but the problem arises here that for many of these instruments, plate thinning was systematically performed in the past,⁷³ making it difficult to know what the original thicknesses of the plates exactly were. Pollens presents historical evidence which suggests that many instruments by Stradivari, Guarneri, Ruggeri and others, and some by Stainer, had their top plates thinned (at the centre) before the 1780s, so within decades after their production.⁷⁴

Heyde argues that during the Renaissance, the trend of “the ‘rhetorical’ imitation of the voice in instrumental playing” asked for “instruments more responsive to the intentions of the player”, which led to “a more differentiated treatment of the thickness of the top and bottom plates of string instruments”.⁷⁵ It could well be that this assertion of Heyde regarding a differentiation of top and back plate thicknesses – thereby assuming that he refers to a development that extended into the seventeenth and even the first half of the eighteenth century – is based on the wide-held belief that the Classical Cremonese makers in particular made their top plates to a more uniform thickness, in contrast to their back plates, which are thought to have a thicker area in the centre.⁷⁶ This notion can however be questioned considering the top plate ‘re-graduation’ practices mentioned above. In this respect, the observed plate thicknesses in the violins by Boussu and Stainer might be

⁷² For the violin from 1668: Rudolf Hopfner, ed. (2003), p.175; for the 1679 violin: Roger Hargrave, ‘A violin by Jacobus Stainer 1679’, pp.146-158, at pp.152-153, 157. Available from: https://www.roger-hargrave.de/PDF/Artikel/Strad/Artikel_1987_09_Jacobus_Stainer_1697_PDF.pdf (accessed May 2020).

⁷³ Stewart Pollens, *Stradivari* (Cambridge: Cambridge University Press, 2010), pp.128-131.

⁷⁴ Pollens (2010), pp.128-131.

⁷⁵ Herbert Heyde, ‘Methods of organology and proportions in brass wind instrument making’, *Historic Brass Society Journal*, vol. 13 (2001), pp.1-51, at p.19.

⁷⁶ Otto Möckel, *Geigenbaukunst* (Hamburg: Nikol, 1997), pp.169-171; Simone F. Sacconi, *The “secrets” of Stradivari* (Cremona: Eric Blot Edizioni, 2000), pp.69-70; Kameshwar C. Wali, *Cremona violins - A physicist’s quest for the secrets of Stradivari* (Singapore: World Scientific Publishing, 2010), p.80.

better representatives of authentic eighteenth-century graduation systems in comparison to the measurements available in the many thickness maps for the well-investigated Cremonese instruments.

The practice of top plate thinning in the second half of the eighteenth century implies that the timbre of violins having a lighter top plate was preferred in that period (as it still is today). If this was indeed the case, Boussu must have been unaware of such developments, making his top and back plates still with the same graduation pattern. The observation that the six violins from the MIM collection all have a top plate with a thicker central area further reinforces our belief that these top plates still have their original graduation profile. After all, had thinning taken place, then the top plates would have been given the pattern deemed ideal, thus of a more or less uniform thickness over the entire plate, at the present day so often encountered in historical Cremonese instruments.⁷⁷

The single viola in Table 4.7, dated 1759, shows relatively low values for the plate thicknesses. This instrument is made in 1759, and when we compare its plate thicknesses to those of the two violins made around the same time, the viola still has somewhat thicker plates than the two violins. Although we could not measure the thickness of the viola's top in the central area (due to the presence of the bridge and strings), it may be assumed that the top was designed with a thickness of c3.9 in this area, in accordance with Boussu's habit of giving the top and back plate the same thickness in the central region.

When we look at the results for the four cellos in Table 4.7, we can observe a comparable trend as observed for the violins: within an individual instrument, the top and back plate have a highly similar graduation pattern, while the most recent instrument (from 1757) has the thinnest plates. In this latter instrument, Boussu particularly reduced the thickness of the upper and lower lobe areas of both plates.

CT scanning can provide insight in many structural aspects of a scanned instrument, plate thickness being one of them. Six instruments by Boussu,⁷⁸ three violins, one viola and two cellos, were scanned during the current study. Information about the scanners used, scan locations and scanner settings is given in Section 1.3.2. From the CT scan data, plate

⁷⁷ See, for example: Berend C. Stoel, Terry M. Borman, 'A comparison of wood density between classical Cremonese and modern violins', PLOS ONE, vol. 3, issue 7 (2008), pp.1-7, at p.3; Jeffrey S. Loen, Technical notes for 'Fingerprints under the varnish: comparing thickness graduations of the "Messiah" violin to Golden Age Strads'. Available from: <https://www.catgutacoustical.org/journal/nov02.htm> (accessed May 2020).

⁷⁸ A violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), a violin from June 1753 (MIM inv. no. 2784; database code BJB5302vn), a violin from 1759 (database code BJB5903vn), an undated viola (database code BJBnd17va), a cello from January 1752 (MIM inv. no. 2863; database code BJB5201vc) and a cello from 1757 (MIM inv. no. 1372; database code BJB5701vc).

thickness pattern profiles were analysed and visualised by Prof. dr. Berend Stoel, a medical imaging specialist who since 2008 also has performed radiological research on antique violins.⁷⁹ His visualisations, in the form of plate ‘maps’ displaying plate thickness graduations, wood density and plate archings in various colours, have set a standard in the field of violin research. To perform his analyses and to produce the resulting maps, Prof. dr. Stoel has developed MATLAB-based⁸⁰ algorithms,⁸¹ which he also employed for the current PhD study.

The specific graduation characteristics revealed by the measurements with the magnetic thickness gauge are confirmed by plate thickness visualisations derived from CT data. Figure 4.24 shows the graduation maps of three scanned violins, as made by Prof. dr. Stoel, from which the thickness values, represented by different colours, can be read by using the supplied scales. The first two violins, from 1750 and 1753, were also included in Table 4.7, but the third violin (from 1759, with database code BJB5903vn) was not examined with the magnetic thickness gauge. Figure 4.24 clearly confirms that within each of the three individual violins, the graduation patterns of the top and back plate are extremely regular and identical, which implies that Boussu must have had an accurate measuring or marking tool for precise determination of the thicknesses while hollowing a plate. The plates of all three instruments have a thicker central area, and very evenly graduated upper and lower lobes. In the instrument from 1759, the central stout area of the top and back is less extended and pronounced, while the upper and lower lobe areas appear to be somewhat thinner in comparison to the two earlier instruments. This development towards thinner plates in Boussu’s later instruments was already observed from the data in Table 4.7.

Figure 4.25 shows the thickness maps for the only scanned viola (which is a different instrument than the viola included in Table 4.7). The plates are relatively thin, with a less extended thicker central area. The peripheral regions of the back plate are somewhat thinner than those of the top, which points to re-graduation of the back. The rather abrupt transition between the thicker central area and its adjacent thinner regions, both in top and back plate, is caused by an oval-shaped glued-in patch in the centre of both plates. The presence of these patches, clearly as the result of a later repair or modification (possibly to increase plate thickness after a previous thinning of the plates), is confirmed by endoscopy and study of the axial plane CT reconstructions of the sound box. The

⁷⁹ Stoel, Borman, (2008), pp.1-7; Terry Borman, Berend Stoel, ‘Review of the uses of computed tomography for analysing instruments of the violin family with a focus on the future’, *J. Violin Soc. Am.: VSA Papers*, vol. 22, no. 1 (2009), pp.239-250; Berend C. Stoel, Terry M. Borman, Ronald de Jongh, ‘Wood densitometry in 17th and 18th century Dutch, German, Austrian and French violins, compared to classical Cremonese and modern violins’, *PLOS ONE*, vol. 7, issue 10 (October 2012), pp.1-9.

⁸⁰ The MathWorks, Inc., Natick, United States of America.

⁸¹ A description of the mode of operation of the algorithm is given in: Borman, Stoel (2009), p.4.

thicker area below the back plate's button is an inserted replacement piece, applied during a restoration, which further confirms that major repair work has been done to the back plate.

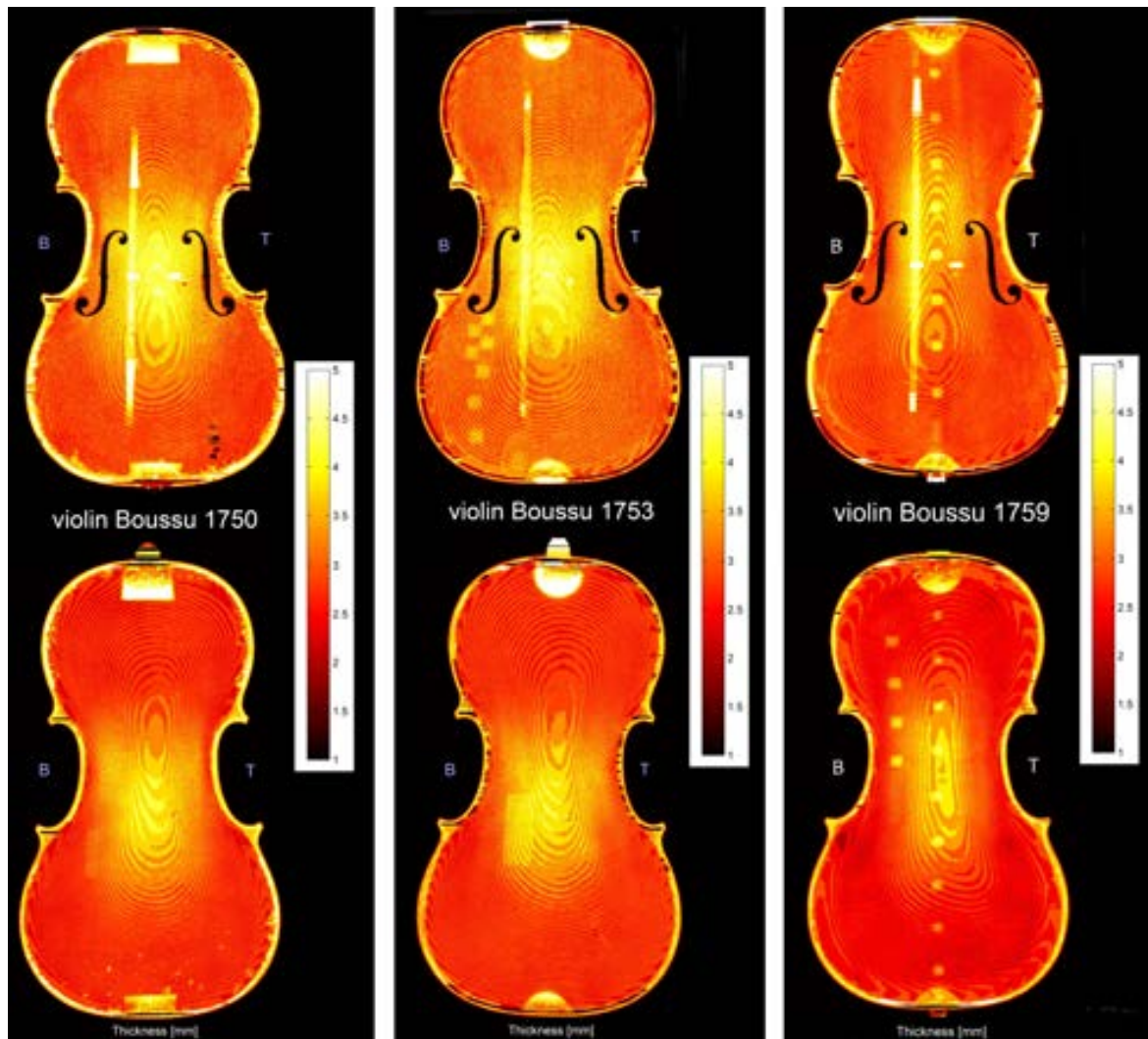


Figure 4.24. Thickness maps, constructed from CT data, for the top and back plate of three violins by Boussu. Left to right: (a) thickness maps for a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), (b) thickness maps for a violin from June 1753 (MIM inv. no. 2784; database code BJB5302vn), (c) thickness maps for a violin from 1759 (database code BJB5903vn).
 B: bass side, T: treble side. Scales in mm.

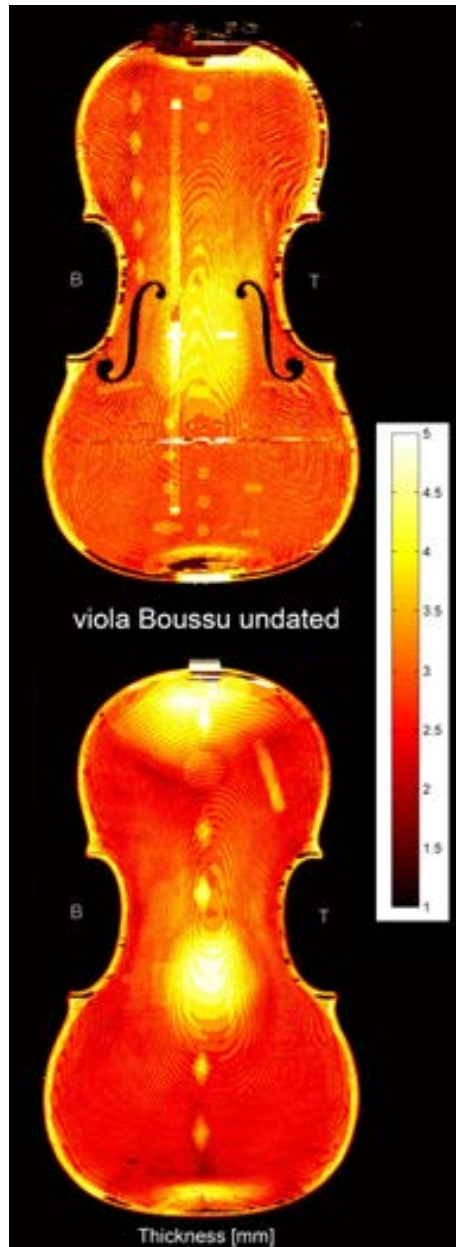


Figure 4.25. Thickness maps, constructed from CT data, for the top and back plate of an undated viola by Boussu (database code BJBnd17va). B: bass side, T: treble side. Scale in mm.

For the final two scanned violin-family instruments, two cellos, the thickness maps are given in Figure 4.26. Due to the larger size of these two instruments, the resolution of the CT scans was about a factor two lower compared to the scans of the violins, since the same number of voxels had to be allocated to a larger region of interest. This reduced resolution leads to quantisation errors, which are expressed in the images in Figure 4.26 as more distinct striping artefacts. Also, as a result of the limited resolution, the thickness indication in the maps for the cellos is less accurate in comparison to the indication in the thickness maps of the violins. Despite these limitations, the maps give a good

impression of the graduation patterns used by Boussu. To ‘calibrate’ the images, several representative thickness measurement values – recorded with a Hacklinger magnetic thickness gauge with a maximum inaccuracy of 0.1 mm – have been added in the thickness maps for the cellos.

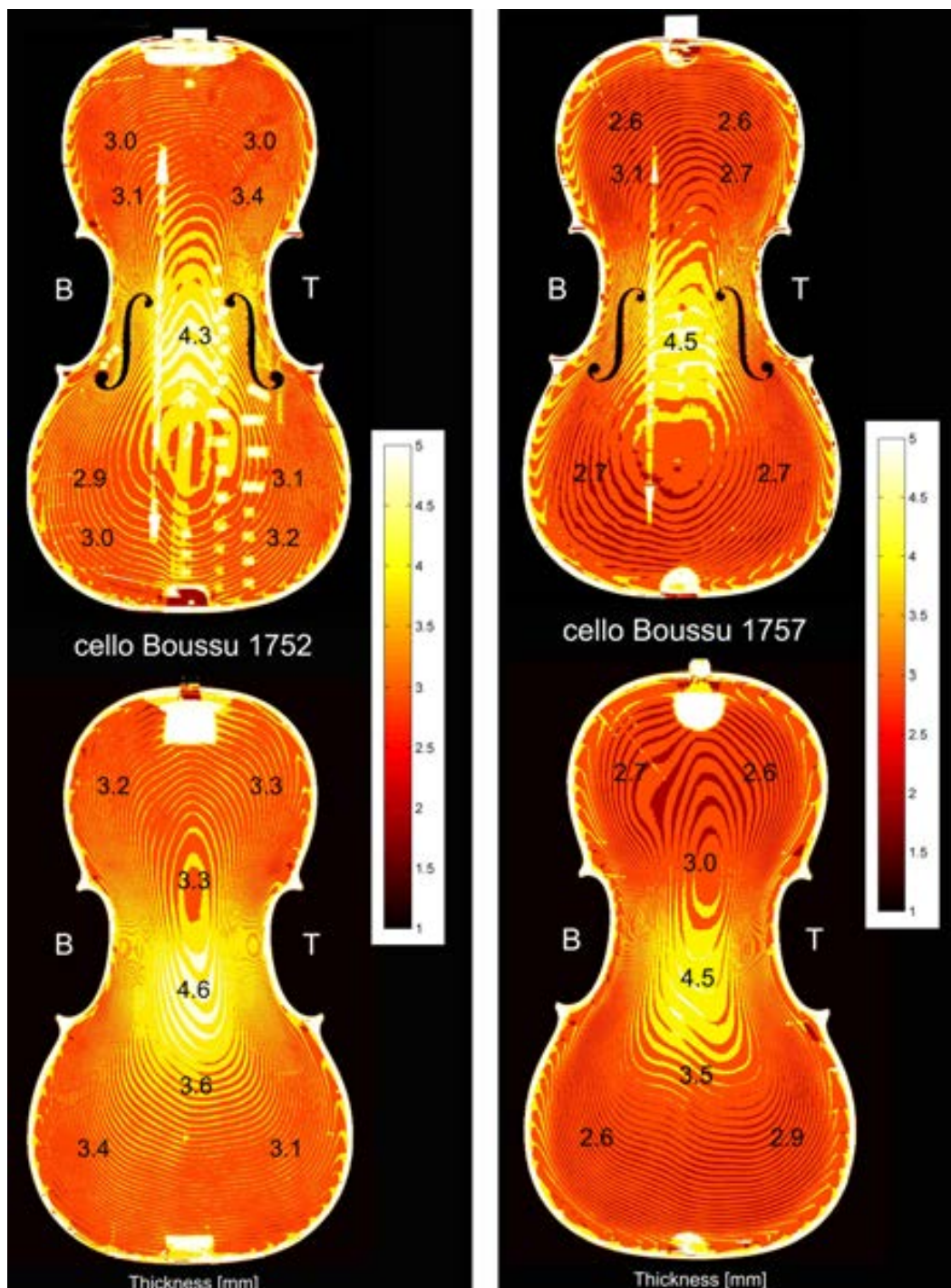


Figure 4.26. Thickness maps, constructed from CT data, for the top and back plate of two cellos by Boussu. Left to right: (a) thickness maps for a cello from January 1752 (MIM inv. no. 2863; database code BJB5201vc), (b) thickness maps for a cello from 1757 (MIM inv. no. 1372; database code BJB5701vc). B: bass side, T: treble side. Scales in mm. The added numbers represent measurement values acquired with a Hacklinger magnetic thickness gauge.

When comparing the maps for the two cellos in Figure 4.26, the darker colours for the maps of the 1757 cello reflect a thinner top and back plate. However, as was the case for the thickness patterns for the individual violins, each cello has a top and back that were brought to thickness according to a same graduation pattern. Again, a thicker central area in both the top and back plate is present. In the more recent cello, this central thicker area is less extended. That observation, combined with the thinner plates for the 1757 instrument, is in correspondence with the tendency for thinner plates in the more recent instruments as also seen for the violins.

4.11. Plate archings

The top and back plates of Boussu's violin-family instruments in general have a full and pronounced arching, which becomes clearly noticeable when the instruments are observed in light that strikes the plate under a low angle. Figure 4.27 shows several photographs of the top and back plate of instruments, where the incident light emphasises that shape of the plate's arching. From these images, it can be noticed that the arching extends closely towards the edge of the plate, resolving into a narrow, but deep 're-curve' channel.

For all six instruments scanned during the currently presented study, the three main axial plane reconstructions from CT data – at the widest part of the upper bout, the narrowest part across the middle bout and the widest part of the lower bout – are provided in Appendix VII. Axial plane reconstructions, such as shown in Appendix VII and Figure 4.28, can provide information regarding the transverse profile of the arching at any plane across the sound box. The illustrative cross section in Figure 4.28 distinctly shows the generous arching and the deep but narrow channel near the plate edges, which could also be noticed in Figure 4.27. Such axial CT reconstructions are of great value for instrument makers, since they provide very accurate arching profiles needed in case of an instrument replication. Besides being very accurate, this method of capturing an arching profile is also completely contactless, avoiding damage to the plates. Furthermore, arching heights can be determined by measurements made within the reconstruction software (for the sake of illustration, example measurements are included in Figure 4.28). Similarly, the longitudinal arching shape can be visualised from the CT data as well, see Figure 4.29. By using axial plane reconstructions, the maximum arching height for the six scanned instruments was determined, and the results are given in Table 4.8. In the violin from 1750, the top and back plate have almost the same maximum arching height (and notably a very similar arching shape), while in the violin from 1753, the top plate is considerably higher than the back plate. Possibly, Boussu adjusted the arching height to the available thickness of the unprocessed wood billets. Both

instruments, however, show a rather highly arched style, especially for the top plates, in contrast to the lower archings of the violin from 1759. Maybe, this instrument was designed to have a more powerful sound, as these sound characteristics are associated with flatter plates.⁸² Alternatively, the reduction of arching heights in the violin from 1759 could have resulted from the lack of wood billets with sufficient thickness. In the viola, we see that the back plate has a higher arching than the top plate, a configuration which seems to differ from the tendency of a higher top plate (compared to back plate) as observed for the violins.



Figure 4.27. Photographs of the top and back plate of three instruments by Boussu, where the incident light emphasises the arching shape. Top row, left to right: (a) top plate of a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), (b) top plate of a violin from June 1751 (database code BJB5103vn), (c) top plate of a cello from 1757 (MIM inv. no. 1372; database code BJB5701vc). Bottom row, left to right: (d) back plate of a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), (e) back plate of a violin from June 1751 (database code BJB5103vn), (f) back plate of a cello from 1757 (MIM inv. no. 1372; database code BJB5701vc).

⁸² John Dilworth, 'The violin and bow - origins and development', in Robin Stowell, ed., *The Cambridge companion to the violin* (Cambridge: Cambridge University Press, 1992), pp.1-29 at p.13.

Instruments

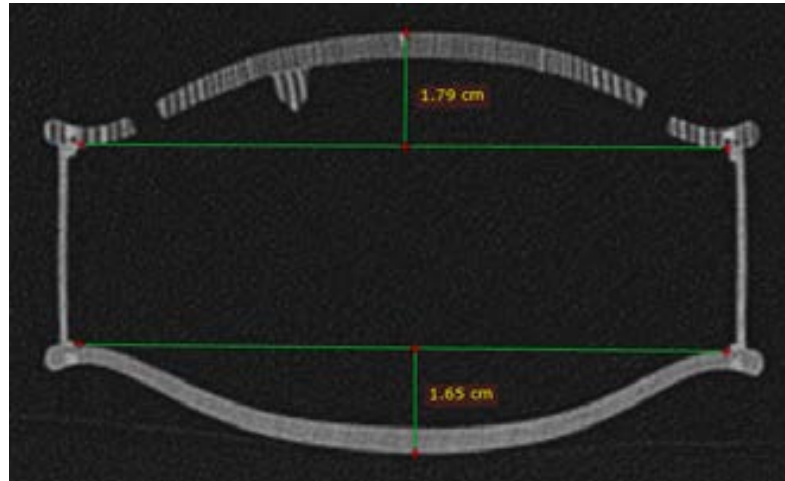


Figure 4.28. Axial plane CT reconstruction in the middle bout area of a violin by Boussu from 1750 (MIM inv. no. 2781; database code BJB5001vn), including length measurement lines from the DICOM viewer software (RadiAnt DICOM Viewer, Medixant, Poznan, Poland).

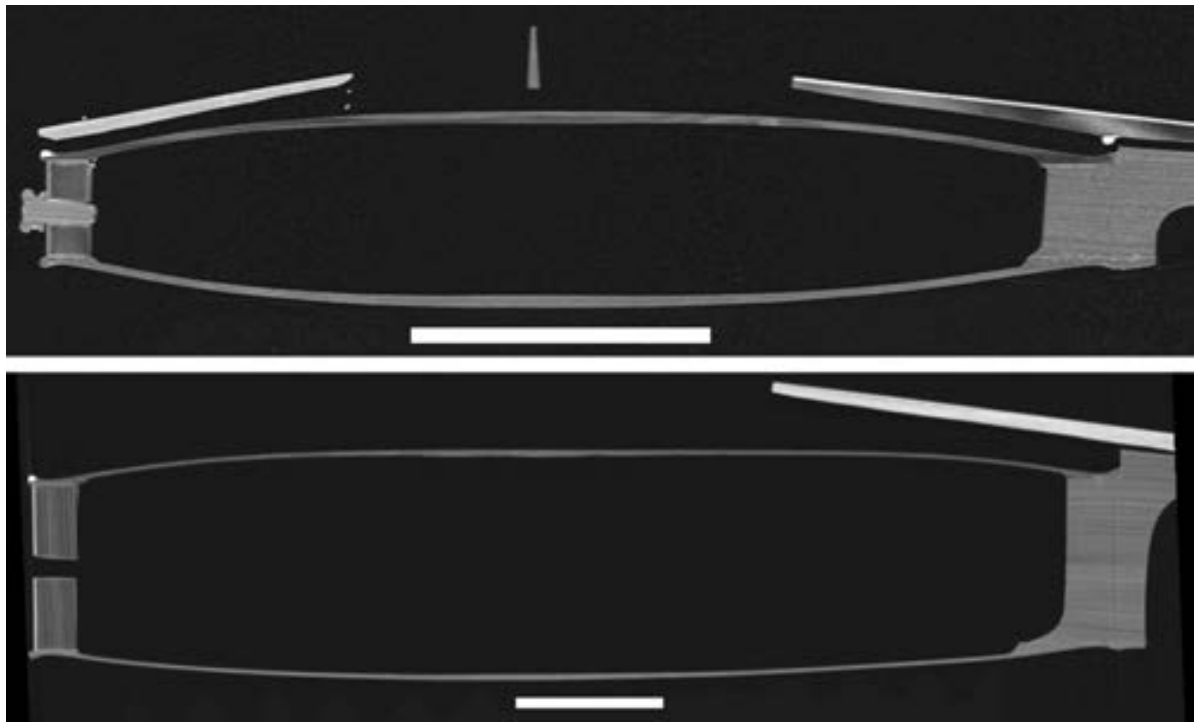


Figure 4.29. Sagittal plane CT reconstructions, along the centreline, for two instruments by Boussu. Top to bottom: (a) longitudinal cross section of the sound box of a violin by Boussu from 1750 (MIM inv. no. 2781; database code BJB5001vn), (b) longitudinal cross section of the sound box of a cello by Boussu from 1757 (MIM inv. no. 1372; database code BJB5701vc). The white reference bar in each image represents a length of 100 mm.

Instrument	Instrument ID	Maximum arching height top plate (mm)	Maximum arching height back plate (mm)
Violin 1750	MIM inv. no. 2781; BJB5001vn	18.0	17.0
Violin 1753	MIM inv. no. 2784; BJB5302vn	19.0	16.0
Violin 1759	BJB5903vn	15.0	15.0
Viola 17??	BJBnd17va	20.0	21.5
Cello 1752	MIM inv. no. 2863; BJB5201vc	26.0	29.5
Cello 1757	MIM inv. no. 1372; BJB5701vc	22.0	24.0

Table 4.8. Maximum arching heights for the top and back plate of six instruments by Boussu.

In the two cellos, from 1752 and 1757, it can be seen that the back plate arching is higher than the top plate arching (see Table 4.8), as was the case for the viola. The earlier instrument has the higher arching elevations, a trend that could also be noticed when examining the archings for the three scanned violins. These observations, although few in number, may suggest that Boussu started lowering the plate archings of his instruments towards the end of the 1750s.

During the currently presented study, CT data has also been used to produce elevation maps, which depict the arching elevation of the plates in a way similar to topographical altitude mapping. By means of different colours, each colour assigned to a certain elevation value, the shape of the arching is visualised. This way, an idea can be obtained regarding the three-dimensional shape of the curved surface. Elevation height values can be read by using the accompanying scales. For the current study, such maps were constructed by Prof. dr. Berend Stoel, who also made the thickness maps mentioned in Section 4.10.

Figure 4.30 shows the elevation maps for the top and back plate of the three scanned violins by Boussu. The violins from 1750 and 1753 show a similar, relatively high arching for both the top plates (around 18 mm) and the back plates (around 17 mm), confirming the measurements in Table 4.8. As can be seen from the pattern of the coloured contours of equal elevation, both instruments have plate archings with a highly comparable shape, especially for the back plates. The elevation contours form figure-eight patterns, indicating that the arching in the upper and lower sections of the plate extends close to the edge of the plate. The relatively narrow re-curve channel is recognisable as a dark-blue-coloured elevation contour (indicating an elevation of less than c4 mm, i.e. below the plate's edge thickness). Physical measurements on the plates show that for Boussu's violins, the re-curve channel is c1.5 mm deep. As is apparent from Figure 4.30(c), in the violin from 1759, the plate elevations for both plates are clearly lower (14 to 16 mm), while also, the re-curve channels appear to be somewhat wider.

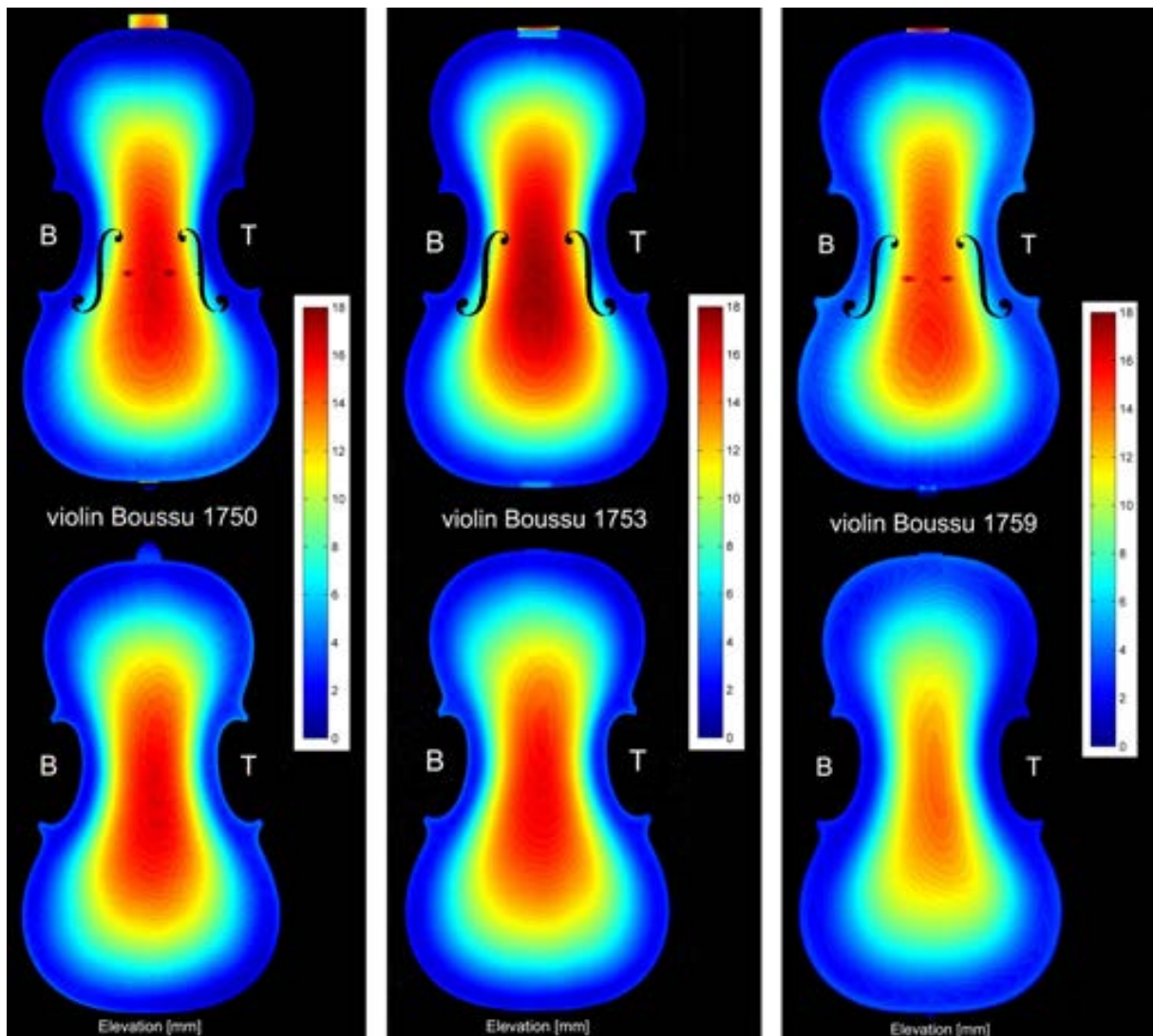


Figure 4.30. Elevation maps, constructed from CT data, for the top and back plate of three violins by Boussu. Left to right: (a) elevation maps for a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), (b) elevation maps for a violin from June 1753 (MIM inv. no. 2784; database code BJB5302vn), (c) elevation maps for a violin from 1759 (database code BJB5903vn).

B: bass side, T: treble side. Scales in mm.

The elevation maps for the top and back plate of the scanned undated viola are shown in Figure 4.31. Again, we see the characteristic figure-eight patterns of the coloured elevation contours, representing ‘full’ plate archings, especially in the top plate. The somewhat asymmetrical contour pattern for this plate indicates that deformation of the plate has occurred, likely caused by the pull from string tension. As was shown in Section 4.10, the top plate of this viola is relatively thin, making it more susceptible for stress-induced deformations. The elevation maps for this instrument also show that the back plate has a slightly higher arching compared to the top plate, a feature not observed in the three scanned violins.

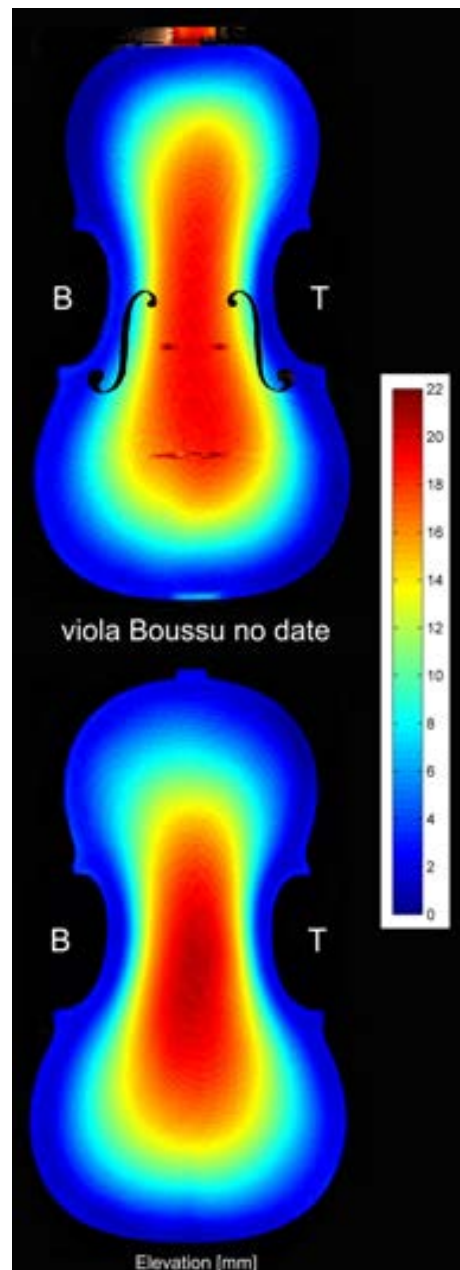


Figure 4.31. Elevation maps, constructed from CT data, for the top and back plate of an undated viola by Boussu (database code BJBnd17va). B: bass side, T: treble side. Scale in mm.

The elevation maps for the two cellos are displayed in Figure 4.32. The figure-eight shaped patterns of the coloured elevation contours for the cello from 1752 are again illustrative of a top and back plate arching that extends close to the edge of the plate. In contrast to the smaller-sized instruments, the central area of the top and back plate in this cello is rather extended and flat, an intrinsic design feature, given the different ratio between plate area and maximum arching height in comparison to the plates of the violins and viola. The fairly symmetrical shapes of the elevation contour patterns point to little plate deformation, a result of the sufficient plate thickness for this 1752 instrument (see Section 4.10). From the more asymmetrically shaped equal-elevation contours in the

elevation maps for the 1757 cello, on the other hand, a higher degree of plate deformation appears to be present in this latter instrument. The thin plates of this cello, as discussed in Section 4.10, must have allowed distortion to occur under the tension of the string load.

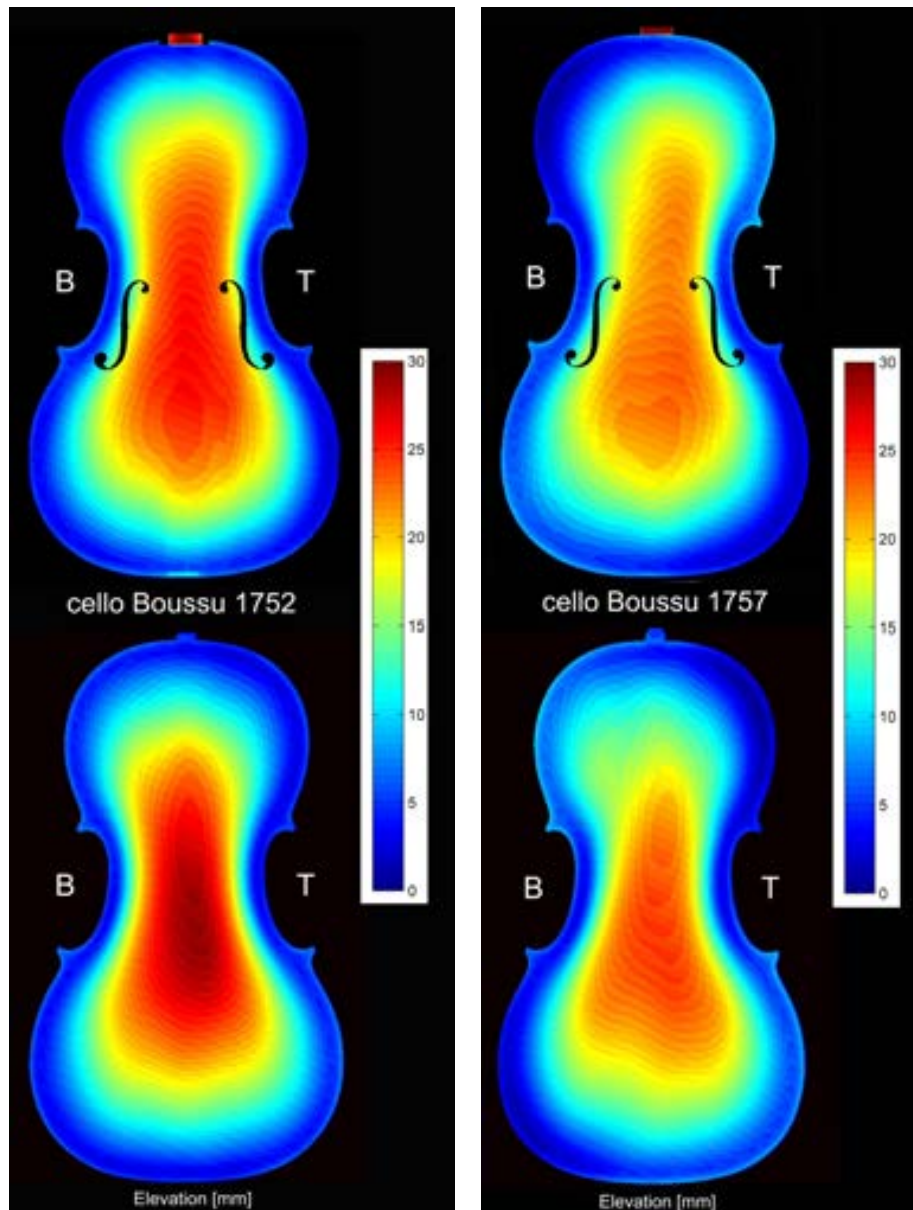


Figure 4.32. Elevation maps, constructed from CT data, for the top and back plate of two cellos by Boussu. Left to right: (a) elevation maps for a cello from January 1752 (MIM inv. no. 2863; database code BJB5201vc), (b) elevation maps for a cello from 1757 (MIM inv. no. 1372; database code BJB5701vc). B: bass side, T: treble side. Scales in mm.

4.12. Rib structure

When the thickness of the ribs of the six violins in the collection of the MIM (inv. nos. 2781-2785, 1338) was measured, thicknesses typically between 1.5 and 1.7 mm were found. These thickness values are slightly higher compared to those commonly found for old and new violins of various makers. The height of the rib garland in these six museum instruments varies between 31.0 and 33.0 mm, with a typical height of 32.0 mm. For violins in private ownership, rib heights around 32.0 mm were often encountered, although heights of several millimetres less (down to 28.0 mm, especially near the upper block) have been measured as well. Given that the six museum instruments have been preserved as collection objects for over hundred years, they can be considered as the least modified specimens available. Moreover, in the violin from 1750 (MIM inv. no. 2781), not a single internal repair or modification has been observed, which strongly implies that this instrument has never been opened after it was closed by Boussu (and thus that the rib height of at least this instrument has not been reduced as a side effect of top plate removal). Hence, a rib height of around 32.0 mm can be considered original. The instruments in the hands of musicians were probably repaired and modified more frequently. In case a rib height of much less than 32.0 mm is found in these privately-owned instruments, the reduced height is likely the result of modifications by repairmen.

The two cellos in the MIM collection differ regarding the thickness of their ribs. The instrument from 1752 (MIM inv. no. 2863; database code BJB5201vc) has ribs that are around 1.6 mm thick. The cello from 1757 (MIM inv. no. 1372; database code BJB5701vc) has thicker ribs: their thickness varies between 1.9 and 2.2 mm. The ribs of the former instrument show many large cracks, possibly as the result of shrinkage of the thinly planed wood, a condition not observed in the latter cello. Possibly, Boussu increased the rib thickness during the 1750s in order to prevent the occurrence of such damage to the garland.

The ribs in the cello from 1757 have a height of 114 mm, while in the cello from 1752, the ribs are 11 mm higher, at 125 mm. Table 4.9 shows the rib heights and back plate lengths for eight identified cellos by Boussu. Some variation in rib height between the instruments can be seen. In case the rib height at the top and bottom of the sound box of an individual instrument are not closely corresponding, this could well be the result of modifications performed by restorers or repairmen. When comparing the rib heights to the back plate lengths, it can be seen that the two smallest instruments (BJBnd21vc and BJBnd22vc) also have the lowest ribs.

When observing the joint between two adjacent rib parts at the garland's corners of Boussu's bowed string instruments, a mitre joint is always present where the rib parts

meet, likely a remnant from the tradition of working without corner blocks, as employed in the Southern Netherlands,⁸³ instead of an overlapping joint as performed by the Classical Cremonese makers.⁸⁴ Examples of such mitre joints, cut to a flat narrow plane at the extremity, are given in Figure 4.33. In Section 5.3, a hypothesis will be presented regarding the way Boussu made the rib structure of his instruments.

Instrument ID	Year	Back length (mm)	Rib height (mm), top/bottom
BJB4901vc	1749	770	123/123
BJB5104vc	1751	762	120/125
MIM inv. no. 2863; BJB5201vc	1752	764	125/125
BJB5202vc	1752	752	115/122
MIM inv. no. 1372; BJB5701vc	1757	753	114/114
BJBnd19vc	17??	752	120/117
BJBnd21vc	17??	714	111-113/111-113
BJBnd22vc	17??	714	112/113

Table 4.9. Rib heights and back plate lengths for eight cellos by Boussu.



Figure 4.33. Examples of the connection of two rib parts at a corner of the garland. Left to right: (a) rib corner in a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), (b) rib corner in a cello from 1757 (MIM inv. no. 1372; database code BJB5701vc), (c) rib corner in a violin from 1759 (database code BJB5903vn), (d) rib corner in an undated violin (database code BJBnd01vn).

Another recognisable peculiarity of many of Boussu's instruments can be found at the bottom-side of the rib structure. Very often, a strip of wood is present, inlaid at the junction between the two lower rib parts, where the end button is located. For 43 instruments, there was the opportunity to examine this end button area. In 26 cases, an inlaid strip of a very dark wood, possibly ebony, was found. This strip could vary in width from 2-3 mm to around 10 mm in violins and from a few millimetres to c2 cm in cellos. Examples of this type of strip are given in the top row of Figure 4.34. As is exemplified by Figures 4.34(a)-(d), Boussu used this strip of dark wood from some of his

⁸³ Karel Moens, 'Vioolbouw in de Oostenrijkse Nederlanden', *Arca Lovaniensis*, vol. 10/b, Jaarboek 1981 (Leuven: Depret, 1983), p.140; Geerten Verberkmoes, Anne-Emmanuelle Ceulemans, Danielle Balériaux, Berend Stoel, 'An inside look at four historical violins by Brussels makers', *The Galpin Society Journal*, vol. 69 (2016), pp.109-136, 159-165, at p.121.

⁸⁴ Roger Graham Hargrave, 'The working methods of Guarneri del Gesù and their influence upon his stylistic development - The mould and the rib structure', pp.9-18, at p.15. Available from: https://www.roger-hargrave.de/PDF/Book/Chap_02_The_Mould_PRN.pdf (accessed January 2020).

earliest instruments up to his latest known violin from 1765. In six instruments, a filler strip of a light-coloured wood was found, again variable in width among the different instruments. Examples of this second type of filler strip are given in Figures 4.34(e)-(g). In two cases, a filler strip made of three-ply purfling material was found, as can be seen in Figures 4.34(h) and (i). Note that for the instrument depicted in Figure 4.34(i), two similar pieces of three-ply purfling were used side by side to form a six-ply filler strip. In the remaining nine instruments, no filler strip was found at all; the lower rib parts were placed directly against each other.

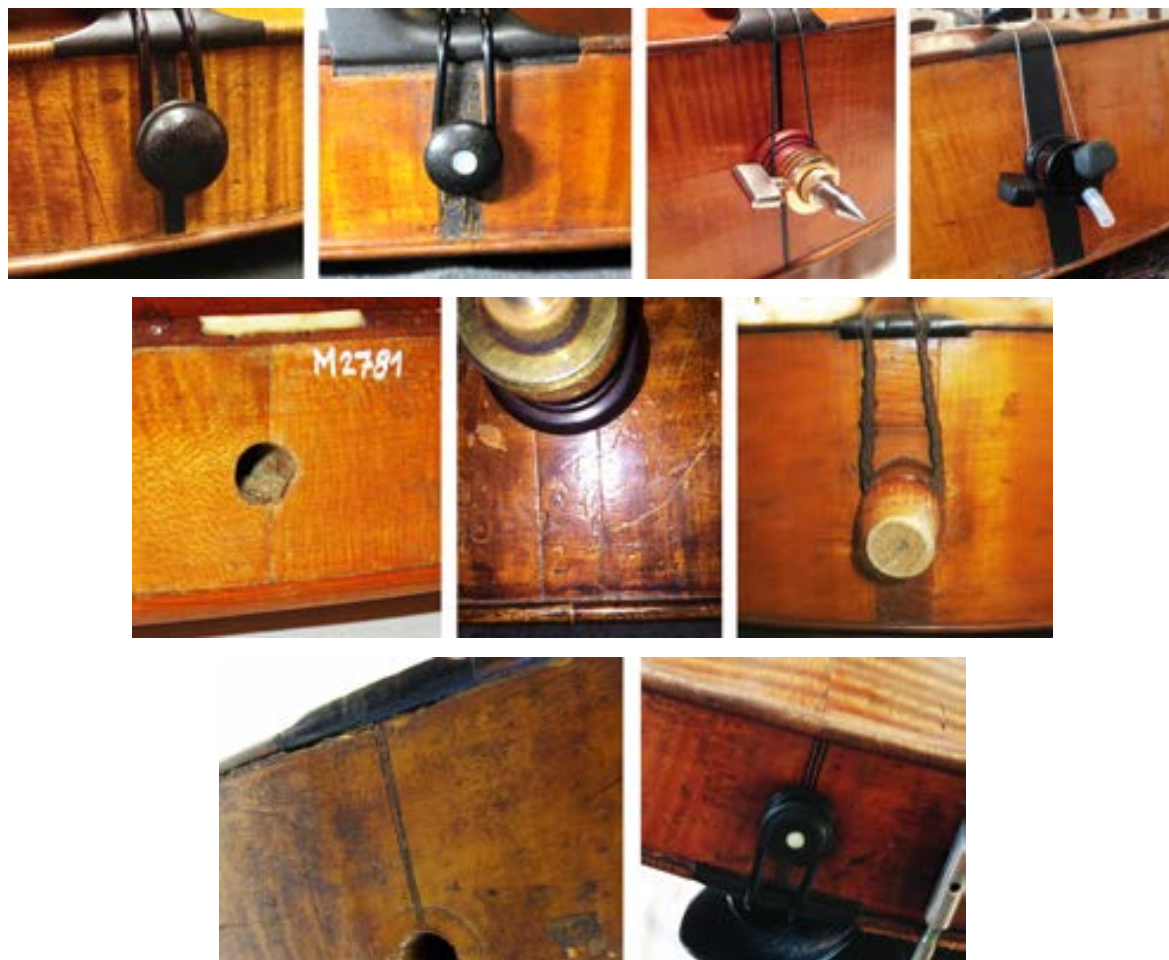


Figure 4.34. Views at the bottom side of the rib structure for various instruments by Boussu. Top row, left to right: (a) filler strip on a violin from May 1751 (database code BJB5102vn), (b) filler strip on a violin from 1765 (database code BJB6501vn), (c) filler strip on a cello from June 1752 (database code BJB5202vc), (d) filler strip on an undated cello (database code BJBnd21vc). Middle row, left to right: (e) filler strip on a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), (f) filler strip on a cello from 1754 (database code BJB5403vc), (g) filler strip on a double bass from 1760 (MIM inv. no. 2014.324; database code BJB6002db). Bottom row, left to right: (h) filler strip on a cello from January 1752 (MIM inv. no. 2863; database code BJB5201vc), (i) filler strip on a violin from 1754 (database code BJB5401vn).

From the above observations, it can be concluded that in the majority of his instruments and throughout his entire violin-making career, Boussu used inlaid filler strips of different materials and width at the joint of the two lower rib parts. As will be explained in Section 5.3, the presence (or occasional absence) of such a filler strip, and its varying width, can likely be related to the methods and sequence by which Boussu constructed his instruments.

4.13. Internal construction

By using CT scanning and digital endoscopy, the internal structure of the instruments under examination, as well as internal repairs and modifications, can be assessed. In this current section, images produced by CT analysis and digital endoscopy are employed to follow an evolution in the way Boussu designed and constructed his instruments. By taking a closer look at elements such as the upper block, the linings and the lower and corner blocks in various instruments, it will become possible to see if any development can be detected regarding their shape and even the methods by which they were incorporated into the structure.

Starting this analysis with the two instruments that still have retained their entirely unaltered neck, a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn) and a cello (MIM inv. no. 1372; database code BJB5701vc), it can be noticed that these instruments have a neck and upper block made out of one single piece of maple wood. The sagittal plane reconstructions of CT data for the neck and scroll of these two instruments (Figure 4.35) show this constructional feature. In a third instrument, a violin from 1751 (MIM inv. no. 2785; database code BJB5101vn), the original neck construction has also been preserved, although the neck itself has been thinned and placed under a new angle. A detached neck originally on a cello from 1749 (database code BJB4901vc), see Figure 4.17, also shows this so-called ‘through neck’ configuration.

All other bowed string instruments identified during this study (excluding the two kit violins) no longer have retained this original neck/upper block construction, since their neck has been converted somewhere during the nineteenth – or possibly even twentieth – century to a more modern state, which in most cases resulted in removal and disposal of the original neck and upper block, or at least separation of these two parts. However, in many of these converted instruments, more or less obvious traces can be found of the original ‘through neck’ construction. To illustrate this, Figure 4.36 shows several examples of endoscopy captions of the upper block area of instruments by Boussu. Some of the images show an original upper block, while others show a replacement upper block placed on the elongated back plate platform where once the original upper block stood.

These remaining back plate platforms give us an impression of the shape of the original, lost upper block. The recurring presence of either original maple upper blocks with a small foot-like extension, or just the (remaining) elongated platforms observed in instruments from between 1749 until 1760 confirms that Boussu kept using the ‘through neck’ construction method (further explained in Chapter 5) throughout this entire period, and most likely during his later career as well. Interestingly, his only known plucked string instrument, a cittern from 1771 (database code BJB7101ci) contains an original separate spruce upper block, against which the maple neck is glued and secured with a metal screw (see Section 4.22). Apparently, Boussu decided to adapt his construction techniques for this atypical specimen within his oeuvre. Pouloupoulos has shown, however, that several eighteenth-century English guitars were made this latter way,⁸⁵ and Boussu may have been aware of this particular way of working.

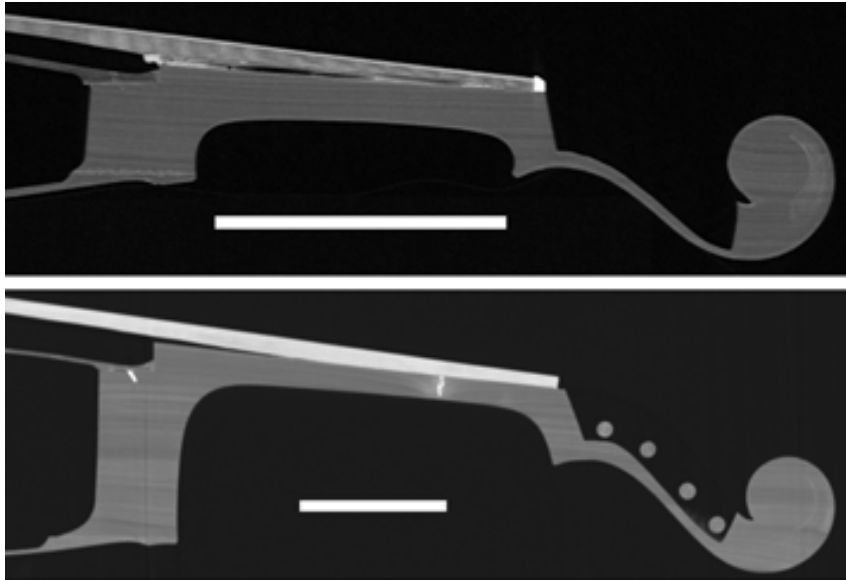


Figure 4.35. Sagittal plane reconstructions of CT data for the neck and scroll of two instruments by Boussu. Top to bottom: (a) longitudinal cross section of the neck and scroll of a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), (b) longitudinal cross section of the neck and scroll of a cello from 1757 (MIM inv. no. 1372; database code BJB5701vc). The white reference bar in each image represents a length of 100 mm.

The images in the top row of Figure 4.36 clearly demonstrate that up to at least early 1752, Boussu gave his upper blocks a rather angular profile. As demonstrated by the examples in the bottom row of Figure 4.36, somewhere in the first half of 1752, he changed the shape of the upper block towards a more rounded profile, likely with the goal to reduce its weight and its contact surfaces with both plates, which can have a beneficial effect on the instrument’s tone. This change in shape of the upper block can even be seen more

⁸⁵ Panagiotis Pouloupoulos, *The guitar in the British Isles, 1750-1810* (PhD diss., University of Edinburgh, 2011), pp.319-325.

distinctively in the coronal plane CT reconstructions in Figure 4.37. It has to be noted that the neck/upper block part of the violin from 1753 (MIM inv. no. 2784; database code BJB5302vn) has undergone modifications, namely separation of the original neck from the upper block and the insertion of a new neck. Nevertheless, the remaining upper block part is still original and has a round-shaped backside. In all three cross sections, it can clearly be seen that Boussu created a rectangular cavity at either side of the neck root, to receive the upper rib parts, and that two complementary wedges were inserted in each slot to secure the rib parts. The upper blocks for the violins from 1750 and 1753 (depicted in Figures 4.37(a) and (b)) have a maximum width of 36.0 and 35.8 mm respectively. These widths correspond very closely to the scroll widths of these violins (36.5 and 36.5 mm), which implies that Boussu started the neck/upper block/scroll construction with a rectangular block of maple, thus having an even width over its entire length. For the cello from 1757, the scroll and upper block widths are somewhat dissimilar at 60.3 and 55 mm respectively, which suggests that the maple blank from which Boussu made the neck/upper block/scroll combination was not prepared to the exact same width over its entire length.



Figure 4.36. Endoscopic captures of the upper block areas of eight instruments by Boussu. Top row, left to right: (a) replacement upper block on a rectangular platform in a cello from 1749 (database code BJB4901vc), (b) original upper block in a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), (c) original, but raised, upper block in a violin from 1751 (MIM inv. no. 2785; database code BJB5101vn), (d) replacement upper block on a rectangular platform in a cello from January 1752 (MIM inv. no. 2863; database code BJB5201vc). Bottom row, left to right: (e) replacement upper block on a rounded platform in a cello from June 1752 (database code BJB5202vc), (f) original upper block in a violin from June 1753 (MIM inv. no. 2784; database code BJB5302vn), (g) original upper block in a cello from 1757 (MIM inv. no. 1372; database code BJB5701vc), (h) replacement upper block on a rounded platform in a double bass from 1760 (MIM inv. no. 2014.324; database code BJB6002db).

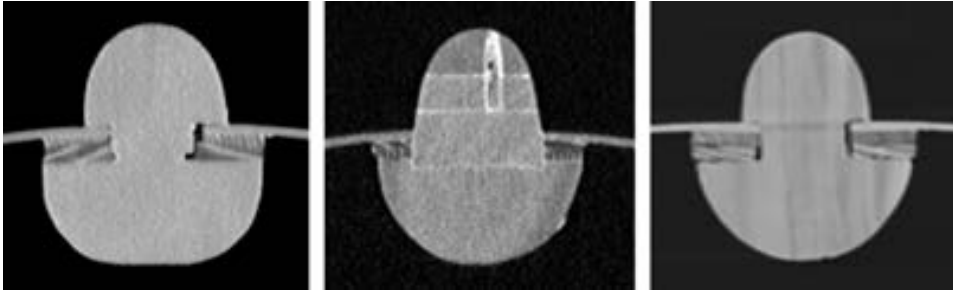


Figure 4.37. Coronal plane reconstructions of CT data for the original upper block of three instruments by Boussu. Left to right: (a) upper block of a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), (b) modified upper block of a violin from June 1753 (MIM inv. no. 2784; database code BJB5302vn), (c) upper block of a cello from 1757 (MIM inv. no. 1372; database code BJB5701vc).

Around the same moment of changing the shape of his instruments' upper block, Boussu also modified the shape and size of the linings (the wooden strips glued at the intersection between rib structure and the top and back plate respectively). In Figure 4.38, the top row shows endoscopic photographs of original linings in instruments constructed up to January 1752. In the bottom row, original linings in instruments from October 1752 onwards can be seen. It is clear from the images in Figure 4.38 that Boussu applied very tiny and square shaped linings in his instruments up to at least January 1752, whereas he started applying sturdier and rounded strips sometime later in 1752. Likely, the change in lining size coincided with the change in upper block shape in the first half of that year. The lining design may have been revised by Boussu in order to strengthen the rib-to-plate connection, thus reducing the chances of spontaneous loosening of the plates from the garland. Regardless of the change in lining size, both types of lining have tapered ends near the corner blocks and are not inserted into these blocks (see Figures 4.38 and 4.39).



Figure 4.38. Endoscopic captures of the original linings of eight instruments by Boussu. Top row, left to right: (a) linings in a cello from 1749 (database code BJB4901vc), (b) linings in a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), (c) linings in a violin from June 1751 (database code BJB5103vn), (d) linings in a cello from January 1752 (MIM inv. no. 2863; database code BJB5201vc). Bottom row, left to right: (e) linings in a violin from October 1752 (MIM inv. no. 2782; database code BJB5204vn), (f) linings in a violin from 1754 (database code BJB5402vn), (g) linings in a violin from 1759 (database code BJB5903vn), (h) linings in a double bass from 1760 (MIM inv. no. 2014.324; database code BJB6002db).

As could be observed by visual inspection (through the f-holes or in opened instruments), endoscopy or CT scanning, all of the examined bowed string instruments contain four corner blocks. As far as could be examined and judged, these are mostly made from a softwood, most likely spruce. Some examples of such blocks are given in Figure 4.39.

CT scanning can provide cross sections of the corner blocks, which can inform us about the wood-type used and growth ring line orientation of the wood. In Figure 4.40, coronal plane cross sections are shown of the corner blocks for the three violins by Boussu scanned during this study. As is obvious, the corner blocks are made from a coniferous wood, with strong contrast in the scan image between the early and late wood. The blocks seem to fit tightly against the ribs while the sides facing the inside of the sound box are finished straight and smoothly.



Figure 4.39. Examples of corner blocks in five instruments by Boussu. Top row, left to right: (a) corner block in a cello from 1749 (database code BJB4901vc), (b) corner block in a violin from June 1751 (database code BJB5103vn), (c) corner block in a violin from June 1753 (MIM inv. no. 2784; database code BJB5302vn). Bottom row, left to right: (d) corner block in a cello from 1757 (MIM inv. no. 1372; database code BJB5701vc), (e) corner block in an undated violin (database code BJBnd01vn).

Notably, in all the depicted corner blocks in Figure 4.40, the growth lines are not pointing towards the garland corners, as is often done in present-day violin making, but more in a manner perpendicular to that. Such an orientation would make the blocks in theory more prone to splitting, however, not one of the depicted blocks shows a crack. Looking further at the grain orientation of the corner blocks displayed in Figure 4.40, it seems that within an individual instrument, the four blocks are made from the same piece of wood. Even more, it may well be that they were made by starting from a longer beam of spruce, for which two sides were planed hollow (with a profile plane) to form the gluing surfaces for the ribs; once finished the planing, several corner blocks could be sawn off from this beam. Following such a procedure would result in a mirrored orientation of the grain between the bass-side blocks and the treble-side ones, as visible in Figure 4.40. Making the blocks in such an efficient and serial manner would be well-suited for the proposed modular workflow organisation for the Boussu workshop (as will be further argued in Section 5.4).

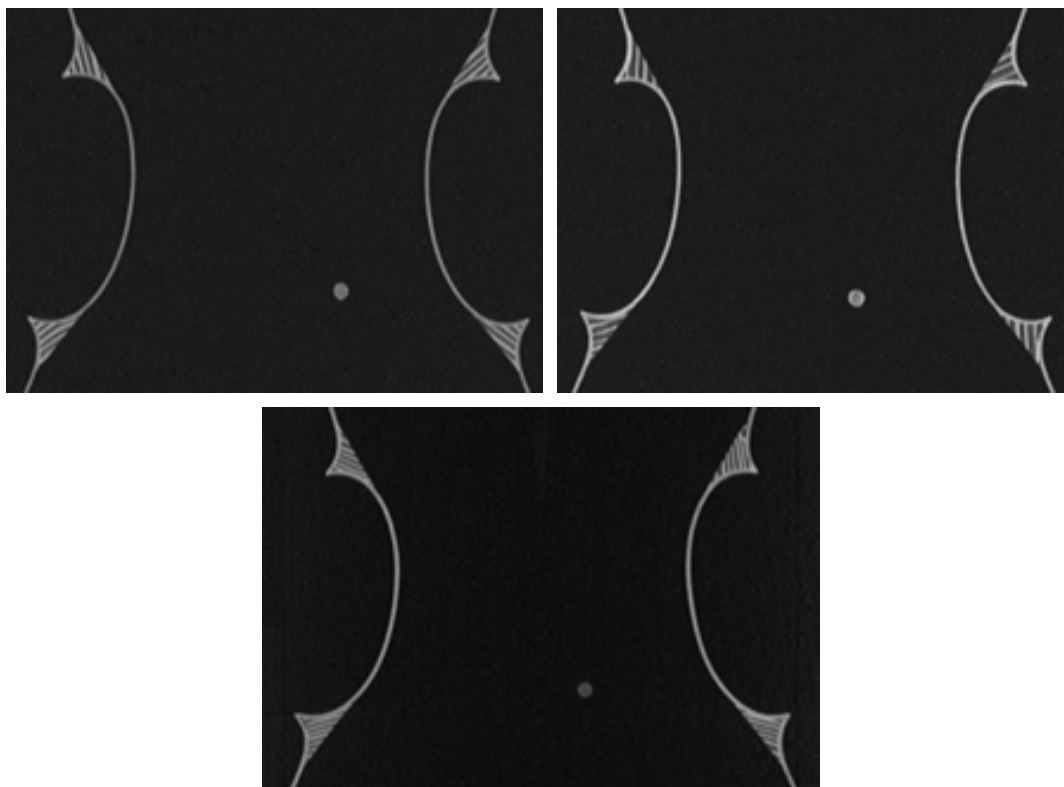


Figure 4.40. Coronal plane reconstructions of CT data for the middle bout area of three violins by Boussu. Top row, left to right: (a) coronal plane cross section of the corner blocks in a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), (b) coronal plane cross section of the corner blocks in a violin from June 1753 (MIM inv. no. 2784; database code BJB5302vn). Bottom row: (c) coronal plane cross section of the corner blocks in a violin from 1759 (database code BJB5903vn).

Figure 4.41 shows the coronal plane cross sections of the corner blocks in the two Boussu cellos that were CT scanned during this study. The material choice and growth line orientation for the blocks in the cello from 1757 (Figure 4.41(b)) seem to be largely similar to the material and orientation found in the blocks for the three discussed violins. On the other hand, the blocks for the cello from 1752 are made in a different manner (see Figure 4.41(a)). The two upper corner blocks in the 1752 cello seem to be entirely made from a hardwood, while the two lower corner blocks are each composites from a piece of softwood (at the side facing the inside of sound box) glued to a piece of hardwood (facing the corners). Possibly, for this specific instrument, Boussu used hardwood for his corner blocks (and lower block, as will be explained below) since he did not have enough spruce of adequate size for all the blocks. To give the impression that the instrument's inner blocks are from spruce, he incorporated thin slabs of spruce in the two lower corner blocks to make them appear as being made of spruce wood, since these blocks are visible from the outside through the f-holes. In the cello from 1757, the ribs are still glued tightly against the corner blocks, but in the 1752 cello, the ribs have become partly unglued from the blocks, which is not surprising given the battered condition of the entire rib structure of this instrument.

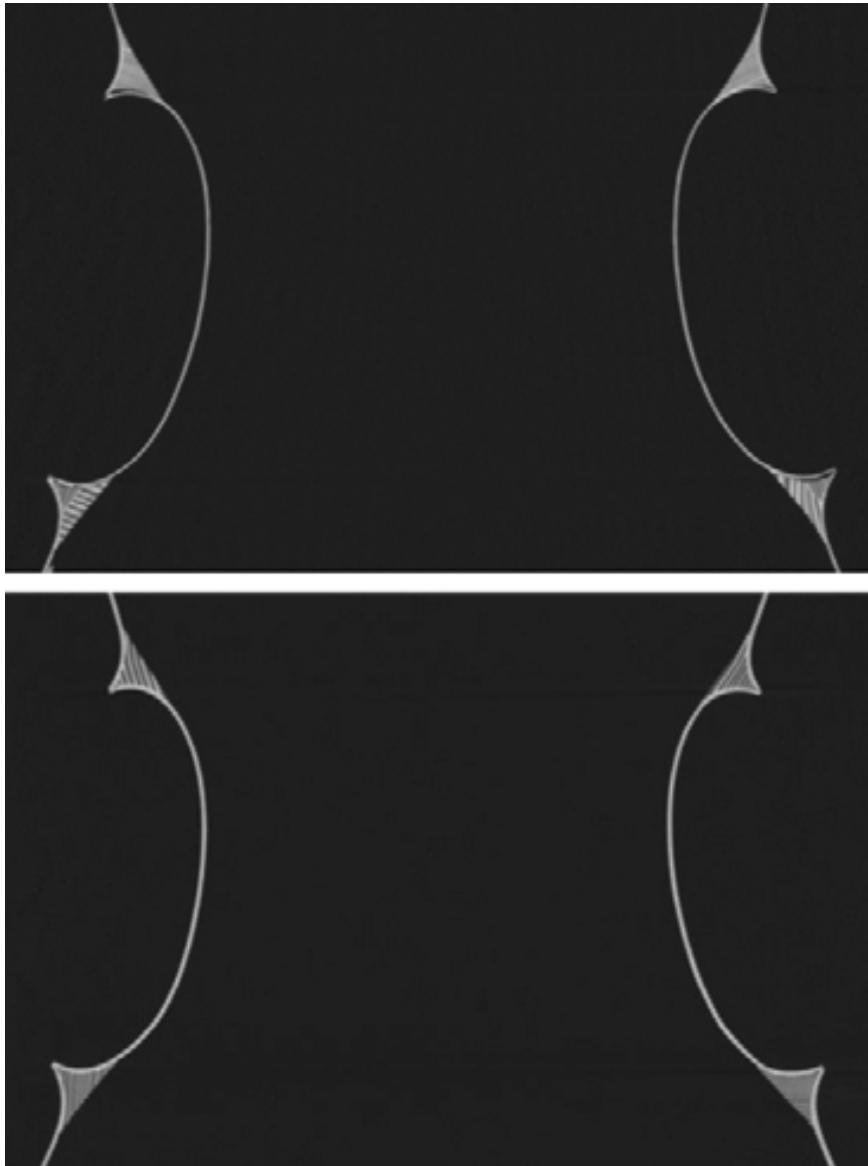


Figure 4.41. Coronal plane reconstructions of CT data for the middle bout area of two cellos by Boussu. Top to bottom: (a) coronal plane cross section of the corner blocks in a cello from January 1752 (MIM inv. no. 2863; database code BJB5201vc), (b) coronal plane cross section of the corner blocks in a cello from 1757 (MIM inv. no. 1372; database code BJB5701vc).

The lower block found in the examined instruments by Boussu, when original, is of a moderate width and is finished to a rounded shape. Some examples, captured by endoscopy, are given in Figure 4.42. Figure 4.43 shows the coronal plane cross section of the original lower block in five Boussu instruments that were scanned during this study. From these images, the rounded shape of the blocks can clearly be seen. In Table 4.10, the dimensions of the lower blocks are given, measured from the CT reconstructions using the built-in measuring function of the DICOM viewer software. These dimensions suggest that, within the respective categories of violins and cellos, the internal lower block appears to have uniform dimensions, akin to the dimensional uniformity found in other

parts, such as scroll and plates (see Section 4.9), although the grain orientation is varying between the depicted lower blocks (see Figure 4.43).



Figure 4.42. Endoscopic captures of the lower block area of four instruments by Boussu. Left to right: (a) lower block in a cello from 1749 (database code BJB4901vc), (b) lower block in violin from June 1751 (database code BJB5103vn), (c) lower block in an undated violin (database code BJBnd01vn), (d) lower block in an undated viola (database code BJBnd16va).

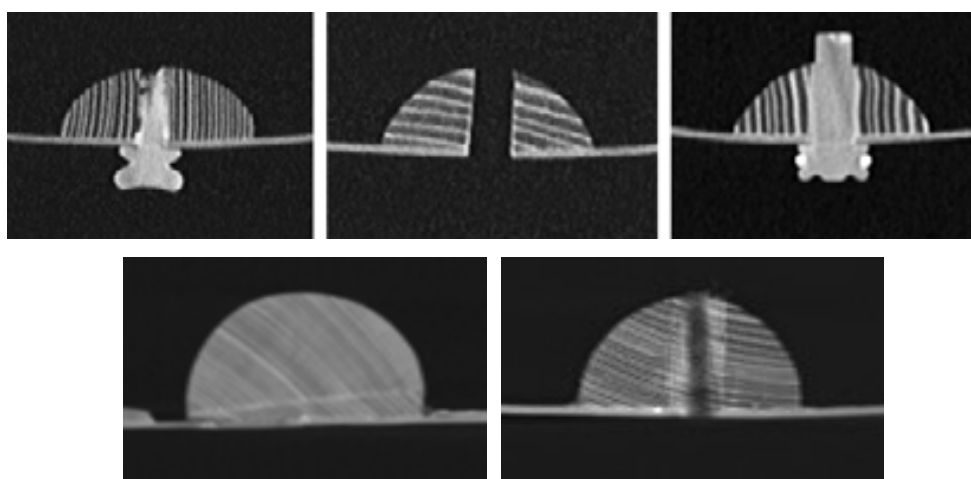


Figure 4.43. Coronal plane reconstructions of CT data for the lower block of five instruments by Boussu. Top row, left to right: (a) coronal plane cross section of the lower block in a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), (b) coronal plane cross section of the lower block in a violin from June 1753 (MIM inv. no. 2784; database code BJB5302vn), (c) coronal plane cross section of the lower block in a violin from 1759 (database code BJB5903vn). Bottom row, left to right: (d) coronal plane cross section of the lower block in a cello from January 1752 (MIM inv. no. 2863; database code BJB5201vc), (e) coronal plane cross section of the lower block in a cello from 1757 (MIM inv. no. 1372; database code BJB5701vc).

Instrument	Instrument ID	Lower block width (mm)	Lower block depth (mm)
Violin 1750	MIM inv. no. 2781; BJB5001vn	38.5	14.0
Violin 1753	MIM inv. no. 2784; BJB5302vn	38.5	14.3
Violin 1759	BJB5903vn	38.4	14.5
Cello 1752	MIM inv. no. 2863; BJB5201vc	57.3	28.9
Cello 1757	MIM inv. no. 1372; BJB5701vc	55.7	28.0

Table 4.10. Dimensions of the lower blocks of five instruments by Boussu. Measurements were performed within the DICOM viewer software RadiAnt on CT scan reconstructions.

4.14. Bass bar

To identify possible original bass bars in the instruments of Boussu, the focus was directed at the violins and cellos preserved at the MIM, since these instruments have been in that collection for at least 100 years.⁸⁶ There is a much bigger chance of finding an instrument with an original, unmodified bass bar in such a collection, than in the population of instruments that has been in use by musicians until the present day.

Four of Boussu's instruments from the MIM – two violins and two cellos – have been CT scanned as part of the current study. This allows for the exact measurement of the dimensions of their bass bars, and thus to evaluate whether these bars could be original. Figure 4.44 shows the lengthwise cross sections of the bars, while Table 4.11 gives their dimensions. All four bars are glued in, not carved from the top plate's mass.

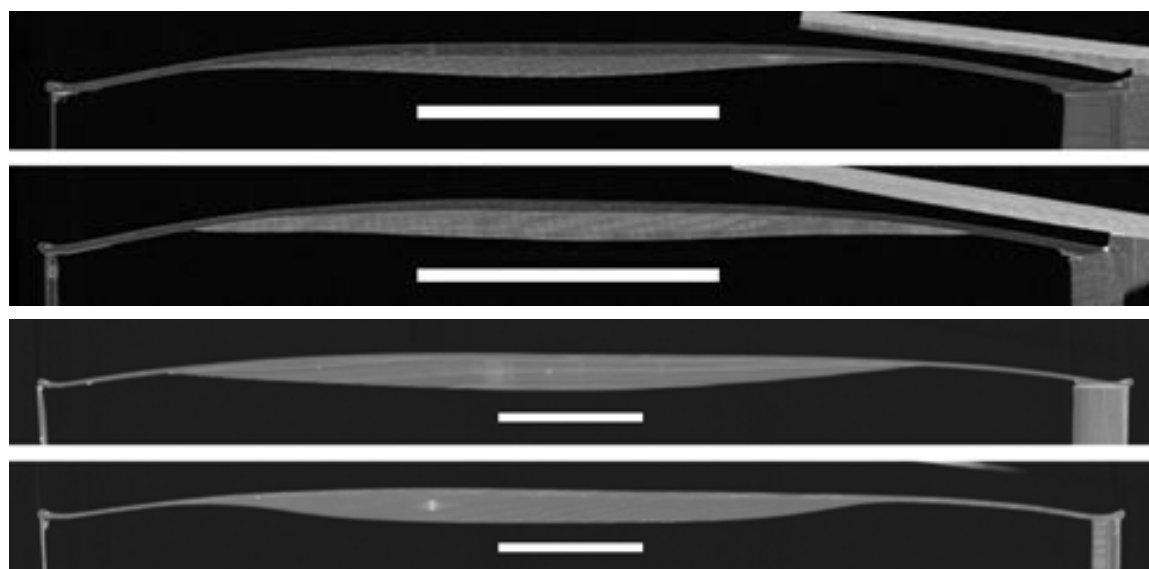


Figure 4.44. Longitudinal cross sections of the bass bar of four instruments by Boussu. Top to bottom: (a) bass bar in a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), (b) bass bar in a violin from June 1753 (MIM inv. no. 2784; database code BJB5302vn), (c) bass bar in a cello from January 1752 (MIM inv. no. 2863; database code BJB5201vc), (d) in a cello from 1757 (MIM inv. no. 1372; database code BJB5701vc). The white reference bar in each image represents a length of 100 mm.

As can be learned from both Figure 4.44 and Table 4.11, the bass bar in the violin from 1753 is significantly larger in all three dimensions compared to the bar in the violin from 1750. Also, the two end-sections of the bar in the 1753 violin are rather bulky, compared to the fine, concave ends of the bar in the 1750 instrument. Given its modest dimensions,

⁸⁶ Victor-Charles Mahillon, *Catalogue descriptif et analytique du musée instrumental du conservatoire royal de Bruxelles*, vol.3 (Ghent: Ad. Hoste, 1900), pp.18, 31; Victor-Charles Mahillon, *Catalogue descriptif et analytique du musée instrumental du conservatoire royal de Bruxelles*, vol.4 (Ghent: Ad. Hoste, 1912), pp.403-404, 416-417.

it can be assumed that the bar in the 1750 violin is original.⁸⁷ One possible explanation for the difference in bass bar size between the two violins may be provided by imagining the possibility of Boussu's 'experimentation' with, or even lack of standardisation of, bass bar sizes, resulting in increased bass bar dimensions in the 1753 instrument. Both bars have a distinct triangular shaping of their top profile (see Appendix VII), which may suggest that they were both made by the same maker. Alternatively, when we look at endoscopic captures of the bass bar in the 1753 violin, see Figure 4.45, the structure of the inner surface of the top plate surrounding the bar gives the impression that modifications have been made to this region. Scratch-like tool marks can be seen, which could imply that the bar is a replacement, likely from the late eighteenth or early nineteenth century since its height of around 10 mm corresponds to bass bar heights for preserved bars from that time span in the collection of the Germanisches Nationalmuseum (GNM) in Nuremberg.⁸⁸

Instrument	Instrument ID	Bar length (mm)	Max. bar width (mm)	Max. bar height (mm)	Remarks
Violin 1750	MIM inv. no. 2781; BJB5001vn	234	5.0	7.0	triangular finishing of bar's top
Violin 1753	MIM inv. no. 2784; BJB5302vn	255	6.0	9.5	triangular finishing of bar's top
Cello 1752	MIM inv. no. 2863; BJB5201vc	525	10.0	22.0	rounded finishing of bar's top, grain lines parallel to top plate
Cello 1757	MIM inv. no. 1372; BJB5701vc	517	10.0	20.0	rounded finishing of bar's top

Table 4.11. Dimensions of the bass bar of four instruments by Boussu.

⁸⁷ A comparison of the dimensions of this bar in the 1750 violin by Boussu with information on 39 violin bass bars presumably from the period 1700-1780 (as provided by Pollens and Lindeman) demonstrates that the height of the bass bar by Boussu corresponds to typical dimensions of contemporary bars. Lengthwise, the bar by Boussu is even somewhat shorter compared to other mid-eighteenth-century bars. See: Pollens (2010), pp.285-286; Fred Lindeman, *The rebirth of the Baroque violin* (Amsterdam: Gopher, 2011), pp.121-122.

⁸⁸ Germanisches Nationalmuseum, Nuremberg, Germany. Unpublished inventory of the bowed string instrument bass bars from the former Schreinzer collection.



Figure 4.45. Endoscopic capture of the bass bar area of a violin by Boussu from June 1753 (MIM inv. no. 2784; database code BJB5302vn).

A 3D reconstruction of CT data showing the inside of the top plate can even give us a more lucid and spatial view on the bass bar and its placement inside the top plate. In Figure 4.46, such an image is displayed for the violin from 1750 with MIM inv. no. 2781.



Figure 4.46. Inside view of the top plate of a violin by Boussu from 1750 (MIM inv. no. 2781; database code BJB5001vn). Image obtained by 3D volume rendering of CT scan data, with greyscale values inverted.

The other four violins from the MIM collection (MIM inv. nos. 2782, 2783, 2785 and 1338) have not been CT scanned, therefore it was not possible to accurately determine the dimensions of their bass bars. Possibly, however, in one or more of these four violins an

original bass bar is still present. From information obtained by observation through the f-hole and by endoscopic examination (for examples, see Figure 4.47), it appears as if the bass bar in the violin with MIM inv. no. 2783 (database code BJB5301vn) is still original, given its apparent small dimensions comparable to those of the bass bar of the violin with MIM inv. no. 2781, while the bass bars in the other three violins are more likely replacements of larger dimensions. Future CT research on these four instruments could provide supportive information to be able to better judge the dating of the bars.



Figure 4.47. Endoscopic captures of the upper bass bar areas of four violins by Boussu. Left to right: (a) upper part of the bass bar of a violin from 1751 (MIM inv. no. 2785; database code BJB5101vn), (b) upper part of the bass bar of a violin from October 1752 (MIM inv. no. 2782; database code BJB5204vn), (c) upper part of the bass bar of a violin from February 1753 (MIM inv. no. 2783; database code BJB5301vn), (d) upper part of the bass bar of a violin from 1760 (MIM inv. no. 1338; database code BJB6001vn).

When looking at the size and shape of the bars in the two cellos from the MIM collection, it can be seen that their dimensions show a greater mutual degree of similarity compared to those for the bars of the two violins, see Table 4.11 and Figures 4.44 and 4.48. The ends of the bar in the 1757 cello are concave, just as the ends of the bar in the 1750 violin. Also, endoscopy shows that the bar and its surrounding area on the top plate look undisturbed, see Figure 4.49. Furthermore, when the dimensions of this bar are compared to those of six cello bass bars presumably from between c1665 and c1776 (as provided by Pollens and Lindeman),⁸⁹ it can be noticed that the bass bar by Boussu is the shortest of all seven bars (517 mm; the other six bars vary in length between 520 and 563 mm). On the other hand, it has the greatest height of the seven bars. Possibly, Boussu decided for this ample height as a compensation for the instrument's thin plates. We assume that the bass bar in the 1757 cello is highly likely original.

The extremes of the bar in the 1752 cello are finished to a more convex profile (see Figures 4.44(c) and 4.48(a)). In addition, this bar is made from wood with the growth lines parallel to the top surface (instead of having the growth lines perpendicular to the top), see Appendix VII. An overview by Pollens shows that for 32 violin, viola and cello bass bars, presumably from the eighteenth century, 28 % had been glued in with the bar's growth

⁸⁹ Pollens (2010), p.286; Lindeman (2011), p.122.

lines parallel to the top plate ('slab cut' direction), while 72 % had been installed in 'vertical' ('quarter sawn') orientation. Even more, for three listed makers, bars of both growth line orientations are included.⁹⁰ This suggests that in the eighteenth century, growth line orientation was not yet standardised (compared to today's norm for the bar's growth lines perpendicular to the top plate), although also back then, there seems to have been a preference for the 'vertical' orientation. Considering this, and given the dimensional similarities and the similar rounded finishing of the top profile of both examined cello bass bars, it is plausible that both cello bars were installed in the Boussu workshop.



Figure 4.48. Inside views of the top plate of two cellos by Boussu. Top to bottom: (a) inside of top plate of a cello from January 1752 (MIM inv. no. 2863; database code BJB5201vc), (b) inside of top plate of a cello from 1757 (MIM inv. no. 1372; database code BJB5701vc). Images obtained by 3D volume rendering of CT scan data, with greyscale values inverted.

⁹⁰ Pollens (2010), pp.285-286.



Figure 4.49. Endoscopic capture of the bass bar area of a cello by Boussu from 1757 (MIM inv. no. 1372; database code BJB5701vc).

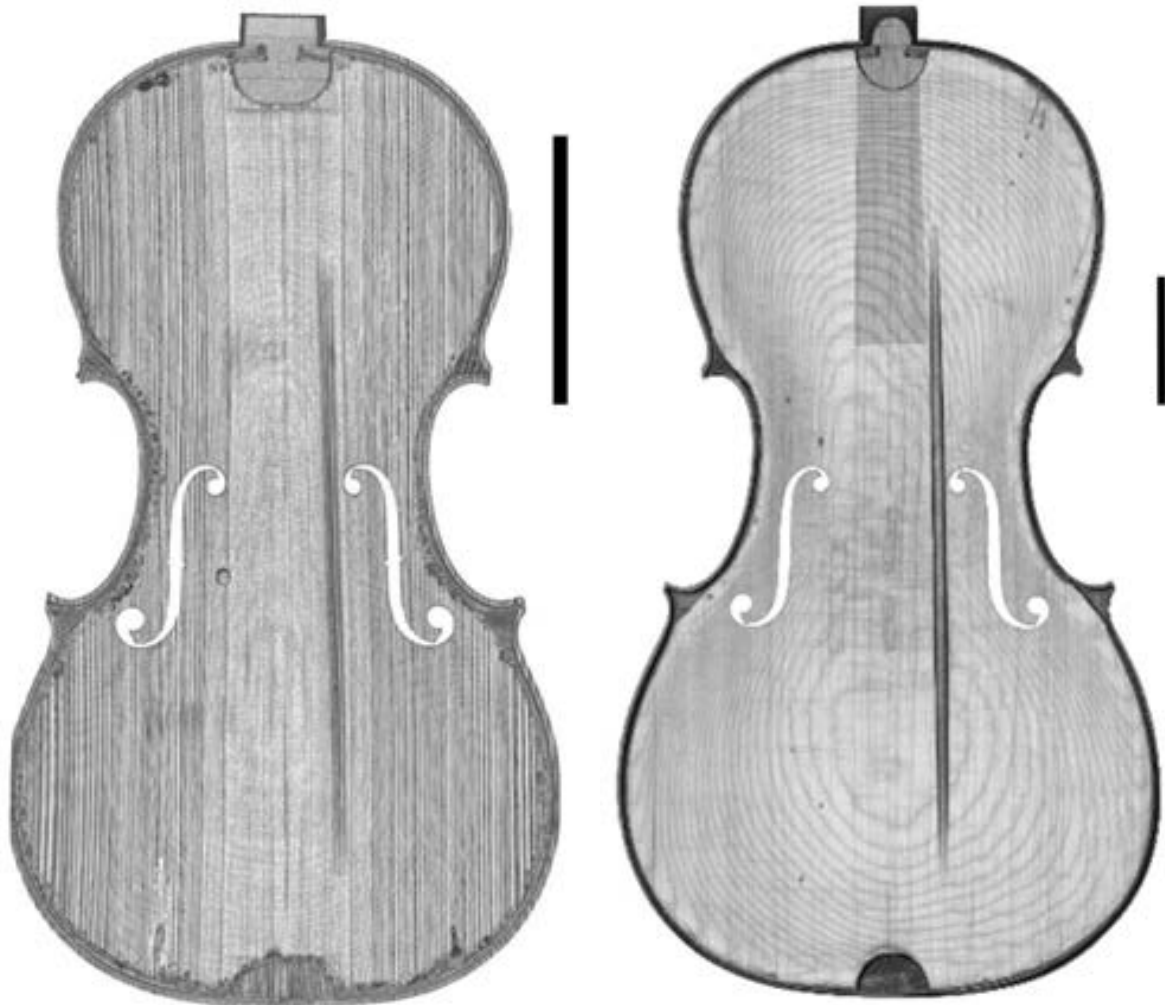


Figure 4.50. Inside views of the top plate of two instruments by Boussu: (a) inside of top plate of a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), (b) inside of top plate of a cello from 1757 (MIM inv. no. 1372; database code BJB5701vc). Images obtained by 3D volume rendering of CT scan data. The black reference bar in each image represents a length of 100 mm.

For two scanned instruments that presumably have retained their original bass bar (the violin from 1750 and the cello from 1757, both from the MIM collection), the position of the bar inside the top plate was further investigated. In Figure 4.50, 3D volume renders of CT data for the inside of the top plate for both the violin and the cello are shown. It appears that the bass bar in both instruments is positioned in the top plate somewhat slanted in relation to the plate's centre joint. An even more remarkable characteristic of both bars is their position in relation to the bridge position: the bass-side bridge foot position (as indicated by the inner f-hole notch) coincides exactly with the longitudinal midpoint of both bars. As a result, the distance between the upper tip of the bar and the top plate's edge near the neck is relatively large. This peculiar feature may be a criterion for the judgement of the authenticity of a bass bar in other instruments by Boussu, whenever CT scans of these latter instruments would become available.

4.15. Neck

From the absence of signs of constructional alterations and the continuation of the original varnish coat on the entire neck, it can be concluded with certainty that four of the identified instruments by Boussu still have their completely original, unaltered neck. These instruments are: a violin dated 1750 from the MIM collection (MIM inv. no. 2781; database code BJB5001vn), a cello dated 1757 from the MIM collection (MIM inv. no. 1372; database code BJB5701vc), a kit violin dated 1755 preserved at the Musée de la musique in Paris (inv. no. D.E.Cl.2045; database code BJB5501kv) and a cittern dated 1771 in private ownership (database code BJB7101ci). Furthermore, a kit violin from 1759, only known from an auction catalogue (database code BJB5902kv), is assumed to also have retained its unmodified neck, although this could not be confirmed by direct observation.

In a few other instruments, the original neck is still present, but this part has been altered. In those cases, the underside of the neck has been thinned to create a slimmer profile, while the neck has been raised and put under a shaper angle at its heel. Raising and re-angling of the neck may have been done (1) by inserting a wedge under the original (integrated) upper block, thereby retaining the integrity between neck and block, or (2) by separating (sawing off) the neck from its upper block extension, and attaching the neck onto a newly made (spruce) upper block, or (3) by re-attaching the sawn-off neck onto the original, but separated, upper block. A modified, but original neck – adapted according to either one of these three methods – is still present in three violins from the MIM collection (inv. nos. 2783, 2784 and 2785). Of these three instruments, only in the violin with inv. no. 2785, the neck and its original integrated upper block have remained united.

Regarding the category of instruments currently in the ownership of musicians or dealers, in almost all instruments, the original neck has been replaced. This group consists of instruments that have for a long time been in use in the circuit of musicians and dealers, presumably for most of the years since their creation. As a result, there is – in comparison to instruments that have since long been conserved in a (museum) collection – a higher chance that their neck, and other parts that are vital to their sound and playability, such as the bass bar and fingerboard, have been replaced. In nearly all of the instruments that have been played until the present day, the original scroll was preserved and grafted onto the new neck. Only for one violin in this latter group, an instrument from 1758 (database code BJB5801vn), the original neck may possibly still be present, as far as could be judged from a few available photographs. This instrument could not be examined personally by the author. Nevertheless, these photographs depict a neck that could very well be in a state of little modification: no graft joint between neck and pegbox is visible and the neck root does not appear to be raised. No endoscopic images are available for this instrument's upper block, leaving us guessing about the integrity between neck and upper block. The neck itself looks slightly thinned.

For one instrument, a cello dated 1749 (database code BJB4901vc), its original neck was removed during a late modernisation at the end of the twentieth century (as was already discussed in Section 4.7), but the original (detached) neck has been preserved, see Figure 4.17. It appears as if this neck had already been thinned earlier at the underside, possibly at the same time when a wedge was installed between the neck and fingerboard, in order to raise the fingerboard projection.

Since violins and cellos are the most common instrument types within Boussu's output, and since replicas of these two types were made during the concluding stage of the presented PhD study, a more detailed description of the original, unaltered neck of the 1750 violin and 1757 cello from the MIM collection will be given here. The longitudinal cross section of the neck of the violin dated 1750 has already been given in Section 4.13, Figure 4.35(a). This profile shows that although the neck is somewhat thicker than a modern-style neck, the hollowing at the heel of the neck already appears to be deeper than what is typically expected for a 'Baroque' violin.⁹¹ The underside of the neck, lengthwise, is finished slightly concave, instead of the flat profile found on modern violins. This neck thus represents a transition from the thick 'Baroque'-style neck towards the more 'open' neck profile of the Classical period. Figure 4.51 shows two cross sections of the neck, respectively at 30 and 90 mm from the nut. These cross sections show

⁹¹ W. Henry Hill, Arthur F. Hill, Alfred E. Hill, Antonio Stradivari - His life and work (1644-1737) (New York: Dover Publications Inc., 1963), p.203; David D. Boyden, The history of violin playing from its origins to 1761 - and its relationship to the violin and violin music (Oxford: Clarendon Press/Oxford University Press, 1990), p.320; Dilworth (1992), pp.21-22.

a rather circular profile, with the curve extending onto the fingerboard edges, so that the width of the fingerboard at its top surface is somewhat narrower than at its gluing surface with the neck. The fingerboard construction, from dark hardwood (likely ebony) veneer over a spruce core, will be discussed in more detail in Section 4.16.

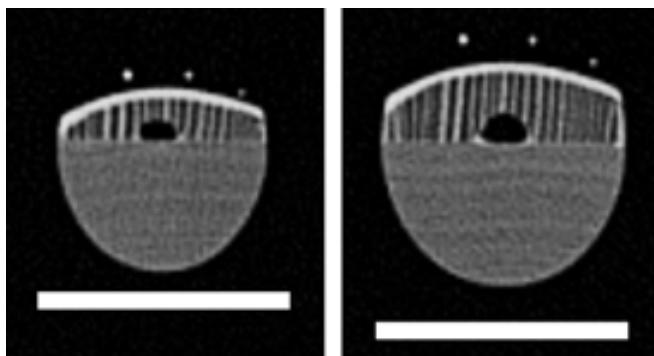


Figure 4.51. Axial plane reconstructions of CT data for the neck of a violin by Boussu dated 1750 (MIM inv. no. 2781; database code BJB5001vn). Left to right: (a) cross section of the neck at 30 mm from the nut, (b) cross section of the neck at 90 mm from the nut. The white reference bar in each image represents a length of 30 mm.

Table 4.12 gives the dimensions of the neck of the 1750 violin, as well as for the original (but modified) neck of the violin dated 1751 from the MIM collection (MIM inv. no. 2785; database code BJB5101vn). The length of the neck of the 1750 violin (130 mm, measured from the fingerboard-side of the nut to the edge of the top plate) is exactly equal to the default length of the modern violin neck.⁹² Pollens argues that the original necks on Stradivari's violins would appear to have had “virtually the same effective length as modern necks”,⁹³ thereby rejecting the generalisation that ‘Baroque’ violins had shorter necks. Likely, by the middle of the eighteenth century, a neck length of around 130 mm had been commonly accepted. The violin from 1751 has a neck length of just 2 mm less, which shows that Boussu allowed some variation regarding this dimension. When comparing the neck widths of both instruments (measured at the nut and at the sound box edge), it can be seen that these dimensions strongly coincide for the two violins. The thicknesses of the neck, without the fingerboard, demonstrate that the neck of the violin dated 1750 has not been reshaped, while the neck of the violin from 1751 has been thinned by c3 mm. Furthermore, in the instrument from 1750, the non-modified ‘overstand’ of the neck above the top plate edge is only 1 mm, as can also be seen in Figure 4.52(a). The neck ‘overstand’ of the instrument from 1751 has been adapted by placing a wedge of c3 mm thickness between the back plate’s neck platform and the neck heel/upper block, thereby raising the ‘overstand’ from 1 to 4 mm (see Figure 4.52(b)). This wedge extends into the

⁹² Johnson, Courtnall (2003), p.203.

⁹³ Stewart Pollens, ‘Some misconceptions about the Baroque violin’, *Performance Practice Review*, vol. 14, no. 1 (2009), pp.1-13, at p.2.

inside of the sound box, as can be seen in the endoscopic image in Figure 4.36(c). Besides increasing the neck ‘overstand’, this wedge has also increased the backward tilt of the neck by several degrees (i.e. resulting in a sharper angle between the fingerboard gluing surface at the neck and the upper-rib-part insertion at the neck root), thereby increasing the neck’s projection and allowing for a modern-style thin fingerboard.

	Violin 1750 (MIM inv. no. 2781; database code BJB5001vn)	Violin 1751 (MIM inv. no. 2785; database code BJB5101vn)
Neck length (edge nut - edge top plate) (mm)	130	128
Neck width at nut (mm)	23.5	23.3
Neck width at sound box (mm)	31.5	31.0
Neck thickness excluding fingerboard, 30 mm from nut (mm)	14.6	c12
Neck thickness including fingerboard, 30 mm from nut (mm)	20.7	17.7 (modern-style fingerboard)
Neck thickness excluding fingerboard, 90 mm from nut (mm)	16.0	c13
Neck thickness including fingerboard, 90 mm from nut (mm)	25.2	20.3 (modern-style fingerboard)
Neck angle (degrees)	86	83
Neck ‘overstand’ above top plate (mm)	1.0	4.0 (bass side), 4.5 (treble side)

Table 4.12. Dimensions of the original neck of two violins by Boussu. The neck of the violin dated 1751 is original, but has been modified, see text.



Figure 4.52. Detail of neck heel of two violins by Boussu. Left to right: (a) neck heel of a violin dated 1750 (MIM inv. no. 2781; database code BJB5001vn), (b) modified neck heel of a violin dated 1751 (MIM inv. no. 2785; database code BJB5101vn).

The longitudinal cross section of the neck of the cello dated 1757 was presented in Section 4.13, Figure 4.35(b). As is the case for the original neck of the violin dated 1750 discussed above, the shape of the neck of the cello also displays a more slender profile and a more

deepened curve at the neck heel compared to the bolder neck shape normally associated with the ‘Baroque’ cello. However, several examples of mid- to late-eighteenth-century cellos with original necks are known, which also have necks with a similar, more slender shape. Laird mentions and depicts a “revealing cello that survives with its original neck” described as “from the Mantuan school [...] made about 1740”, preserved under inv. no. 3373 at the National Music Museum, Vermillion, United States of America.⁹⁴ Regarding this instrument, he points out that “from the rear, the neck looks little different than what we use on cellos today”. Regarding the neck heel, he continues that “the neck certainly does not have the thick heel found on the famous Stradivari templates, but that plan dates from decades earlier and by 1740 many cellists performed music that such a thick heel would have made difficult to play”.⁹⁵ In the introduction of his book, Laird had already mentioned that during the Baroque era, “the neck became longer and thinner and by the end of the period basically resembled the modern neck”.⁹⁶ Two other examples of eighteenth-century cellos with an original slender neck are depicted and discussed by Monical: one by Joannes Baptista Tononi (Bologna, 1740, collection Smithsonian Institution, inv. no. 1979.0172.03) and one by John Preston (London, 1785, collection State University of New York).⁹⁷ As part of an interview for Laird’s book ‘The Baroque cello revival’, Monical is quoted saying that “he has never seen a cello from the period with a fat heel on the neck like that [pattern for the shape of a cello neck] drawn by Stradivari” and that “he believes that this drawing did not describe finished proportions, [but instead] showing the dimensions with which Stradivari started; the neck would have become smaller during carving”.⁹⁸ The above examples and opinions support the idea that by the mid-eighteenth century, the cello neck had evolved towards a slimmer shape. Boussu apparently applied these new ideas to his instruments.

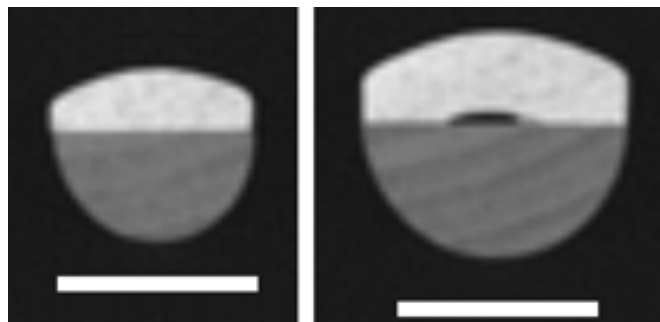


Figure 4.53. Axial plane reconstructions of CT data for the neck of a cello by Boussu dated 1757 (MIM inv. no. 1372; database code BJB5701vc). Left to right: (a) cross section of the neck at 50 mm from the nut, (b) cross section of the neck at 190 mm from the nut. The white reference bar in each image represents a length of 30 mm.

⁹⁴ Laird (2004), p.9.

⁹⁵ Laird (2004), pp.9-10.

⁹⁶ Laird (2004), p.xiv.

⁹⁷ Monical (1989), pp.84-87.

⁹⁸ Laird (2004), p.23.

Figure 4.53 shows two cross sections of the neck of the cello from 1757. The cello neck has been shaped to a similar circular shape as observed on the neck of the violin dated 1750 (see Figure 4.51). As can be seen, the cello's fingerboard is made of solid ebony instead of the composite-style fingerboard on the violin, while, contrary to what was seen for the violin, the circular shaping of the neck cross-profile is not continuing onto the fingerboard sides. These observations are indicative for a non-original fingerboard, as will be argued further in the next section.

Table 4.13 gives the dimensions of the neck of the 1757 cello. The neck length of the instrument is only 4 mm less than the modern value of 280 mm.⁹⁹ Moreover, according to Monical, as quoted by Laird, "a neck length of about 28 cm was also fairly well established by mid[-eighteenth-]century".¹⁰⁰ Interestingly, at 28.0 mm, the width of the neck at the nut is somewhat less than the modern width of 31 mm, although the width of the neck at the neck heel is similar to the modern value of 45 mm.¹⁰¹ The thicknesses of the neck without fingerboard, at the beginning and end of the neck (16.3 and 19.5 mm respectively) are also corresponding closely to the currently accepted values of 17 and 19 mm respectively.¹⁰² In comparison to the present-day neck thicknesses including a modern-style fingerboard (29 mm at the beginning and 33 mm at the end of the neck),¹⁰³ it can be seen in Table 4.13 that the neck of the cello by Boussu (including its fingerboard) is thinner towards the nut. It must be remembered, however, that the solid ebony fingerboard on this latter cello is probably not original. The amount of neck 'overstand' for the cello by Boussu of 12 to 13 mm is assumed to be original, and significantly less than the modern value of 20 mm.¹⁰⁴

Moreover, the dimensions of the neck of this cello by Boussu dated 1757 (with a back plate length of 753 mm) are also corresponding fairly closely to the dimensions given by Monical for the original neck of a cello by John Preston (London, 1785, collection State University of New York) with a comparable back plate length of 756 mm.¹⁰⁵ This further reinforces the assumption that by the second half of the eighteenth century, the dimensions of the cello neck had already been more or less standardised and arrived at values pretty close to the presently accepted conventions.

⁹⁹ Strobel (1995), p.24.

¹⁰⁰ Laird (2004), p.23.

¹⁰¹ Strobel (1995), p.24.

¹⁰² Strobel (1995), p.24.

¹⁰³ Strobel (1995), p.24.

¹⁰⁴ Strobel (1995), p.24.

¹⁰⁵ Monical (1989), pp.86-87. Monical provides the following measurement values for the neck of the 1785 Preston cello: length: 26.6 cm; width, nut: 2.83 cm; width, neck foot: 4.12 cm; thickness with reproduction fingerboard, nut end: 2.6 cm; thickness with reproduction fingerboard, neck foot end: 3.25 cm, neck 'overstand' over top ("appui"): 1.2 cm (treble side), 1.4 cm (bass side).

	Cello 1757 (MIM inv. no. 1372; database code BJB5701vc)
Neck length (edge nut - edge top plate) (mm)	276
Neck width at nut (mm)	28.0
Neck width at sound box (mm)	45.0
Neck thickness excluding fingerboard, 50 mm from nut (mm)	16.3
Neck thickness including fingerboard, 50 mm from nut (mm)	26.0
Neck thickness excluding fingerboard, 190 mm from nut (mm)	19.5
Neck thickness including fingerboard, 190 mm from nut (mm)	33.5
Neck angle (degrees)	83.5
Neck 'overstand' above top plate (mm)	12 (treble side) 13 (bass side)

Table 4.13. Dimensions of the original neck of a cello by Boussu from 1757 (MIM inv. no. 1372; database code BJB5701vc).

4.16. Fingerboard

As for the bowed string instruments by Boussu found in the hands of musicians and dealers, none of these has retained its original fingerboard. Three instruments within this category (database codes BJB 5903vn, BJB5801vn and BJBnd09vn) have 'Baroque' style fingerboards, but these parts are thought to be modern-day reconstructions.

When we turn our focus to the nine instruments within the collection of the MIM, the majority of these has a fingerboard that can – to a certain degree – be considered 'historical' (i.e. pre-twentieth-century), since most of these instruments were collection objects (as opposed to musically functioning objects) for at least the last century. Nevertheless, only one instrument, a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), is believed to have retained its original fingerboard. This fingerboard is the only surviving example on any identified instrument by Boussu having the original composite construction, i.e. a softwood core covered with an ebony top veneer. Because this particular veneered fingerboard represents the single remnant of Boussu's practices and choices regarding this part of the instrument, it will now be described in more detail.

As can be seen in Figure 4.51 (see above), the core of the fingerboard of the violin dated 1750 consists of a softwood, probably spruce, which is covered on the top and sides by veneers of denser hardwood species. The spruce has been quarter sawn to ensure optimum stability of the construction, and a longitudinal groove is cut out at the centre of the lower gluing surface, to reduce weight and to facilitate future removal. Upon visual examination, the wood used for the top veneer is ebony, while the wood on the sides could well be a non-tropical hardwood that is darkened by a dye or stain. Figure 4.54 shows a close-up photograph of the middle section of the neck, where the fingerboard's side can

be seen. The difference in colour between the top veneer and side veneer can easily be discerned. At the underside of the fingerboard, at the transition between neck and sound box, a notch typical for 'Baroque' fingerboards is present, see Figure 4.52(a) above. The 3D reconstruction from CT scan data shown in Figure 4.55 affirms that the core of the fingerboard has been made of a coniferous wood species, and that the underside of the segment protruding over the top plate has been hollowed out.



Figure 4.54. A violin by Boussu from 1750 (MIM inv. no. 2781; database code BJB5001vn), detail of the neck and fingerboard.



Figure 4.55. 3D volume render of CT scan data for a violin by Boussu dated 1750 (MIM inv. no. 2781; database code BJB5001vn), detail of the neck and fingerboard. Note: part of the sound box has been erased from the reconstruction.

Around 25 detached historical violin, viola and cello fingerboards from the former Schreinzer collection (supposedly from the late eighteenth century and nineteenth century),¹⁰⁶ now preserved at the Germanisches Nationalmuseum (GNM) in Nuremberg,¹⁰⁷

¹⁰⁶ Klaus Martius, 'Die Sammlung von Geigenbestandteilen des Wiener Musikers Karl Schreinzer - und die Umstände, warum diese heute nicht mehr geschlossen in Wien aufbewahrt wird', in Beatrix Darmstädter, Rudolf Hopfner, Alfons Huber, ed., *Die Sammlung alter Musikinstrumente - Die ersten 100 Jahre* (Vienna: Praesens Verlag, 2018), pp.145-160.

¹⁰⁷ Germanisches Nationalmuseum, Nuremberg, Germany. Unpublished inventory of the violin, viola and cello fingerboards from the former Schreinzer collection.

show a composite structure similar to the fingerboard installed on the 1750 violin by Boussu. Many of the fingerboards in the GNM collection are described as having a core of “*Nadelholz*”, and top and side veneers of “*Ebenholz*”. Several examples have a top veneer of “*Ebenholz*” and side veneers of a different hardwood (a wood described as “*Birnbaum (?)*”), thus similar to the fingerboard on the Boussu instrument. Sometimes, the core wood is a local hardwood, such as beech or willow. The presence of the many veneered fingerboards in the former Schreinzer collection indicates that such composite fingerboards were common throughout at least the late eighteenth and entire nineteenth century.

The fingerboard on the violin by Boussu dated 1750 from the MIM collection has a length of 240 mm. A kit violin by Boussu, preserved at the Musée de la musique in Paris (Mdlm inv. no. D.E.Cl.2045; database code BJB5501kv) has a fingerboard with a length of 241 mm,¹⁰⁸ which is just 1 mm longer than the fingerboard of the 1750 violin. Possibly, for violin-size instruments (including kit violins), Boussu held on to a standard fingerboard length. It must be noted that most of the violin fingerboards from the former Schreinzer collection, preserved at the GNM, are between 10 to 20 mm longer, which suggests that they can be dated in the decades after 1750.

On the 1750 Boussu violin, the fingerboard is wedge-shaped, with a maximum (central) thickness at the nut end of 5.0 mm and a thickness at the transition between neck and sound box of 11.0 mm. The radius of the playing surface is c40 mm at the floating end side, and even less close to the nut, hence a tighter curve than the radius of 42 mm typically found on today’s instruments.¹⁰⁹ The fingerboard’s projection, as measured at the bridge position, is 22.0 mm, certainly less than today’s standardised projection of 26.5 to 27.0 mm.¹¹⁰

It is important to note that in the only other Boussu instrument in presumed largely undisturbed constructional state – the cello from 1757 (MIM inv. no. 1372; database code BJB5701vc) – the fingerboard is most likely the only substantial part that has been replaced. This ‘new’ cello fingerboard is made of solid ebony, whereas the original, removed part would most likely have been made in a composite construction as described above for the violin fingerboard on the instrument from 1750. Upon close inspection of the 1757 cello, at the transition between the solid ebony fingerboard and the neck on which it is glued, a small degree of misalignment can be observed. This further indicates that the fingerboard is indeed a later replacement, attached to the neck without the

¹⁰⁸ From looking at the outside, this fingerboard appears to be made out of two layers of ebony wood. It is not clear whether a core of a less dense wood is present.

¹⁰⁹ Johnson, Courtnall (2003), p.179.

¹¹⁰ Johnson, Courtnall (2003), p.203.

refinement and attention expected from Boussu (in contrast, the fingerboard and neck on the violin from 1750 are joined in such way that a perfectly smooth and tight connection is achieved). Moreover, under UV light, a narrow band of retouch varnish with a different fluorescence can be observed along the joint between neck and fingerboard, showing that modification work has been performed in this area, very likely during the installation of a new fingerboard. Nevertheless, it is plausible that the dimensions of the current solid fingerboard have been copied directly from the original veneered fingerboard, since it is wedge-shaped, short in length (520 mm) and has a low projection at the bridge location (70 mm). Likely, an early replacement took place when the veneer surface of the original fingerboard had become useless due to string wear.

The group of fingerboards from the former Schreinzer collection also contains two composite cello fingerboards, one of beech wood veneered with ebony, and one with a softwood core, possibly pear wood sides and an ebony top layer. The former is undated and has a length of 539 mm, the latter is marked “Joh. Stohr [?] 1844” and has a length of 571 mm. Laird states that extant cello fingerboards from the eighteenth century are very rare,¹¹¹ but mentions “two old [cello] fingerboards at the National Music Museum, probably from the eighteenth century, but [their] exact dating is difficult”.¹¹² One is said to be made of pear wood with a rosewood veneer and 532 mm long, the other is made of spruce with an ebony veneer, and is 552 mm long. Laird further claims that solid ebony cello fingerboards only came in use in about 1760 or 1770.¹¹³ A composite cello fingerboard, dark-coloured veneer over a lighter-coloured wood without side veneers, can be seen in French paintings from the mid- to late-eighteenth century, shown later in this chapter in Figures 4.69 and 4.70. These congruent sources confirm the use of composite cello fingerboards in the mid-eighteenth century. Since no information was found on original cello fingerboards still attached to an instrument, no supporting data is available regarding the amount of fingerboard projection in cellos from the mid- to late-eighteenth century.

4.17. Scroll, f-holes, purfling and edgework: stylistic development

The single most recognisable feature on a bowed string instrument by Boussu is the scroll. This maker used a personal and unique design which has turns of regular width, half a turn extra compared to the more common design, a large flat ‘eye’ on either side and a deep undercutting of the volute that already starts just above the upper peg hole, see Figure 4.56. A chamfer is cut on the volute’s turns, but not so much on the central eyes.

¹¹¹ Laird (2004), p.20.

¹¹² Laird (2004), p.56, note 72.

¹¹³ Laird (2004), p.20.

These properties give the scrolls their particular character, which some have even called “archaic”.¹¹⁴



Figure 4.56. Three-quarter view of the scroll of a violin by Boussu dated 1750 (MIM inv. no. 2781; database code BJB5001vn). Photo: Musical Instruments Museum, Brussels, © MIM, Brussels.

Many examples of original scrolls can be found in the instrument database in Appendix V. Of the 51 bowed string instruments included in the database, at least 43 instruments still have their original scroll, as far as could be determined during the current study. On the other instruments, a non-original replacement scroll is currently present. Replacement of this part took place, either as a repair operation in case of a broken scroll or pegbox, or perhaps to give the instrument a less ‘outlandish’ appearance.

On the first known instrument, a cello from 1749 (database code BJB4901vc), a scroll is present that already shows all above-mentioned qualities. The carving is done with great precision. The same can be said for other early instruments, such as the violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), see Figure 4.57(a). It seems as if Boussu tried to prove that he was capable of producing crisp woodwork that showcased his technique and finesse. It may even be possible that these first two instruments were made as demonstration pieces to prove his capabilities in front of the woodworking guild of Liège, although no archival prove has been found yet to support this assumption. Somewhat later in the 1750s, the design of the scroll stays unchanged, but the carving work becomes a little freer, with minor tool marks remaining in the scooped out areas of the volute. This change in finishing does not diminish the appeal of the work, in contrast,

¹¹⁴ Moens (1983), p.149.

the scrolls gain a bit in expressivity. Possibly, an increase in demand for his instruments made it necessary for Boussu to work faster and thus freer, with less urge for a very smooth finish. Figure 4.57 displays two scrolls in close-up: one with a smoothly finished volute and another which shows some tool marks in the scooped out areas.

For the design of his scrolls, Boussu may have taken inspiration from the Ionic volute, of which depictions were available in France in the middle of the eighteenth century due to a raised interest in Classical antiquity. When comparing the violin scrolls in Figure 4.57 to an eighteenth-century depiction of an Ionic volute in Figure 4.58, the similarity is remarkable, especially regarding the evenness of the width of the volute's turns, and the way and position where the volute ends into the central eye. Presumably, Boussu must have been familiar with publications such as Julien David Le Roy's 'Les Ruines des plus beaux monuments de la Grèce' from 1758,¹¹⁵ or Giacomo Barozzi da Vignola's book 'Regola delli cinque ordini d'architettura' from 1562, of which five French editions had been published by 1700.¹¹⁶ Both books depict Ionic volutes in detail.



Figure 4.57. Photographs of the scroll on two violins by Boussu. Left to right: (a) scroll on a violin dated 1750 (MIM inv. no. 2781; database code BJB5001vn), (b) scroll on a violin dated 1759 (database code BJB5903vn).

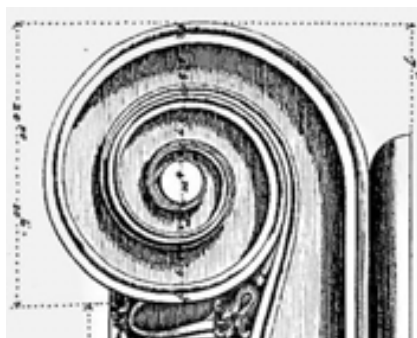


Figure 4.58. Depiction of an Ionic volute in Julien David Le Roy's 'Les ruines des plus beaux monuments de la Grèce' from 1758, detail of plate 20. The image is rotated 90 degrees to facilitate comparison with the photograph of the violin scroll in Figure 4.57(a).

¹¹⁵ Julien David Le Roy, *Les ruines des plus beaux monuments de la Grèce* (Paris: Guerin & Delatour, 1758). Available from: <https://digi.ub.uni-heidelberg.de/diglit/leroy1758> (accessed January 2020).

¹¹⁶ William R. Ware, *The American Vignola - A guide to the making of Classical architecture* (New York: Dover Publications Inc., 1994), p.xii.

Regarding the f-holes on Boussu's instruments, a similar consistent and uniform design can be observed, at least for the instruments made in Liège, Etterbeek and Brussels. The database in Appendix V gives many examples. These f-holes are positioned almost completely upright in the belly, have central slits with parallel edges and small, pointy notches. The upper and lower wings are narrow and prolonged, without any 'fluting' on the lower wings, and the upper and lower outward curves are rounded and fluent. The lower circular hole is significantly larger than the upper one. The influence of Stainer on the f-hole design is notable.¹¹⁷

The inlaid purfling on Boussu's violins has three strips of slightly irregular but approximately the same width, as can be seen in an example in Figure 4.59. The total width of the three strips together is c1.5 mm. The darker wood has a brown colour, possibly walnut wood that has been darkened by an iron salt. The staining has not penetrated throughout the entire thickness of the strips: the core of the strips appears to be lighter in colour than the outsides. The centre strip could well be made of maple, but no wood analysis has been performed to confirm this. At the plate corners, the purfling is joined in a mitre. Especially for the earlier instruments, the mitre joint and the cutting and finishing of the purfling channel are executed very precisely (see Figure 4.60), with the sting of the mitre pointing towards the centre of the plate corner. In later violins, especially those from the mid-1750s, the purfling is inlaid more hastily, with the plate's re-curve channel finished in a similar hurried manner, as can be seen for example on a violin dated February 1753 (see Figure 4.61). On two violins from the end of the Brussels period, dated 1760 and 1761 (database codes BJB6001vn and BJB6101vn), the plate corners are finished to a somewhat finer and pointier shape, in comparison to the earlier instruments. This change in corner shape coincides with a return to a smoother finishing and a choice of less figured maple wood. For illustration, Figure 4.62 shows the two upper corners of the back plate of a violin dated 1761.

At places of little wear to the edges, mostly on the back plate of examined instruments, the nature of Boussu's edgework can be observed, see for example Figures 4.15, 4.60 and 4.61. In early instruments, the edgework is regularly executed, as can be seen in Figures 4.15 and 4.60. At the highest point of the edge, a sharp top ridge can be observed, and from there towards the inside of the plate, the re-curve quickly falls down into a narrow but deep channel. The outer edges of the plate are well-rounded at the upper side of the plate, but at the lower side of the plate, the rounding is sometimes a little less pronounced. Where the highest point of the edge is located right between the plate edge and the purfling, a scratch line can sometimes still be seen (see Figure 4.15), a guide applied during the process of shaping the plate's edgework, as was already discussed in

¹¹⁷ The author has made violin copies based on both Boussu's model and Stainer's model. When, by coincidence, the f-hole templates for both models were laid upon each other, a similarity in design and size was noticed.

Instruments

Section 4.7. In cases where the highest point lies a bit more towards the plate's edge (see Figure 4.60, for example), a scratch line is not visible. Possibly, the guide line was scraped away during the making process. At the plate corners, a pronounced and well-defined fluting is applied, see Figure 4.60. The finishing of both the re-curve fluting channel as well as the outer edges is done very smoothly and fluently in earlier instruments. In instruments from the mid-1750s, the edge and fluting work is done more roughly, see Figure 4.61, as was already discussed before.



Figure 4.59. Photograph of the inlaid purfling on the top plate of a violin by Boussu dated 1750 (MIM inv. no. 2781; database code BJB5001vn).



Figure 4.60. Photograph of the purfling mitre joint at a back plate corner on a violin by Boussu dated 1750 (MIM inv. no. 2781; database code BJB5001vn).



Figure 4.61. Photograph of the inlaid purfling on the back plate of a violin by Boussu dated February 1753 (MIM inv. no. 2783; database code BJB5301vn).



Figure 4.62. The two upper back plate corners on a violin by Boussu dated 1761 (database code BJB6101vn). Photo: Chimei Museum.

For the purfling on the violas and cellos, the central light-coloured strip is significantly wider than the two darker outer strips,¹¹⁸ although the wood choice for the purfling material on these larger instruments appears to be the same as for the violins. In contrast to the violins and violas, the quality of finishing of the cellos remains very high throughout the entire Brussels period. Stylistically, the scrolls, f-holes, purfling, the edgework and corners on the violas, cellos and even the double basses are highly comparable to those found on the violins. Examples are available in the database (Appendix V).

Interestingly, two violins associated with Boussu's later Dutch period post c1764 (database codes BJB6501vn and BJBnd14vn) show an even further deviation from the initial strict style. The turns of their scrolls do no longer have the strictly regular widths. Instead, the

¹¹⁸ For the violas, the purfling has a total width of c1.5 mm (0.35/0.8/0.35 mm). For the cellos, the purfling has a total width of c1.6 mm (0.4/0.8/0.4 mm).

width of the turns of the spiral gradually decreases as the spiral progresses closer to the centre of the volute. Also, there is a more pronounced chamfer on the edges of the volutes, giving them a softer and less unconventional appearance. The central eyes of the scrolls are chamfered as well. The vertical slits of the f-holes widen a little towards the notches, especially in the violin with database code BJBnd14vn, while the notches themselves are more pronounced. The plate corners are fine and pointy like those on the instruments from the final Brussels years. Possibly, with these further changes in design, Boussu tried to make his instruments more attractive for the Dutch market.

4.18. Channel below button

A small, but rather peculiar detail on some of Boussu's instruments can be found just below the button of the back plate. In the group of dated instruments, eight out of nine instruments produced up to the end of August 1752 show a groove below the button, accentuating the perimeter of the plate by continuing the plate's outline (the single instrument without such groove in this group of nine instruments, a violin from May 1751 with database code BJB5102vn, had its button replaced, a repair which may have eliminated the likely present decorative button channel). Examples are given in Figure 4.63. This decorative feature is not found on any instrument dated later. The absence of the channel for this latter group of instruments can be partly explained by the fact that for some of these instruments, the button was replaced, thereby removing the possible channel as well. On the other hand, in case the original button was (partially) preserved, a channel is not observed on instruments made from the final quarter of 1752 onwards (for example in two violins from the MIM collection from October 1752 and February 1753, with respective MIM inv. nos. 2782 and 2783). In the category of undated instruments, not a single instrument was found with this feature (although in this category, many instruments had a replacement button, which has erased a possibly present channel). Based on the observations made in the category of dated instruments, it may thus be concluded that Boussu abandoned the application of this aesthetic detail in the course of late 1752, around the same time he changed the design of his glue linings and upper block. This implies that the maker reflected on several of the features of his instruments in that year, and made changes accordingly. Perhaps, Boussu decided to leave out the button channel because it weakens the neck-to-body connection, facilitating fracture of the button in case of shock impact to the neck.

Interestingly, a “*violon composite*” attributed to the “*école française du XVIII^e s[iècle]*” with the label “JACQUES BOQUAY RUE D’ARGENTEUIL A PARIS 1733”¹¹⁹ also features a similar decorative channel, see Figure 4.64. Assuming that the back plate of this instrument is by a French (but not unambiguously identified) maker, the presence of such channel in this latter instrument may suggest that this is an ornament sometimes executed by early French makers, and that Boussu was familiar with this type of decorative element. Given the modest back length of this ‘composite violin’, 35.4 cm according to the auction catalogue, it is not presumable that its back plate was reused from an instrument made by Boussu.



Figure 4.63. Examples of the channel found below the button of the back plate. Top row, left to right: (a) button channel on a cello from 1749 (database code BJB4901vc), (b) button channel on a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), (c) button channel on a violin from 1751 (MIM inv. no. 2785; database code BJB5101vn), (d) button channel on a violin from June 1751 (database code BJB5103vn). Bottom row, left to right: (e) button channel on a cello from 1751 (database code BJB5104vc), (f) button channel on a cello from January 1752 (MIM inv. no. 2863; database code BJB5201vc), (g) button channel on a cello from June 1752 (database code BJB5202vc), (h) button channel on a violin from August 1752 (database code BJB5203vn).



Figure 4.64. Detail of back plate of a ‘*violon composite*’ attributed to the ‘*école française du XVIII^e s[iècle]*’, showing a channel below the button. Photo: Tajan auctioneers.

¹¹⁹ Tajan auctioneers, Instruments et archets du quatuor, catalogue for an auction on 24 May 2013 in Paris, France (Paris: Tajan, 2013), p.46. I thank Guy Buyse for bringing this information under my attention.

4.19. Varnish

Boussu's instruments are covered with a rather thin layer of finish, very evenly applied and very transparent. The varnish colour is ranging from yellow-brown to a deeper amber brown. The difference in observed colour may be due to variations in varnish composition, but also to differences in exposure of the various instruments to natural light throughout time, since such exposure can darken the varnish and the underlying wood. In instruments which have maintained their original finish, never a reddish tint, or a very dark brown colour, is observed. The structure of the varnish is always similar; the surface is smooth and does not show significant craquelure. On top plates, only superficial structure in the varnish due to wood grain is discernible, while the varnish film on the maple parts of the instruments is very smooth, showing little signs of underlying pores or other unevenness. Figure 4.65 provides four examples showing the plate surface of two instruments by Boussu. The observed smoothness implies that the underlying wood was prepared to an even surface, possibly by a form of scraping, polishing and/or pore filling. Polishing may have been performed with a product available and in use in the eighteenth century, such as the horsetail plant.¹²⁰ The maple parts of an instrument may have been prepared prior to varnishing by pore filling, using fine pumice powder (or another mineral filler) rubbed and fixed into the pores with a tampon and a dilute varnish, or alternatively, by glue-sizing.

Previously, several researchers have made statements regarding the constitution of Boussu's varnish. Moens argues that the maker used a varnish made of shellac dissolved in alcohol, an opinion based on his own observations of the varnish of Boussu's instruments from the MIM collection under ultraviolet (UV) light.¹²¹ On the other hand, Caruso *et al.* performed micro-X-ray fluorescence on six of this maker's instruments from the MIM collection, and from the observed presence of lead-based compounds (as well as salts of iron, manganese and other metals), they concluded that Boussu probably used "a siccative oil as main organic medium for the varnish", since lead (and other metal) salts are often used as driers in oil varnish solely.¹²² Given these contradictory opinions, a chemical analysis to identify the main organic components of Boussu's varnish – such as gas chromatography or infrared (IR) spectroscopy – would be required. However, since such analysis fell beyond the scope of the current PhD project, and would require actual varnish sampling from the instruments, the more accessible and non-destructive method

¹²⁰ Joseph Campanella Cleary, 'Reed and skin: natural burnishers in violinmaking', *J. Violin Soc. Am.: VSA Papers*, vol. 26, no. 1 (2014), pp.43-52; Joseph Campanella Cleary, 'Smooth operator', *The Strad*, vol. 125, no. 1489 (2014), pp.60-63.

¹²¹ Moens (1983), p.152.

¹²² Francesco Caruso, Steven Saverwyns, Marina Van Bos, Delia Francesca Chillura Martino, Anne-Emmanuelle Ceulemans, Joris De Valck, Eugenio Caponetti, 'Micro-X-ray fluorescence and the old masters', *Applied Physics A*, vol. 107, issue 1 (2012), pp.197-202, at p.201.

of UV-induced fluorescence was employed to obtain first-hand information about the nature of Boussu's finishing coats.



Figure 4.65. Top and back plate surfaces of two instruments by Boussu. Top row, left to right: (a) top plate surface of a violin dated June 1753 (MIM inv. no. 2784; database code BJB5302vn), (b) back plate surface of a violin dated June 1753 (MIM inv. no. 2784; database code BJB5302vn). Bottom row, left to right: (c) top plate surface of a cello dated 1757 (MIM inv. no. 1372; database code BJB5701vc), (d) back plate surface of a cello dated 1757 (MIM inv. no. 1372; database code BJB5701vc).

Figure 4.66 shows a photograph taken when a violin by Boussu from 1750 (MIM inv. no. 2781; database code BJB5001vn) was exposed to UV light. The lamp type used was made by Osram (Munich, Germany), type L 18W/73, which radiated light with a wavelength range of 300-400 nm (blacklight blue UVA). The digital camera that was used to take the photographs was equipped with a UV filter in front of the lens, in order to better capture the fluorescent emission. As can be seen in Figure 4.66, an orange UV-induced fluorescence can be seen on the entire instrument, including on the neck, with the exception of some places where wear has occurred (edges, central area of the back, certain spots on the neck). A somewhat brighter emission can be observed on the surface

below the strings, fingerboard and tailpiece, likely because those areas of the instrument have not been wiped and cleaned as often as the more accessible regions. The orange colour of the emitted light is characteristic for (non-decolourised) shellac.¹²³ Since the fluorescence occurs evenly over the entire instrument, except at places of wear where much contact took place, it is believed that the fluorescence is caused by the original varnish coating, and not by a later layer of French polishing. In many old instruments, later layers of shellac are often applied during restoration to revive the original varnish. In such cases, places of wear would again be covered by a thin coat of shellac. For the 1750 violin, such treatment obviously did not take place, since no fluorescence is observed at regions with abrasions. The condition of the varnish of this violin corresponds with its overall highly preserved state; most likely it has not been played intensively since it was included in the collection of César Snoeck during the course of the nineteenth century,¹²⁴ or even before that time.



Figure 4.66. UV-induced fluorescence of the varnish on a violin by Boussu from 1750 (MIM inv. no. 2781; database code BJB5001vn).

¹²³ Richard Newman, 'Tempera and other nondrying-oil media', in Valerie Dorge, F. Carey Howlett, ed., *Painted wood: history and conservation* (Los Angeles: The Getty Conservation Institute, 1998), pp.33-63, at p.48; Corina E. Rogge, Krista Lough, 'Fluorescence fails: analysis of UVA-induced visible fluorescence and false-color reflected UVA images of tintype varnishes do not discriminate between varnish materials', *Journal of the American Institute for Conservation*, vol. 55, no. 3 (2016), pp.138-147, at p.141; AICCM, A summary of ultra-violet fluorescent materials relevant to Conservation, <https://aiccm.org.au/national-news/summary-ultra-violet-fluorescent-materials-relevant-conservation> (accessed January 2019).

¹²⁴ Mahillon (1912), p.403.

Despite the well-preserved condition of the violin's varnish, several spots of wear can be discerned, associated with the musical use of the instrument. A defined wear pattern is present at the beginning of the neck, close to the pegbox (see Figure 4.66), from contact of the player's left hand, indicating that the instrument has been played predominantly in the first position. Except for some wear on the lower edge of the back plate, likely due to contact with the musician's body while playing, and some wear and damage on the edges of the top plate from handling, no other varnish wear caused by playing of the instrument can be found on the sound box. Remarkably, no worn off spots can be observed on the top plate close to the tailpiece, which implies that the violin has been played 'chin-off'. Minor varnish wear is visible on the scroll, likely from tuning. On the back plate, just below the centre, a large varnish-less spot can be seen, likely caused by placing the violin on its back on a supporting surface. These several distinct spots of wear suggest that the instrument has been used in an accompanying role in an ensemble (being predominantly played in first position), or was played by an amateur musician, early in its lifetime, and that it has not been played much ever since.

On the top plate, at the lower side of the treble half, a small spot of increased fluorescence can be noticed. Caruso *et al.* have demonstrated that at this spot, both the chemical elements cadmium and barium are present, which they relate to the use of cadmium yellow lithopone, a pigment that has become available in 1927. From this, it was concluded that "a probable local non-documented retouch [was] made, at the earliest, at the end of the 1920s".¹²⁵ Our axial CT reconstructions at this location show that internal cavities from wood worm holes are present underneath a superficial filling. So, likely an intervention has been performed to obscure the insect damage.

The 1757 cello from the MIM collection (MIM inv. no. 1372; database code BJB5701vc) shows a UV-induced fluorescent emission very similar to that of the 1750 violin. Again, a very uniform orange-coloured emission is observed, except for some spots where wear has occurred (see Figure 4.67), and some places with retouch work. On the top plate, a single darker spot is visible under UV light, just above the tailpiece saddle, possibly caused by a varnish touch-up. At the top of the scroll another small area of retouch is present, as well as at a narrow band running along the transition between neck and fingerboard. Some wear associated with playing is observed on the neck (see Figure 4.67). It can thus be concluded that the 1757 cello also has retained much of the original shellac-based varnish, corresponding with the overall well-preserved state and condition of the instrument. Like the 1750 violin, this cello has been part of a museum collection since at least the late nineteenth century.¹²⁶

¹²⁵ Caruso *et al.* (2012), pp.200-201.

¹²⁶ Mahillon (1900), p.31.



Figure 4.67. UV-induced fluorescence of the varnish on a cello by Boussu from 1757 (MIM inv. no. 1372; database code BJB5701vc).

In order to learn about Boussu's varnish practices in his later years, the varnish on a cittern from 1771 was also examined. As is the case for the bowed string instruments, the varnish on this cittern is very evenly and smoothly applied. Its colour, especially on the top plate, is of a somewhat darker brown colour compared to many of the other known instruments. Possibly, this visually attractive cittern has been hung against walls for decorative purposes, which led to prolonged exposure to light and subsequent darkening of the wood and varnish. When the cittern is exposed to UV light¹²⁷ (see Figure 4.68), an orange fluorescence can be observed, similar to the UV-induced emission as described above for the violin and cello. From this, it can be concluded that Boussu used a shellac-based varnish throughout his entire instrument-making career.

Our own observations made while exposing several instruments by Boussu to UV light thus confirm the observations and resulting conclusion of Moens: it is highly likely that Boussu employed a varnish containing non-purified shellac. Further evidence for the common use of shellac varnishes for instruments in France in the eighteenth century comes from several sources.

¹²⁷ Lamp used: Philips (Amsterdam, The Netherlands), TL 8W BLB 1FM/10X25CC, blacklight blue.

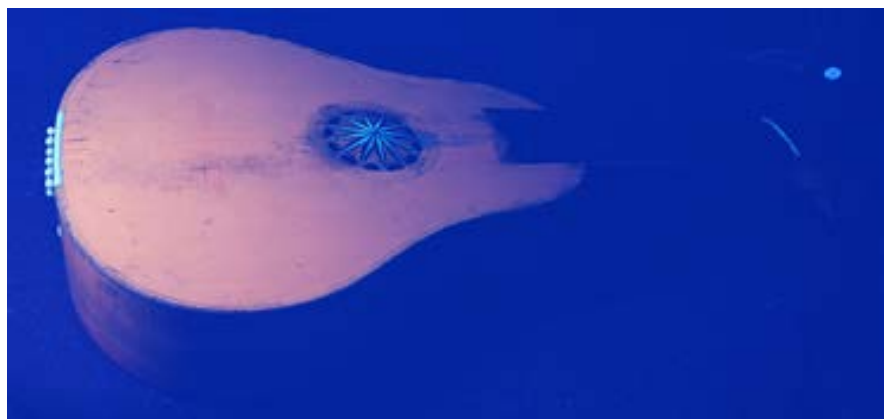


Figure 4.68. UV-induced fluorescence of the varnish on a cittern by Boussu from 1771 (database code BJB7101ci).

Watin, in 1772, describes an alcohol varnish for “*les violons & instruments*”, consisting of four (local) ounces of sandarac, two ounces of gum-lac (shellac), two ounces of mastic, one ounce of elemi and two ounces of turpentine, all dissolved in one (local) pint of wine-spirit (alcohol distilled from wine).¹²⁸ Watin also mentions:

*“Les uns appliquent le vernis tel qu’il est indiqué page 79, les autres le teignent d’abord & appliquent ensuite le vernis, qui est rouge à cause de la laque.”*¹²⁹

Interestingly, the second edition of Watin’s book (1773) states:

*“Les uns appliquent simplement plusieurs couches du vernis, indiqué page 230, qui est rouge de sa nature, à cause de la laque; d’autres le teignent un peu [...]”*¹³⁰

It thus appears that Watin has enhanced the information regarding the colour of the varnish. In the second edition of the book from 1773, he explains that (sometimes) the varnish is coloured by itself, due to the presence of the natural red colourant lac-dye. Assuming that Watin expresses himself most correctly in the second edition, this implies that raw, non-purified (i.e. non-decoloured) shellac (a product called ‘sticklac’) must have been prescribed in the recipe, since this material still contains much colouring lac-dye.

In the second edition of his book, Watin also describes a coloured ground for applying directly onto the wood prior to varnishing instruments.¹³¹ This ground consists of diluted

¹²⁸ Jean-Félix Watin, *L’art de faire et d’employer le vernis, ou l’art du vernisseur* (Paris: Quillau/author, 1772), p.79.

¹²⁹ Watin (1772), p.128.

¹³⁰ Jean-Félix Watin, *L’art du peintre, doreur, vernisseur* (Paris: Grangé/Durand/author, 1773), p.280.

¹³¹ Watin (1773), p.311.

(parchment) glue,¹³² with added colour. In case of a red ground, *roucou* (orlean, *Bixa orellana*) boiled in alum could be added, and for a yellow ground, saffron boiled in alum is prescribed. For a colour between red and yellow, a mix of both dyes has to be used.

Thirty years later, in 1803, Tingry states:

*“On connoît la Laque [shellac] sous trois états. La Laque en bâtons est celle qui est encore attachée aux extrêmités des petites branches; la Laque en grains est la même qu’on a séparée de ces bâtons, et la Laque plate est encore la même matière, mais qu’on a liquéfiée et coulée en feuilles minces. [...] La Laque en grains donne un vernis souple et solide qu’on destine aux instruments à cordes, comme les violons, basses etc. On peut, à cet effet, l’employer telle que le commerce la fournit, c’est-à-dire, en grains: mais dans cet état elle est dépouillée de sa partie colorante que les Indiens appliquent à ces toiles si recherchées en Europe, à cause de la solidité et de la vivacité de leur teinture. On peut suppléer à cette partie colorante par celle de l’infusion de Rocou qui augmente la beauté du vernis destiné aux instruments.”*¹³³

Thus, Tingry’s explanation implies that *laque en bâtons* (raw sticklac) would yield a more coloured varnish, while the *laque en grains* (seedlac) has already been purified and (partly) depleted of its natural dyes. Further on in his book, Tingry gives a recipe for a “*vernis légèrement coloré pour violons et autres instruments à cordes*”. The recipe is basically the same as the one given by Watin, except that only one ounce of mastic is prescribed, and that the elemi is replaced by “*benjoin*” (benzoin resin). Furthermore, the addition of four ounces of glass powder is recommended, along with colouring by saffron or dragon’s blood resin,¹³⁴ while all ingredients are dissolved in “*32 onces (978,29 gm.)*” alcohol.

These French-language late-eighteenth-century and early-nineteenth-century sources provide evidence that shellac-based varnishes for musical instruments were well-known in France (and French-speaking regions). Some present-day authors also claim that shellac-based varnishes were in use during the days of Boussu. Fontana *et al.* mention at least three eighteenth-century recipes for instrument varnishes containing shellac and sandarac dissolved in an alcoholic solution (“*Spiritus*” or “*Weingeist*”), with additional components such as soft resins (mastic, elemi), which act as plasticisers, and dyes (dragon’s blood, orlean).¹³⁵ One of these recipes is extracted from the German edition of the book by Watin (1774).

¹³² Watin (1772), p.128. In the first edition of his book, Watin mentions: “*Lors donc qu’on veut encoller un bois, il faut prendre de la colle faible de parchemin [...] on en donne deux couches très étendues à froid*”.

¹³³ Pierre François Tingry, *Traité théorique et pratique sur l’art de faire et d’appliquer les vernis*, vol. 1 (Genève: Manget, 1803), pp.22-23.

¹³⁴ Tingry (1803), pp.146-147.

¹³⁵ Eszter Fontana, Friedemann Hellwig, Klaus Martius, *Historische Lacke und Beize auf Musikinstrumenten in deutschsprachigen Quellen bis 1900* (Nuremberg: Verlag des Germanischen Nationalmuseums, 1999), pp.45, 60, 69.

When discussing the varnishes of eighteenth-century Parisian makers such as Chappuy, Lambert, Koliker and Bertrand, Dipper argues:

“The makers of the late-18th century, considered the old Paris school, generally used varnishes based on seed lac with the addition of gum sandarac and gum elemi, all dissolved in alcohol with perhaps the addition of a small quantity of essential oil that covered a base coat of parchment glue-size.”¹³⁶

Dipper then continues to quote a varnish recipe from Jacques Lacombe’s 1789 edition of the *Encyclopédie méthodique*, which combines sandarac, shellac, elemi, mastic and pine turpentine dissolved in “spirit of wine”.

Milliot¹³⁷ mentions that both Watin and Tingry describe an alcohol varnish for instruments. She continues by stating that, especially between c1735 and c1770 (the period dominated by the maker Louis Guersan), Parisian makers employed alcohol varnishes. A recipe is given by Milliot, based on both historical sources, containing sandarac, shellac, mastic, benzoin and Venetian turpentine in alcohol, with colourants saffron and dragon’s blood, which should yield a varnish that ranges in colour from golden-yellow to reddish brown, depending on the proportions of the dyes. Milliot further maintains that a dry spirit (alcohol) varnish is associated with the mid-eighteenth-century Parisian school, and that the contemporary sources never mention any oil varnish. Only by the end of the eighteenth century, the makers from Paris turned back to the ancient Italian practice of oil varnish. Milliot continues by saying that the recipes of Watin and Tingry are for general use, not just for luthiers, but also for painters and furniture makers, and she adds that luthiers may have adapted the recipes to their personal taste and knowledge.

In the same book, in the section ‘Chapitre II - Presentation des Instruments’, Milliot displays and describes 49 instruments of the violin and *viola da gamba* family, made between 1689 and 1786. Of these, 20 instruments (41 %) are described as having a varnish with a yellow or yellow/brown colour. Except for one example, the instruments in this ‘yellow/brown’ category were built after 1742. A red/brown-coloured varnish, as described for 10 instruments (20 %) was mostly found within the earlier (pre-1720), or later (1770s) instruments. A brown- or brown/gold-coloured varnish was present on 14 instruments (29 %), while 4 instruments (8 %) were described as having a brown/orange or orange varnish. From these numbers, it is clear that yellow/brown or brown varnishes

¹³⁶ Andrew Dipper, ‘A look at Parisian violin makers’ approach to varnish’, *Strings Magazine* online (7 October 2016), <http://stringsmagazine.com/a-look-at-parisian-violin-makers-approach-to-varnish/> (accessed January 2019).

¹³⁷ Milliot (1997), pp.176-177.

(like used by Boussu) are most often encountered for the French makers of the eighteenth century.

A final source of information regarding the varnish of French mid-eighteenth-century instruments comes from contemporary paintings by French painters depicting bowed string instruments, see Figures 4.69, 4.70 and 4.71 for examples of such works. The appearance of the varnishes on the portrayed instruments differs from the more red-tinged varnish found on Italian instruments from the same era, but closely resembles the more amber-coloured varnish applied by Boussu. This further reinforces the idea that Boussu worked in a French tradition, and that he used raw shellac as a fundamental ingredient for his varnish, likely supplemented with sandarac and softer resins as elemi or mastic to enhance the elasticity of the film, as also described in the above-quoted sources.



Figure 4.69. Painting (oil on canvas) by the French still life painter Henri-Horace Roland Delaporte (c1724-1793), titled 'La table du musicien'. Musée des beaux-arts, Cambrai, France, inv. no. P. 289.¹³⁸

Photo: © Musée des beaux-arts, Cambrai.

¹³⁸ Musenor, Site de l'Association des Conservateurs des Musées des Hauts-de-France, [https://webmuseo.com/ws/musenor/app/collection?vc=ePkH4LF7w1I9EVc_gYID7hpDYwslhXJg8gXGSm5pcWZyZmoerNJEUWhkaQBxmJyYm1SUmAmuqAlV68SnU308UQUA965Q0Q\\$\\$](https://webmuseo.com/ws/musenor/app/collection?vc=ePkH4LF7w1I9EVc_gYID7hpDYwslhXJg8gXGSm5pcWZyZmoerNJEUWhkaQBxmJyYm1SUmAmuqAlV68SnU308UQUA965Q0Q$$) (accessed January 2019).



Figure 4.70. Painting (oil on canvas) by the French painter Nicolas Henry Jeurat de Bertry (1728-1796), titled 'Nature morte en trompe l'oeil aux instruments de musique et au livret de Castor et Pollux de Rameau'.¹³⁹

¹³⁹ Wikimedia Commons, https://commons.wikimedia.org/wiki/File:Nature_morte_en_trompe_l%280%99%C5%93il_aux_instruments_de_musique_et_au_livret_de_Castor_et_Pollux_de_Rameau.jpg (accessed January 2020).



Figure 4.71. Detail of painting (oil on canvas) by the French painter Jean-Jacques Bachelier (1724-1806), titled 'Nature morte aux fleurs et au violon' (c1750). The Art Gallery of South Australia, Adelaide, Australia, inv. no. 0.2086.¹⁴⁰

As can be concluded from the discussed sources, the yellow-brown tint of Boussu's instruments is mainly the result of the use of a widely known varnish based on non-purified (i.e. non-decolourised) shellac, in which the addition of supplementary colourants (such as dragon's blood resin) cannot be ruled out. Our own varnish experiments¹⁴¹ (see Figure 4.72) have shown that the rawest form of shellac, sticklac, already yields an amber-coloured varnish due to the presence of natural dyes in the non-

¹⁴⁰ Wikimedia Commons, https://commons.wikimedia.org/wiki/File:Jean-Jacques_Bachelier_-_Still_life_with_flowers_and_a_violin_-_Google_Art_Project.jpg (accessed December 2020).

¹⁴¹ The varnish as used on the test strip in Figure 4.72 contains the resins (raw) sticklac, Moroccan sandarac and elemi, together dissolved in ethanol, at the respective concentrations of 210 g/l, 55 g/l and 15 g/l. All resins were purchased from Kremer Pigmente GmbH & Co. KG, Aichstetten, Germany. The solvent (Bio-ethanol, $\geq 95\%$) was produced by Espar Nederland, Aalten, The Netherlands.

decoloured resin as well as in the remains of insects present in the raw product. Under UV light,¹⁴² this varnish exhibits an orange-coloured fluorescence similar to the UV-induced emission seen on the varnish of the instruments by Boussu. It has to be noted that highly purified (clear) shellac did not give an orange UV-induced fluorescence in our experiments.

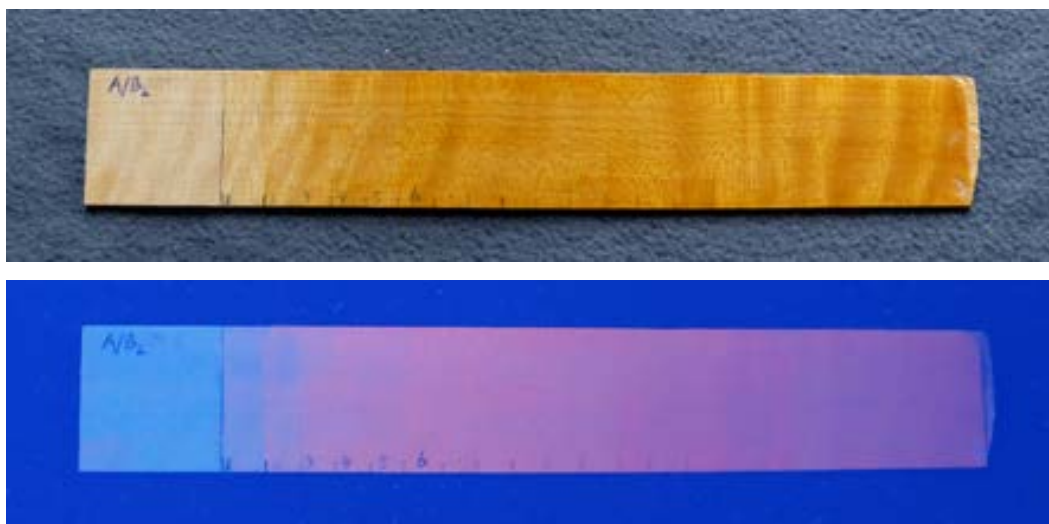


Figure 4.72. Test piece with a varnish based on sticklac under different types of light. Top to bottom: (a) test sample under daylight, (b) test sample under UV light (blacklight blue UVA).

4.20. Fittings

For three instruments, pegs have survived that appear to be original: the violin from 1750 from the MIM collection (MIM inv. no. 2781; database code BJB5001vn), the 1757 cello from the MIM collection (MIM inv. no. 1372; database code BJB5701vc) and a cello from 1749 in private ownership (database code BJB4901vc). For the last-mentioned instrument, these pegs are no longer installed on the instrument, but they have been preserved in the collection of the violin maker who converted the instrument from its native ‘Baroque’ state to modern configuration around 1990. The violin from 1750 has retained three of its four original pegs, the peg for the e”-string is a replacement in similar style. The peg holes of this violin are still at their original (small) size, i.e. they have not been ‘bushed’,¹⁴³ worn out or enlarged, with an exact fit of the corresponding pegs. This further consolidates the authenticity of the matching pegs for the g-, d’- and a’-string. The same thing can be said for the cello from 1757: no bushing of the peg holes can be observed, suggesting that the holes and the corresponding pegs match and were made simultaneously. Figure 4.73 shows examples of original pegs from all three instruments.

¹⁴² Lamp used: Philips (Amsterdam, The Netherlands), TL 8W BLB 1FM/10X25CC, blacklight blue.

¹⁴³ Bushing is the operation where the peg holes are filled with a wooden dowel. This is done when the peg holes have become too large or worn out. Often new pegs are also made as part of this type of restoration.



Figure 4.73. Presumably original pegs on three instruments by Boussu. Left to right: (a) two pegs from a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), (b) peg from a cello from 1757 (MIM inv. no. 1372; database code BJB5701vc), (c) peg that previously was installed on a cello from 1749 (database code BJB4901vc). Measuring tapes with centimetre scale have been included in the photos for reference.

The three presumably original pegs on the 1750 violin are made from a local hardwood (possibly beech or a fruitwood), while the flat grip is darkened with a stain. A small bone decorative knob is installed at the end of the grip. The pegs of the two cellos also appear to be made of a local hardwood, likely a fruitwood, and are again darkened. As for the violin pegs, a decorative bone knob is present. Interestingly, the pegs of the violin and cello depicted on the painting by Roland Delaporte (shown in Figure 4.69) show similar white knobs at their end, which suggests that such pegs were fashionable in the mid-eighteenth century in France and its neighbouring regions. Boussu's pegs also resemble certain seventeenth- and eighteenth-century pegs from the former Schreinzer collection, as displayed by Skeaping.¹⁴⁴ It may well be possible that Boussu purchased his pegs from a specialised maker or dealer. As we have seen in Section 4.8, the musical instrument maker Rottenburgh also sold tone wood and instrument parts. He may have had pegs in stock as well.

On the two MIM instruments mentioned above, the violin from 1750 and the cello from 1757, a 'Baroque' style tailpiece is present, see Figure 4.74. In case of the cello, the tailpiece is made from a local hardwood, possibly a fruitwood, covered with a very thin ebony veneer, a construction similar to the tailpiece on the cello depicted by Jeurat de Bertry (Figure 4.70). This tailpiece is presumably original. The violin has a tailpiece made from solid ebony, roughly finished at the underside. The material selection and finishing may indicate that this tailpiece is a replacement part. The double bass by Boussu, preserved at

¹⁴⁴ Kenneth Skeaping, 'The Karl Schreinzer collection of violin fittings', in Unity Sherrington, Guy Oldham, ed., *Music, libraries and instruments* (London/New York: Hinrichsen, 1961), pp.251-253, at p.252, plate 118.

the MIM (MIM inv. no. 2014.324; database code BJB6002db), has a tailpiece that is similar in construction to the cello tailpiece: it is made from a local hardwood, covered with a thin ebony veneer. This suggests that this tailpiece is original as well, although it features some unusual ornamentation at its upper edge, indicating that it could also be an early replacement.



Figure 4.74. 'Baroque' style tailpieces present on two instruments by Bousso. Top to bottom: (a) tailpiece on a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), (b) tailpiece on a cello from 1757 (MIM inv. no. 1372; database code BJB5701vc).

The end knobs preserved with the two above-mentioned cellos (dated 1749 and 1757) are also worth mentioning. They are depicted in Figure 4.75. Both are turned from a brown-coloured wood similar in appearance to the wood used for the pegs, and both knobs have a hole drilled lengthwise through their centre. Braun¹⁴⁵ mentions that wooden endpins on cellos, called *bâtons*, were known and in use in the middle of the eighteenth century. Such a pin could be installed in a hole drilled through the end knob (to support the cello on the floor on the pin while playing), and be removed when the instrument was not

¹⁴⁵ William Braun, The evolution of the cello endpin and its effect on technique and repertoire (PhD diss., University of Nebraska, 2015), pp.14-17.

played. So, the cellos by Boussu could have been played this way as well, maybe from their initial use, or otherwise from not long thereafter.

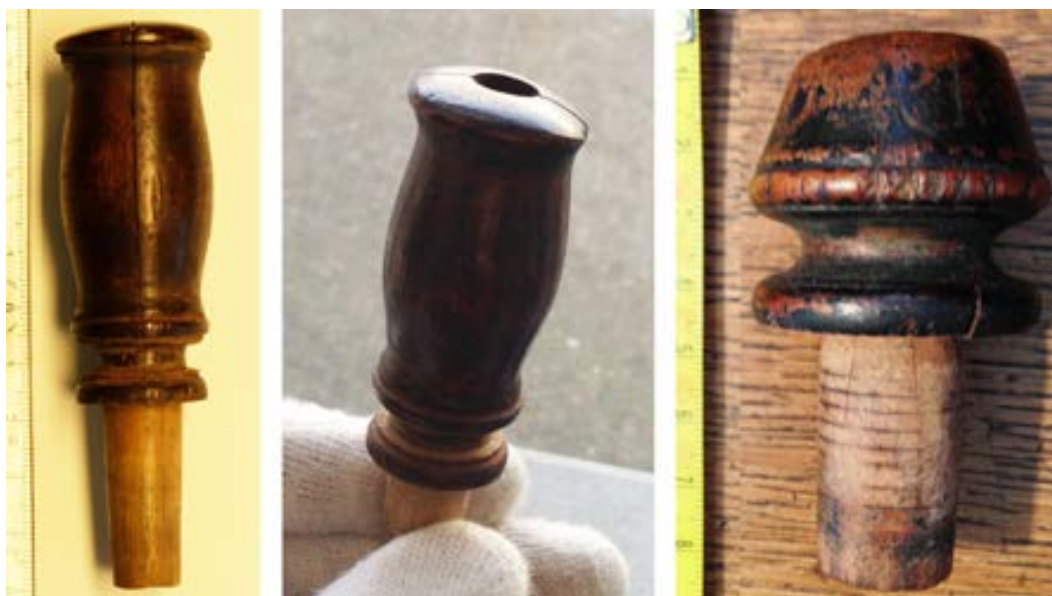


Figure 4.75. End knobs on two cellos by Boussu. Left to right: (a) end knob present on a cello from 1757 (MIM inv. no. 1372; database code BJB5701vc), (b) same end knob as displayed under (a), showing the hole through the longitudinal axis, (c) end knob that previously was mounted on a cello from 1749 (database code BJB4901vc). Measuring tapes with centimetre scale have been included in the photos for reference.

The violin dated 1750 and the cello dated 1757 from the MIM collection both have retained their original lower saddle. This part is made from bone, and inlaid at half the depth of the top plate, as can be seen in Figure 4.76. The violin from 1750 also has its original bone nut, see Figure 4.77. The violin and cello depicted on the painting by Roland Delaporte (see Figure 4.69) also have nuts from a light-coloured material, probably bone or ivory.

No original bridge was present on any of the bowed string instruments identified during the current study. The only direct information regarding the original bridges can be derived from the bridge position markings present on several of Boussu's instruments, see Section 4.6. In case of the violins, the markings suggest that the bridge had a thickness at the feet of c3.3 mm, assuming that the bridge had to be placed in between the applied lines. The markings found on the 1757 cello from the MIM collection suggest feet with a thickness of 5.5 to 6.0 mm, which implies that the bridge was relatively thin.



Figure 4.76. Bone lower saddle on two instruments by Boussu. Left to right: (a) lower saddle on a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), (b) lower saddle on a cello from 1757 (MIM inv. no. 1372; database code BJB5701vc).



Figure 4.77. Bone nut on a violin by Boussu from 1750 (MIM inv. no. 2781; database code BJB5001vn).

Finally, the cello from the MIM collection dated 1757 contains a thin soundpost, which may be original, or which is at least a very early replacement part. Figure 4.78 shows this post, for sake of comparison depicted together with the one present in the other cello by Boussu, dated 1752, from the MIM collection (MIM inv. no. 2863, database code BJB5201vc). The diameter of the soundpost in the cello from 1757 is 8.5 to 9.0 mm, while the (presumably non-original) post in the cello from 1752 has a diameter of 11.2 to 11.5 mm. The soundpost diameter for the 1757 instrument corresponds with information given by Watchorn,¹⁴⁶ who claims that “it is generally accepted that earlier soundposts

¹⁴⁶ Ian Watchorn, ‘Baroque renaissance’, *The Strad*, vol. 95, no. 1139 (1985), pp.822-827, at p.826.

were somewhat thinner in cross section than their modern counterparts”. The difference in length between the two posts can be explained by a difference in both rib height and arching height between the two cellos. The violin from 1750 (MIM inv. no. 2781, database code BJB5001vn) has a soundpost with a slightly oval cross section, possibly due to shrinkage: at the widest diameter it measures c5.8 mm, at the narrowest diameter c5.3 mm (both measures derived from the CT scan data of the instrument). No meaningful statement can be made regarding its authenticity. Further information regarding soundpost diameters for instruments by Boussu may be gained from a future study of the soundpost markings found inside various of his instruments (see Section 4.6).



Figure 4.78. Soundposts found in two cellos by Boussu. Top to bottom: (a) soundpost in a cello from 1757 (MIM inv. no. 1372; database code BJB5701vc), (b) soundpost in a cello from January 1752 (MIM inv. no. 2863; database code BJB5201vc). A ruler with centimetre scale has been included in the photo for reference.

4.21. Instrument mass and wood density

For several instruments by Boussu, their mass was determined using a digital balance.¹⁴⁷ The results are presented in Table 4.14. All violins have a mass (with pegs, strings, bridge, soundpost, tailpiece and end button included) below 400 gram, which makes them relatively lightweight instruments. Among the violins, the instrument from 1750 (MIM inv. no. 2781; database code BJB5001vn) clearly has the lowest mass, given its highly authentic state with lightweight veneered fingerboard, small-size linings and three original local hardwood pegs (which have a lower mass than pegs made of tropical hardwoods).

¹⁴⁷ A consumer model digital balance was used, with an accuracy of +/- 1 g. This accuracy was confirmed against a more accurate digital laboratory balance (by weighing the same object and comparing the measurement results). The relative humidity in the museum, at which the measurements took place, is maintained around 50 %.

Instrument	Instrument ID	Mass with fittings (g)	Mass without fittings (g)	Remarks
Violin 1750	MIM inv. no. 2781; database code BJB5001vn	345	323	Veneered short fingerboard (ebony on spruce), pegs of local hardwood, 'Baroque' style solid ebony tailpiece, no chinrest
Violin 1751	MIM inv. no. 2785; database code BJB5101vn	385	355	Long fingerboard and tailpiece of solid ebony, pegs of rosewood, no chinrest
Violin 1752	MIM inv. no. 2782; database code BJB5204vn	-	366	Long fingerboard of solid ebony, no chinrest
Violin 1753	MIM inv. no. 2783; database code BJB5301vn	381	346	Short fingerboard and tailpiece of solid ebony, pegs of tropical hardwood, no chinrest
Violin 1753	MIM inv. no. 2784; database code BJB5302vn	388	350	Long fingerboard, pegs and tailpiece of solid ebony, no chinrest
Violin 1759	Database code BJB5903vn	356	-	Veneered short fingerboard (ebony on local hardwood), ebony pegs, 'Baroque' style tailpiece (solid ebony), no chinrest
Violin 1760	MIM inv. no. 1338; database code BJB6001vn	383	351	Long fingerboard and tailpiece of solid ebony, pegs of tropical hardwood, no chinrest
Cello 1752	MIM inv. no. 2863; database code BJB5201vc	-	2220	Solid ebony fingerboard, 3 pegs of ebony, 1 peg of rosewood
Cello 1757	MIM inv. no. 1372; database code BJB5701vc	-	1899	Solid ebony, 'Baroque' style fingerboard, local hardwood pegs, 'Baroque' style tailpiece (thin ebony veneer over local hardwood)

Table 4.14. Mass for nine instruments by Boussu, with and without fittings.

When the mass of this 1750 violin (without fittings) is compared to the mass of the other instruments from the MIM collection (also without fittings), a difference in mass is observed of between 23 and 43 gram. Mainly, this difference can be explained by the (non-original) heavier ebony fingerboard installed on the instruments dated between 1751 and 1760,¹⁴⁸ and additionally possibly because of differences in wood properties and minor

¹⁴⁸ During the current PhD project, three replicas were made of the violin by Boussu from the MIM collection dated 1750 (MIM inv. no. 2781). The fingerboards of these replica instruments were constructed from the same materials and according to the same dimensions – a length of 240 mm and similar widths and heights – as the fingerboard of the original instrument from 1750. The masses of the replica fingerboards are 32, 33 and 33 gram respectively. For the last five modern violins made by the author, the finished modern-style (solid ebony) fingerboards had a mass of typically between 58 and 62 gram. The mass difference between the short veneered fingerboard (ebony over spruce) and the long solid modern fingerboard can thus assumed to be 25 to 30 gram.

constructional differences. The violin in private ownership dated 1759 has a mass (with fittings) of 356 gram, which is significantly higher than the mass (with fittings) of the violin from 1750. Since these two instruments both have a 'Baroque' set-up (with veneered fingerboards of comparable length and a solid ebony tailpiece), the difference may be partly explained by the difference in the material of the pegs and the core material of the fingerboard (local hardwood versus spruce), and partly by variation in density of the maple and spruce used and minor constructional differences.

The two violins by Boussu with MIM inv. nos. 2781 and 2784 were CT scanned in November 2012 at the Erasmus Hospital in Brussels. At that time, the aim of the scan was only to visualise the internal construction, without the intention to derive the wood densities from the CT data. Therefore, the scan was performed without an optimised protocol for determination of wood density, and without scanning any calibration samples. Only around 2016, the idea arose to quantitatively determine density from the Brussels CT scan data. By that time, scanning of calibration samples on the same Brussels scanner was not an option anymore, since access to that particular scanner was no longer possible. Also, that Brussels scanner would likely have had several software updates between 2012 and 2016, which would have further prevented a comparison of CT scan results collected many years apart.

Still, an attempt was made to estimate – with a reasonable degree of reliability – the density values of the wood of the plates and neck in the violin from 1750 with MIM inv. no. 2781 from the 2012 CT scan data. Therefore, on a CT scanner at the Leiden University Medical Center, three small parts (tuning peg, bridge, end button) of the violin from 1750 were again CT scanned (scanning of the entire violin was not possible, since it was not allowed to transport the instrument from Brussels to Leiden, whereas the MIM kindly did agree to take the small parts to Leiden). On the Leiden scanner, on the same day as scanning the small parts, a reference set of 20 wood samples (cubic blocks with a nominal volume of 46 cm³ each, in different wood species) of accurately known density (ranging from 0.320 to 0.785 g/cm³) was also scanned, for calibration purposes. A dedicated protocol optimised for scanning wooden musical instruments was used.¹⁴⁹ Now it was possible to accurately determine the density of the wood of the peg, bridge and end button based on the CT data from the scan in Leiden. Using these now known densities of the wood of the three small parts, it was possible to calibrate the CT data from the Brussels

¹⁴⁹ Densities for the 20 reference blocks derived from mass and volume (DmV, in g/cm³) were accurately determined by measuring the volume (by using precision callipers) and mass (by using an analytical balance, Ohaus, model Explorer Pro, d = 0.001, (Ohaus Corporation, Parsippany, United States of America)). Volume-averaged CT numbers in Hounsfield units (HULeid) were derived from CT scan results of the same reference set of 20 wood samples, scanned at LUMC (Leiden) by Prof. dr. Berend Stoel. Based on all 20 samples of different European hard- and softwoods, the linear relationship between DmV (true physical density based on mass and volume in g/cm³) and HULeid was found to be: $DmV = 0.9738 \times 10^{-3} \times HULeid + 1.0397$ ($R^2 = 0.9985$).

scan of the violin by Boussu from 1750,¹⁵⁰ since in this (Brussels) scan from 2012, the same three small fittings were scanned along with that instrument.¹⁵¹ The now calibrated CT number values allowed us to estimate the density of the spruce and maple wood in the 1750 instrument. Using this procedure, the density of the top plate wood of the violin from 1750 (MIM inv. no. 2781; database code BJB5001vn) was estimated to be 0.38 g/cm³, the density of its back plate wood 0.62 g/cm³ and the density of the wood of the neck/upper block/scroll combination 0.65 g/cm³.

Due to several factors, these results have a higher uncertainty compared to those to be obtained from a method where the instrument would have been scanned together with a set of reference samples of known density directly after each other on the same day, on the same scanner using the same optimised protocol. Firstly, due to the extra steps, an accumulation of small random errors can occur. Secondly, due to the small size of the ‘reference objects’ (peg, bridge and end button), a dependency of density values upon object thickness may be expected due to edge enhancement during CT image reconstruction. The peg and end button have a thickness larger than 6 mm, therefore, for these parts, such effects can be assumed to be minimal. Since the lower half of the bridge has a maximum thickness of c3.5 mm, a minor edge enhancement effect could be expected.¹⁵² Also, due to the small size of the reference objects, volume-averaging of CT numbers in Hounsfield units is less accurate, since averaging takes place over only a limited number of voxels. Furthermore, since the reference objects were scanned at two different moments, thus under different conditions, effects of a difference in relative air humidity may be expected. Lastly, in 2012, the violin was not scanned using a scanning protocol optimised for wooden objects, which could also have an effect on the results. More accurate density values could only be obtained when a new scan of the instrument

¹⁵⁰ CT numbers in Hounsfield units were determined (as “mean intensity” values) using the segmentation software ITK-SNAP, see: Paul A. Yushkevich, Joseph Piven, Heather Cody Hazlett, Rachel Gimpel Smith, Sean Ho, James C. Gee, Guido Gerig, ‘User-guided 3D active contour segmentation of anatomical structures: significantly improved efficiency and reliability’, *Neuroimage*, vol. 31, no. 3 (2006), pp.1116-1128.

¹⁵¹ For the peg, bridge and end button of the violin from 1750, wood densities of 1.28, 0.65 and 0.79 g/cm³ respectively were found, based on the data of the CT scan in Leiden. Using the software ITK-SNAP, volume segmentation and subsequent determination of the volume-averaged CT number was performed on these same parts within the CT scan data from the Brussels scan from November 2012. This yielded 160, -430 and -281 Hounsfield units respectively. As a fourth ‘sample’ for constructing the regression line, a large bar-shaped volume inside the sound box of the violin was segmented within the data of the 2012 Brussels CT scan, where air had been present. For this air, a volume-averaged CT number of -991 HU was obtained and a density of 0.0012 g/cm³ was assumed. When correlating the four known densities to their corresponding CT numbers in Hounsfield units, the following linear relationship was obtained: Density = $1.1094 \times 10^{-3} \times \text{HUBrus} + 1.1080$ ($R^2 = 0.9994$). Here, HUBrus represents the CT number from the 2012 scan in Brussels. This relation made it possible to calculate the densities of other wooden parts of the 1750 violin from the CT scan data of the Brussels scan from November 2012. A strong linearity between density and CT number over a wide density range (c0.2 to c1.3 g/cm³) was hereby assumed, as was also demonstrated by Laskowska *et al.*, see: Agnieszka Laskowska, Paweł Kozakiewicz, Marcin Zbieć, Patrycja Zatoń, Sylwia Oleńska, Piotr Beer, ‘Surface characteristics of Scots pine veneers produced with a peeling process in industrial conditions’, *BioResources*, vol. 13, no. 4 (2018), pp.8342-8357, at p.8346.

¹⁵² Stoel, Borman (2008), p.6.

would be made, under ideal scanner conditions (as explained in Section 1.3.2), including a scan of density and thickness reference samples for calibration and correction purposes.

Using the segmentation software application ITK-SNAP,¹⁵³ the individual volumes of the top plate, back plate and neck/upper block/scroll combination of the violin from 1750 (MIM inv. no. 2781; database code BJB5001vn) were determined by segmenting these parts out of the complete CT scan of this instrument. The volumes for top plate, back plate and neck/upper block/scroll combination were found to be 173.1, 166.3 and 116.2 cm³ respectively. When calculating the total mass of the violin from 1750, based on the volumes and estimated densities of the top plate, back plate and neck/upper block/scroll combination (all derived from the CT data of the Brussels scan from 2012), and assuming masses for the rib structure, fingerboard and varnish of 48, 30 and 5 g respectively (based on the author's insights gained by making his three violin replicas), a total mass of 327 g (without fittings) is obtained. This calculated total instrument mass comes convincingly close to the real mass of this instrument (323 g without fittings), which suggests that the densities (for top plate, back plate and neck wood) estimated from the 2012 CT scan data are in fairly close approximation to the true values.

For another Boussu violin, the instrument from 1759 (database code BJB5903vn) scanned in December 2010 at the Leiden University Medical Center, quantitative density analysis proved possible in a more direct way. In July 2019 the reference set of 20 wooden blocks of different European hard- and softwoods of known density could be scanned on the same scanner and using the same settings and dedicated protocol as used for the 1759 violin in 2010. The CT data of the reference set were again used to establish a calibration relationship between CT numbers in Hounsfield units and density. In addition, a correction to the densities derived from CT data was applied for plate thickness, according to the method described by Stoel and Borman.¹⁵⁴ The (corrected) density of the top plate wood of the 1759 instrument is 0.44 g/cm³, the density of the back plate wood is 0.59 g/cm³ and the density of the wood of the original scroll is 0.61 g/cm³. While the density of the back plate of this instrument appears to be on the low side,¹⁵⁵ the wood of the top plate is certainly of a relatively high density, at least when considering the density range for spruce preferred for violin making.¹⁵⁶ When comparing the density map for the top plate of the 1759 instrument to the map for the top plate for the 1750 violin with MIM

¹⁵³ Yushkevich et al. (2006), pp.1116-1128.

¹⁵⁴ Stoel, Borman (2008), p.6.

¹⁵⁵ The density of maple (*Acer*, various species) ranges from 550 to 750 kg/m³, see: R.P. van der Zwan, A.L. van Oosten, *Hout herkennen* (Deventer/Antwerpen: Kluwer Technische Boeken, 1996), p.105.

¹⁵⁶ The density of Norway spruce (*Picea abies*) ranges from 300 to 680 kg/m³, see: Janusz Surmiński, 'Wood properties and uses', in Mark G. Tjoelker, Adam Boratyński, Władysław Bugała, ed., *Biology and ecology of Norway spruce* (Dordrecht: Springer, 2007), pp.333-342, at pp.336-337. However, spruce wood that is preferred for violin making typically has a density in the range of 340 to 380 kg/m³ (personal communication with the violin maker and researcher of violin acoustics George Stoppani (Manchester, United Kingdom)).

inv. no. 2781 (both produced by Prof. dr. Berend Stoel, see Figure 4.79), the map for the latter instrument shows a noticeable contrast between the early and late wood growth, indicating a large density difference between these two growth types. Also, at the outer areas of the lower bout, growth lines of particular high density are present, suggesting a large density variation within the wood. The top plate wood of the violin from 1759 appears to have a more evenly distributed density.

When looking at the two cellos presented in Table 4.14, it clearly shows that the instrument from 1757 has a much lower mass compared to the one from 1752. Various factors contribute to this difference. First of all, although both cellos have a solid ebony fingerboard, it is shorter for the cello from 1757 than for the instrument from 1752 (520 mm versus 577 mm). The sound box length of the 1757 instrument also is slightly shorter, while its ribs are lower too (114 mm versus 125 mm). Furthermore, as was demonstrated in Section 4.10, the 1757 cello has thinner plates than the 1752 instrument. All these factors contribute to the lower mass of the cello from 1757. During the currently presented study, no attempt was made to determine the wood densities of the parts for these two cellos.

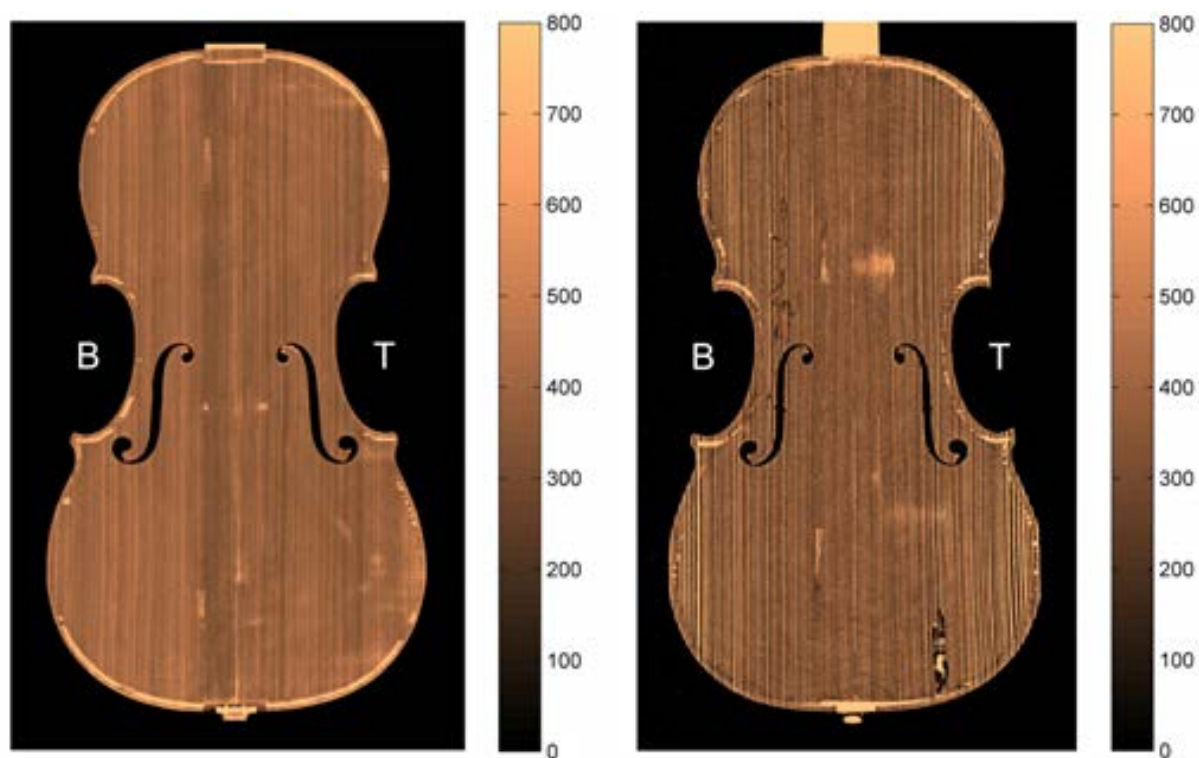


Figure 4.79. Density maps, constructed from CT data, for the top plate of two violins by Boussu. Left to right: (a) density map for the top plate of a violin from 1759 (database code BJB5903vn), (b) density map for the top plate of a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn). B: bass side, T: treble side. Scales in kg/m^3 .

4.22. A cittern by Boussu

Besides the extant bowed string instruments by Boussu, discussed in the preceding sections of this chapter, only one single instrument by this maker from another instrument family is presently known. It is a cittern, a plucked string instrument, made by Boussu in 1771 in Amsterdam. Moreover, it is the only instrument that can be ascribed with certainty to his Dutch period, and also by far the ‘youngest’ known creation from his hand. The instrument had been mentioned in several auction catalogues and publications throughout the last decades,¹⁵⁷ until it finally appeared ‘in person’ on an auction in December 2015,¹⁵⁸ where it was bought by the author. This cittern by Boussu has been analysed in much detail in a previous publication,¹⁵⁹ therefore, it will be discussed more concisely here.

Citterns became fashionable in the second half of the eighteenth century, especially in the British Isles (where the instrument was known as ‘*guitar*’),¹⁶⁰ and in France (where it was known as ‘*cistre*’).¹⁶¹ Many instruments by British¹⁶² and French¹⁶³ makers have survived. Also in Holland, in the same period, the instrument enjoyed a certain popularity,¹⁶⁴ although the number of extant Dutch citterns is limited. The ease with which the cittern could be played, its elegant looks and portability quickly made it popular amongst amateur musicians, especially women of the middle and upper classes.¹⁶⁵ Eighteenth-century citterns are found with nine to twelve metal strings,¹⁶⁶ both plain and overwound, arranged in either double or single courses (for the upper and lower register respectively). Typical scale lengths for *guitars* varied between 410 and 440 mm, although

¹⁵⁷ Hedwige Baeck-Schilders, ‘The bibliotheca Stellfeldiana’, *Revue belge de musicologie*, vol. 58 (2004), pp.203-223, at pp.223; Paul Raspé, ‘La lutherie’, in Robert Wangermée, Philippe Mercier, ed., *La musique en Wallonie et à Bruxelles*, vol. 1 (Brussels: La renaissance du livre, 1980), pp.275-284, at pp.278, 280; Christie’s auctioneers, *Fine musical instruments, catalogue for an auction on 21 June 1983 in London, United Kingdom* (London: Christie, Manson & Woods, 1983), p.6; Pouloupoulos (2011), p.206.

¹⁵⁸ Sworders Fine Art Auctioneers, *The winter country house sale, catalogue for an auction on 8 December 2015 in Stansted Mountfitchet, United Kingdom* (Stansted Mountfitchet: Sworders Fine Art Auctioneers, 2015), p.35.

¹⁵⁹ Geerten Verberkmoes, ‘Made in Amsterdam: a 1771 cittern by Benoit Joseph Boussu’, *Early Music*, vol. 44, no. 4 (2016), pp.627-641.

¹⁶⁰ Panagiotis Pouloupoulos, Rachel Durkin, ‘“A very mistaken identification”: the “sultana” or “cither viol” and its links to the bowed psaltery, viola d’amore and guitar’, *Early Music*, vol. 44, no. 2 (2016), pp.307-331, at pp.309-310.

¹⁶¹ Jeremy Montagu, *The world of Baroque & Classical musical instruments* (Newton Abbot/London: David & Charles, 1979), pp.116-117; Ephraim Segerman, ‘A short history of the cittern’, *The Galpin Society Journal*, vol. 52 (1999), pp.77-107, at p.99.

¹⁶² Pouloupoulos (2011), pp.226-231.

¹⁶³ Pouloupoulos (2011), pp.203-204.

¹⁶⁴ Jelma van Amersfoort, ‘Miss Sara Burgerhart’s English guitar: the “guitarre Anglaise” in Enlightenment Holland’, *Tijdschrift van de koninklijke vereniging voor Nederlandse muziekgeschiedenis*, vol. 64 (2014), pp.76-102.

¹⁶⁵ Philip Coggin, ‘“This easy and agreeable instrument”: a history of the English guitar’, *Early Music*, vol. 40, no. 2 (1987), pp.204-218, at pp.205-207; Pouloupoulos (2011), pp.96-127.

¹⁶⁶ Pouloupoulos (2011), pp.13, 357-361.

shorter and longer scale lengths are also found.¹⁶⁷ French *cistres* were made with a somewhat longer scale length of around 460–480 mm.¹⁶⁸ Open major chord tunings, such as c-e-g-c'-e'-g',¹⁶⁹ allowed novice players readily to produce pleasant-sounding solos and song accompaniments. More advanced repertory became available too, consisting of pieces written specifically for the instrument as well as adaptations of popular compositions.¹⁷⁰ Facilities for transposition (a *capotasto* that could be attached by means of a series of holes in the neck), extended the possibilities of the instrument even further.¹⁷¹ From a decorative point of view, various kinds of ornamentation were applied – for example on soundhole rosette, headstock finial, fingerboard and edge binding – providing these instruments with a charming and desirable appearance. Sound boxes usually have a flat top and back plate, while outline shapes are diverse, including bodies with teardrop, almond, egg and pear shapes, together with more elaborate variations on these basic designs. For tuning, initially wooden pegs were employed, until the watch-key or Preston mechanism became widely used from the 1760s.¹⁷² Frets, usually twelve in number and made from brass,¹⁷³ were inserted into pre-sawn slots in the fingerboard.

Figure 4.80 depicts the cittern by Boussu, while essential measurements are given in Table 4.15. The instrument is also included in the database in Appendix V, and has been assigned the database code BJB7101ci. The instrument is signed twice, internally on the back plate, opposite the soundhole, and externally on the back plate below the button of the neck root. In both signatures the name 'BOUSSU' is applied with a branding iron, a mark also seen on several other Boussu instruments from c1759 onwards (see Section 4.4); the remainder of the text is handwritten directly onto the surface in black ink. The instrument accommodates twelve strings arranged in six double courses, and this must have been the original configuration since the brass watch-key tuning mechanism also allows for the use of twelve strings. Behind the first six frets, holes have been drilled all the way through the middle of the ebony fingerboard and maple neck in order to permit the attachment of a *capotasto* by means of the included bolt and wing nut. The sickle-shaped head terminates in a rectangular finial, inlaid with a decorative eight-pointed star; its compass-like design could conceivably have been a popular emblem in a harbour city like Amsterdam.

¹⁶⁷ Pouloupoulos (2011), p.293. The scale length is defined as twice the distance from the nut to the twelfth fret.

¹⁶⁸ Based on our observations of scale lengths of a number of representative French *cistres* in the collection of the Musical Instruments Museum, Brussels, Belgium.

¹⁶⁹ Robert Spencer, Ian Harwood, 'English guitar', in Deane Root et al., ed., Grove Music Online (2001). Available from: <https://doi.org/10.1093/gmo/9781561592630.article.08823> (accessed May 2020); Coggin (1987), p.205; Pouloupoulos (2011), p.133.

¹⁷⁰ Coggin (1987), pp.209-210, 216-217; Pouloupoulos (2011), pp.135-149; Van Amersfoort (2014), p.77.

¹⁷¹ Spencer, Harwood (Grove Music online); Pouloupoulos (2011), pp.335-337.

¹⁷² Spencer, Harwood (Grove Music online); Pouloupoulos (2011), p.562.

¹⁷³ Spencer, Harwood (Grove Music online); Pouloupoulos (2011), p.333.

The two-part top plate of the sound box is made of very finely grown spruce, though the growth ring lines do not run completely straight in certain areas. Inside the perimeter of the plate, at a distance of 3 mm from the edge, a violin-like three-ply purfling is inserted. Another influence from the domain of violin making is the slight fluting applied continuously to the periphery of the top plate, which gives the suggestion of a subtle arching. This fluting may have been created for aesthetic as well as for acoustic purposes. In the centre of the plate a circular sound hole is present, including an inset rosette decorated with a twelve-pointed star made from ebony and mother-of-pearl, and swirly patterns from a brown-coloured wood.



Figure 4.80. Cittern signed 'BOUSSU, à / Amsterdam / 1771.'. Left to right: (a) front view, (b) side view, (c) back view. Photos: Jan Stragier, School of Arts Ghent, Ghent, Belgium.

Dimension	Measurement
Total length (mm)	719
Scale length (twice distance from nut to twelfth fret) (mm)	450
Body length (mm)	363
Maximum width of body (mm)	300
Sound box depth at neck (mm)	67.0
Sound box depth at bottom (mm)	77.0
Sound hole diameter (mm)	68.0
Maximum bridge height (mm)	25.0
Width of fingerboard at nut (mm)	45.5
Width of fingerboard at neck-body joint (mm)	54.0
Fingerboard length (mm)	241
Neck angle (degrees)	89
Top plate thickness ¹⁷⁴ (centre / periphery) (mm)	max. 3.0 / min. c2.2
Back plate thickness (centre / periphery) (mm)	max. 3.0 / min. c1.8
Side thickness (mm)	Side thickness c1.8

Table 4.15. Essential measurements of the cittern by Boussu (database code BJB7101ci).

A single piece of maple was used for the back plate. As on the top, violin-like purfling and edge fluting are present. Curiously, on the entire back, the figure pattern of the maple is accentuated by ink lines so as to imitate spalted maple (see Section 4.6). These lines appear to have been inscribed between varnish coats, suggesting that they were drawn by the cittern's maker. This kind of decoration has not been identified on any other studied instrument by Boussu. The cittern is finished with a thinly applied amber-brown varnish as seen also on Boussu's violins and cellos, most likely shellac-based (see Section 4.19).

The instrument was further investigated using digital endoscopy and CT scanning.¹⁷⁵ A lengthwise cross section of the cittern, reconstructed from CT data (see Figure 4.81), provides information on the height of the transverse braces. A longitudinal arching can be seen in the back plate and, to a somewhat lesser extent, in the top. The CT reconstruction also reveals that a metal screw is applied through the block to secure the neck. It is interesting to note that a separate upper block was used in this instrument, since all of Boussu's violin-family instruments, without exception, were constructed using the 'through neck' method.

The orientation of the internal softwood braces can be seen in the 3D volume renders of CT data shown in Figure 4.82. Four horizontal braces are internally applied at each plate,

¹⁷⁴ Plate and side thicknesses were measured using a magnetic thickness gauge (Hacklinger, Germany, type DBP 3611798, S/N 7346).

¹⁷⁵ To avoid excessive streak artefacts resulting from the presence of metallic parts, the tuning mechanism and strings were removed prior to the CT scan.

equally spaced for both top and back. This kind of bracing is quite common for pear-shaped English *guittars* and French *cistres*.¹⁷⁶



Figure 4.81. Cittern by Boussu (database code BJB7101ci), sagittal plane reconstruction of CT data: longitudinal cross section along centreline.

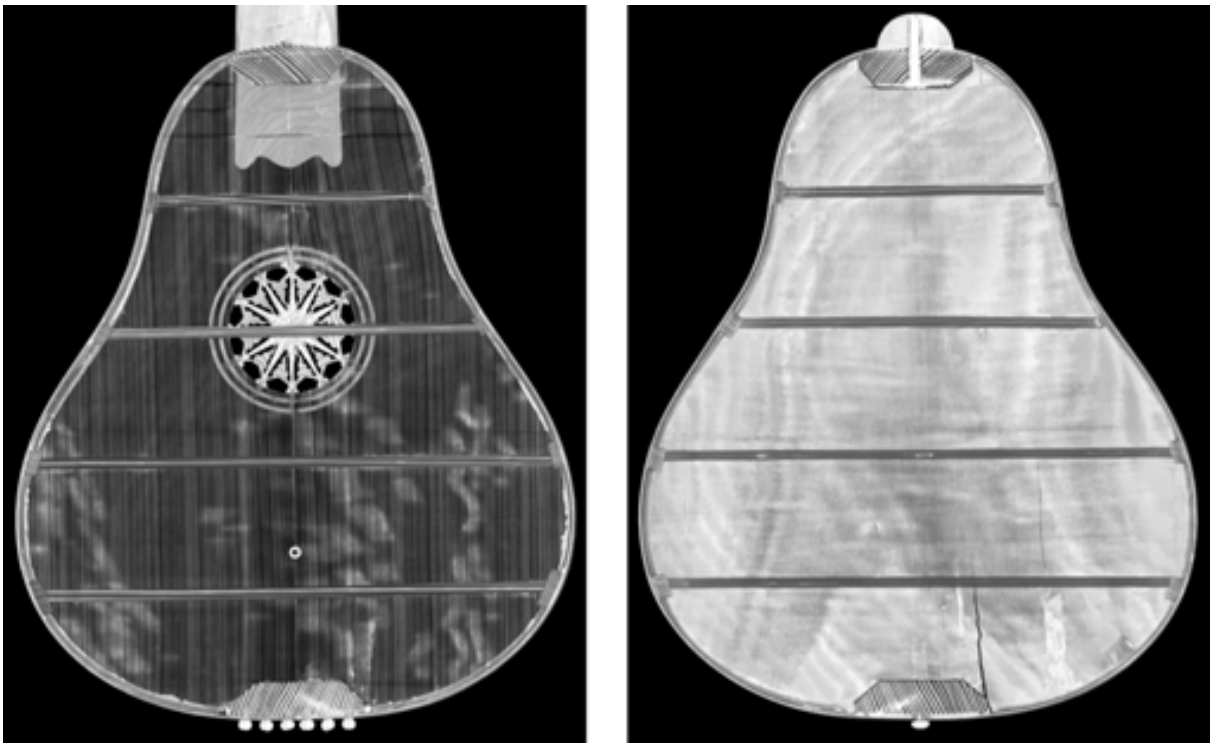


Figure 4.82. Cittern by Boussu (database code BJB7101ci), 3D volume renders of CT data. Left to right: (a) interior of top plate (symbol o indicates bridge position), (b) interior of back plate.

The cittern presented here is currently the only musical instrument associated with Boussu's period of residence in Amsterdam. Various archival documents confirm that Boussu was involved with musical instruments in Amsterdam (see Section 2.6), but probably more as a trader in instruments – and possibly their accessories – than as an actual maker. The question thus arises as to whether Boussu made the cittern himself or, alternatively, purchased it from a specialised manufacturer for resale. When examining

¹⁷⁶ Pouloupoulos (2011), p.310.

the instrument, however, several clues point towards the former scenario. First of all, there are two identical signatures on the instrument, one on the outside and, more importantly, a second on the inside of the sound box. To apply this latter internal marking into an already completed instrument, the sound box would have had to be re-opened, an uncommon operation in the case of a newly made instrument of this type. The date of signature, the year 1771, coincides with the dates of recently discovered archival documents that reveal the presence of Boussu in Amsterdam between at least 1767 and 1773 (see Section 2.6). Furthermore, several characteristics of the cittern, such as the careful workmanship and amber-brown shellac varnish, are consistent with those found on numerous extant violin-family instruments by this maker. Finally, the cittern clearly shows the influence of violin making. The use of three inlaid wooden strips for the edge purfling of the top and back plate, in contrast to the usual inked purfling of English *guitars*¹⁷⁷ and the half-herringbone purfling of French citterns,¹⁷⁸ along with the application of a (slight) fluting channel around the perimeter of the top and back plate, implies that the originator of the cittern had a background in violin construction. All of these arguments strongly suggest that the cittern was indeed personally built by Boussu. That said, several components of the instrument, such as the rosette, finial inlay and tuning mechanism, may have been purchased as prefabricated parts from external suppliers, since they bear great resemblance to corresponding parts on other contemporary citterns and *guitars*. The tuning mechanism, meanwhile, may have had another origin: one of Boussu's sons-in-law, Johannes Rousseau, was a gun-maker in Amsterdam.¹⁷⁹ He would most likely have had the skills to manufacture such a delicate piece of brass work.

The existence of this cittern, combined with the conviction that Boussu was its creator, now provides us with tangible and sound evidence that this maker was indeed involved in the trade of musical instrument manufacture in Amsterdam, having previously made instruments in Liège, Etterbeek and Brussels. Nevertheless, it is interesting to note in this respect that no printed paper label was used to sign the instrument; this seems to be another indication of Boussu's limited instrument construction activities in the Dutch city.

By making this cittern at an advanced age of nearly 70 years, having previously constructed mostly (or even solely) violin-family instruments, the notary-turned-luthier

¹⁷⁷ Pouloupoulos (2011), pp.13, 278, 343.

¹⁷⁸ Pouloupoulos (2011), p.202.

¹⁷⁹ Amsterdam City Archives, Amsterdam, 5033, 29, Poortersboek 1773-1777. On 28 February 1775, one Joh. (Johannes) Rousseau, gun-maker from Liège, is registered as *poorter* (freeman). This same Rousseau married Boussu's eldest daughter in Amsterdam in May 1771 (see Section 2.6). The Rijksmuseum in Amsterdam preserves several flintlock arms made by Rousseau (inv. nos. NG-2002-23-53-1, NG-2002-23-73-A, NG-2002-23-73-B and NG-2002-23-74).

showed that he was prepared to engage with evolving musical fashions during the later years of his life. From the characteristics of the instrument, it is evident that he was well familiar with examples from abroad. Apparently, he based his design, and especially its decoration, on examples from the British Isles more than on those from the north of France, thereby ultimately realising an instrument that could easily rival or even transcend the constructional quality and visual appearance of the foreign models. The early use of an innovative watch-key tuning mechanism demonstrates that Boussu was aware of advancing technologies in the field of musical-instrument design and production.

In the light of the considerable popularity of cittern-type instruments in certain circles of Dutch society – as described by van Amersfoort¹⁸⁰ – in the latter part of the eighteenth century, Boussu might have built the instrument for a dilettante, or even for a professional musician or music teacher. Alternatively, the first owner of the instrument might have been someone much closer to the maker. As put forward in Section 2.6, Boussu's two daughters both married on the same day in May 1771, and it is not unthinkable that the cittern, a rare creation of Boussu's later life, could have been made as a wedding present for one of them – particularly considering that this kind of instrument was often played by young women at the time. This attractive, albeit speculative idea would only gain in plausibility should a companion instrument from the same year emerge someday.

4.23. Fake 'Boussu' instruments

During the present study, every now and then instruments were encountered that carried the signature 'Boussu', but that could be rejected as authentic creations of this maker due to their atypical stylistic or constructional features. As was demonstrated throughout this current chapter, the instruments by Boussu display very recognisable features, both in style and construction, whereas their mutual dimensions are characterised by values that fall within very restricted margins. This makes these instruments relatively easy to identify and authenticate. Likewise, wrongly attributed instruments can be recognised fairly straightforward in most cases. In this section, several examples of the latter category will be given for the sake of illustration.

Besides six original violins by Boussu, the collection of the MIM also contains three violins attributed to or associated with him, which show characteristics that deviate from what we can see on instruments considered as originals. These three instruments are preserved

¹⁸⁰ Van Amersfoort (2014), p.102.

under the inv. nos. 1342, 1352 and 1975.047. Their f-hole and scroll designs differ significantly from Boussu's recognisable style. The first-mentioned instrument has a remarkable construction, where the ribs are installed on the back plate under an angle larger than 90 degrees, yielding a top plate with a larger surface than the back plate. The last-mentioned instrument is branded 'B.BOUSSU', but with a different mark than found on original instruments (see Figure 4.10(b)). Their body lengths, of 350, 354 and 358 mm respectively, as well as other sound box dimensions and proportions also deviate from those of typical violins by Boussu, which further confirms their incorrect attribution.

Robinson mentions a certificate, from the Jacques Français archives, for an instrument identified as "Bossu, Josephe Benoit, 1750".¹⁸¹ When a copy of this certificate (inv. no. 5/20), including photographs of the violin, was requested from the National Museum of American History (Washington, D.C., United States of America), where it is archived, it became clear from the stylistic characteristics of the instrument (f-hole and scroll shape) and its dimensions (a back length of 356 mm), that this instrument was not made by Boussu.

A few wrongly attributed instruments have also been encountered in the ownership of musicians. Obviously, these instruments have not been included in the database in Appendix V.

Finally, online auction websites, such as eBay, sometimes list violins described as "Full-sized Mirecourt violin, JTL school circa 1900 labelled Boussu Luthier 1755".¹⁸² The visual appearance of these instruments, as judged from the provided photographs on the auction website, confirms the provided description, i.e. that these instruments are not made by Boussu.

With the detailed and comprehensive description of the dimensional, constructional and stylistic features of Boussu's work in this chapter, we hope to provide the proper information for the future identification of this maker's instruments, and thus also for the recognition of incorrect instrument attributions.

¹⁸¹ Franklin A. Robinson, *Guide to the Jacques Français Rare Violins, Inc. photographic archive and business records* (Washington: Smithsonian, 2006), p.9.

¹⁸² Worthpoint, 'FULL-SIZED MIRECOURT VIOLIN, JTL SCHOOL CIRCA 1900 LABELLED BOUSSU LUTHIER 1755', <https://www.worthpoint.com/worthopedia/full-sized-mirecourt-violin-jtl-1777712332> (accessed February 2019).

Chapter 5

The luthier Boussu: his formation, construction methods and workshop organisation

5.1. Boussu's formation as a violin maker

The results of the presented biographical study (see Chapters 2 and 3) show that Boussu started to make instruments of the violin family on a professional basis rather abruptly, at a relatively advanced age and coming from what appears to be a totally different background. Why did he decide to change his profession, and from whom did he learn the required techniques? Perhaps he already practised fine woodworking or marquetry as a pastime when he was a notary. Or, was he active as an amateur musician? Unfortunately, the formal documents found in archives are not the most likely candidates for providing information regarding such private matters. A diary would be a more suitable source, however, for Boussu we are not aware of such a personal journal.

No indications have been found for a possible woodworking training in a master craftsman's workshop during his adolescence years, unless, of course, he did apprentice during the 'lost years' 1725-1728. But so far, not a single piece of information has been identified to confirm this possibility, see Section 3.4. Besides, since Boussu was allowed to work as a notary from 1729 onwards, it is more likely that he spent the period 1725-1728 as a trainee or clerk at a notary office, than as an apprentice of woodworking. As was discussed in Section 3.5.3, a practical experience of several years was a prerequisite to be appointed as a notary.

Likewise, no instruments have been identified with certainty from the period 1729-1748, when he practised as a notary, so the possibility of a learning period during those years cannot be supported by tangible evidence. The short stay in Liège, around 1749, which produced the first known instrument, could be interpreted as a period of learning the trade; maybe he worked under the wings of a more experienced maker there. However, a

search in the archives of the relevant craft guilds (*métiers*)¹ and trade chambers (*chambres*)² of Liège, focused on the period 1748-1751, did not return a mention of Boussu. Yet, it has to be said that these archives, especially those of the *métiers*, appear to be incomplete for the period of interest. It may thus well be that Boussu was admitted to a *métier*, more specifically of the *charpentiers* (carpenters, which included the *luthiers*), but that the documents regarding his membership have not been preserved. Nevertheless, in a notarial act from November 1749,³ Boussu is described as “*Maitre Luthier demeurant presentement en la ville de Liege*”, which suggests that he obtained a master title for instrument making during his stay in Liège.

Generally speaking, anyone who wanted to practise a craft or trade during the *Ancien Régime* in Liège was expected to become a member of a *métier*.⁴ For woodworkers, this was the guild of the *charpentiers*, which, as said above, also included the makers of wooden musical instruments.⁵ Within this particular *métier*, strict regulations were set out regarding the particular type of work a certain woodworking craftsman could perform, e.g. a carpenter was not allowed to make statues, while a sculptor was not allowed to make furniture.⁶ Admission to the *métier* could either be achieved by inheritance (“*relever*”) or by acquisition (“*acquérir*”). In the latter case, inhabitants from Liège paid a fee of 12 florins, while foreigners had to pay 20 florins.⁷ Already in a decree of the *métier* of the *charpentiers* of Liège from 1568,⁸ musical instrument makers are mentioned to fall under their regulation:

“35. *Item à celle fin que personne ne puisse prendre titre d’ignorance, à fait que chacun membre ne seroient dans le present article exprimez, avons bien voolus iceux tout au long declarer, comme Charpentiers, Scriniers & Menuisiers, Entretailleurs de bois, faiseurs de bois d’arquebuse, ponteniers, faiseurs de violons, faiseurs de moulin à moudre, faiseurs de couve, & generellement tous ceux qui*

¹ Guilds of interest are the *charpentiers* (which, according to the present-day inventory, united all kinds of woodworkers, including “*luthiers, facteurs d’orgues et d’épinettes*”) and the *charliers* (which included the *tourneurs de bois*). In our study, we searched: State Archives in Liège, Liège, Belgium, inventory identification BE-A0523/D6, inv. no. 205 (*charliers: reliefs, 1652-1789*), inv. no. 206 (*charliers: reliefs, listes de membres 1577-1738*), inv. no. 211 (*charpentiers: reliefs, avec tables, 1668-1734; plus quelques reliefs de 1735 à 1763*) and inv. no. 213 (*charpentiers: reliefs, listes de membres 1521-1784*).

² Trade chambers of interest are Sainte-Gertrude, which incorporated since 1684 the *charpentiers*, and Saint-Nicolas, which incorporated the *charliers*. In our study, we searched: State Archives in Liège, Liège, Belgium, inventory identification BE-A0523/D6, inv. no. 58 (Sainte-Gertrude: *recès, 1706-1772*), inv. no. 61 (Sainte-Gertrude: *comptes, recettes et dépenses, 1694-1801*), inv. no. 205 (Saint-Nicolas: *reliefs, 1652-1789*) and inv. no. 206 (Saint-Nicolas: *reliefs, listes de membres 1577-1738*).

³ Archives départementales du Nord, Lille, France, inv. no. 2E39/121: Archives des tabellions d’Avesnes, notary T. Lebeau, Avesnes-sur-Helpe, act *en minute*, 12 November 1749.

⁴ Edouard Poncelet, ‘Les bons métiers de la cité de Liège’, Bulletin de l’Institut archéologique liégeois, vol. 28 (1899), pp.1-219, at pp.11, 38-39.

⁵ Poncelet (1899), p.165.

⁶ Poncelet (1899), p.167.

⁷ Chartres et privileges des bons métiers de la ville, cité & banlieuë de Liège, vol. 2 (Liège, 1730), pp.40-41.

⁸ Chartres et privileges (1730), pp.43-44.

useront delle colle, & garderont des justilles, appartenant & concernant ledit Métier, qui sont telles, comme heppe, plenne grande & petite, theréts [?], siseaix, wenday, scie, fendresse, herpay & autres non exprimées, & ne pourat personne tailler Image de bois, Crucifix, Vierge Marie, Epitaphe, ny faire, ny vendre molure, buffet, table, garde-robe, forme de lict, violons, épinettes, orgues, carabennes, pistolets & autres choses de marchandises, spectantes au membre dudit bon Métier, que premièrement ils n'ayent acquis ou relevez ledit Métier, à peine que dessus.”

In the first article of a decree from 1619/1620, it is decided that, from that moment on, in order to protect the reputation of the organisation and the interests of the admitted master craftsmen against uncertified workers, a candidate who wants to practise the craft of woodworking as a master has to make an exam piece.⁹ Some examples for these pieces are given for the more common branches of woodworking, but not specifically for the musical instrument makers (they probably had to make an instrument appropriate to their expected skills, as selected by the exam committee¹⁰). The piece will be assessed by an expert craftsman.¹¹ It is also decided that future offenders against these new rules will be fined and their merchandise seized.¹²

The same decree further states that: “*nuls Gouverneurs [guild administrators] ne pourat donner relief [inheritable admission] à aucun étranger, comme ceux de Herstal ou autre de la Jurisdiction du Serenissime Archiduc de Brabant, interdisant [forbidding] à tels sortes de gens la jouissance de nos privileges sinon [except] à titre d'étranger*”.¹³ Thus, foreigners had a different status within the organisation. According to Poncelet, foreigners could acquire and practise a *métier* in Liège without becoming a citizen,¹⁴ thus being deprived of the accompanying privileges.¹⁵

A mandate from 1727 repeats that everyone who wants to be admitted to the *métier* of the *charpentiers* will have to present evidence of an apprenticeship of four years with a master, in Liège or another big city in Europe. Again, it is stated that all those who want to acquire the position, will have to make an exam piece (*'chef-d'oeuvre'*). The carpenters must make a staircase, the furniture makers a wardrobe, sideboard or table, the sculptors a Corinthian capital, and so on. For the exam work of musical instrument makers, no specifications are given.¹⁶

⁹ Chartres et privileges (1730), p.46.

¹⁰ Poncelet (1899), p.167.

¹¹ Chartres et privileges (1730), p.47.

¹² Chartres et privileges (1730), p.48.

¹³ Chartres et privileges (1730), p.48.

¹⁴ Poncelet (1899), p.16.

¹⁵ Poncelet (1899), p.11.

¹⁶ Chartres et privileges (1730), p.53.

Could Boussu, when arriving in Liège, have followed these rules, fulfilling the requirements for an apprenticeship and exam piece, with which he obtained the title *maître luthier* by which he was addressed in November 1749? In this case, the extant cello from 1749 (with database code BJB4901vc) could have been his master piece. However, his training period then must have been unusually short, less than year, assuming that he arrived in Liège around the end of 1748. The possibility of such a reduced apprenticeship period is not completely unthinkable, although a period of just one year seems very limited.

Interestingly, in a regulation by the *métier* of 1761, the apprenticeship period is brought back to two years, although the requirement for an exam piece remains. Foreigners are still admissible, if they pay the fee of 20 florins.¹⁷ Especially for musical instrument makers and *ponteniers* (likely bridge builders), a separate article is now included, reminding them to obey the existing rules:

*“39. Les ponteniers, les luthiers ou faiseurs de violons, d’orgues ou épinettes, et autres membres énoncés dans les chartres dudit métier, resteront sujets aux règles anciennes qui les concernent, et ne pourront ni étaler, ni vendre aucune espèce d’ouvrages ou marchandises qui sont du ressort des métiers dépendants ou attachés à celui des charpentiers, à moins de les avoir acquis ou relevés, comme il est statué, sous peine de confiscation de la marchandise, outre une amende de trois florins d’or, à partager comme dessus.”*¹⁸

Apparently, the instrument makers had caused problems in the past, by ignoring the guild rules, which must have made it necessary to issue a corrective order, to reinforce the authority of the *métier*. Maybe Boussu was one of the makers to have inspired this directive, by exercising his craft outside the regulations ten years earlier.

Milliot, when discussing the organisation of Parisian violin makers of the eighteenth century, signals an atmosphere of free trade and competition, in contrast to the controlling influence of the guilds a century earlier.¹⁹ A rise of entrepreneurial ventures in musical instrument making in many places in continental Europe, at the expense of the guilds, until the abolishment of these latter after the French Revolution, is also described by Heyde, who presents various case studies to support his arguments.²⁰ Heyde

¹⁷ M. L. Polain, *Recueil des ordonnances de la principauté de Liège - Troisième série - 1684-1794*, vol. 2 (Brussels: Devroye, 1860), pp.454-455.

¹⁸ Polain (1860), p.457.

¹⁹ Sylvette Milliot, *Histoire de la lutherie parisienne du XVIII^e siècle à 1960*, vol. 2: *Les luthiers du XVIII^e siècle* (Spa: Les Amis de la Musique, 1997), p.25.

²⁰ Herbert Heyde, ‘Entrepreneurship in pre-industrial instrument making’, in Boje E. Hans Schmuhl, Monika Lustig, ed., *Musikalische Aufführungspraxis in nationalen Dialogen des 16. Jahrhunderts - Teil 2: Musikinstrumentenbau-Zentren im 16. Jahrhundert* (Michaelsteiner Konferenzberichte, vol. 72, no. 2) (Augsburg: Michaelstein, 2007), pp.25-63.

further states that craft regulations were similar throughout continental Europe, showing only “some variety”.²¹ Both in Antwerp and Paris, already in the second half of the sixteenth century, musical instrument makers reached agreements with the guilds regarding exclusion of regulations for apprenticeship duration, the number of apprentices and journeymen per workshop and sales and trade. As a result, these ‘free masters’ could invest funds and expand their workshops substantially.²² According to Poncelet, at the end of the seventeenth century, similar transformations took place in Liège, which reduced the importance of the *métiers*. Some artists, like painters and sculptors, developed a certain self-awareness that made them feel superior to the other members of their guild.²³ Others just were reluctant to pay the admission fee.²⁴ Davy claims that, in order to limit the power of the *métiers*, the prince-bishops favoured the appearance of ‘*travailleurs libres*’ from the second half of the sixteenth century onwards.²⁵ Possibly, in such an economic and social climate, Boussu had decided to start working as an independent violin maker.

When adhering to this more plausible scenario where Boussu was indeed making instruments in Liège without neither a formal training nor a membership of a *métier*, he may have been forced to leave that city shortly after he arrived there as a result of a conflict with the local instrument makers or the guild. It is true that his stay in Liège was only short-lived, but again, evidence would be needed to support this theory. After arriving in the area of Brussels, he was nevertheless able to work professionally as an instrument maker, which may suggest that, at least in eighteenth-century Brussels, the practice of this craft was allowed, or perhaps tolerated, without a formal training and therefore without the membership of a guild. Brussels had its ‘free zones’ inside the city walls, such as the *Borgendael*,²⁶ where violin makers like Henri Joseph De Lannoy were located.²⁷ In *Borgendael* (near the present *Koningsplein*), and also on the free ‘Friday market’, especially ‘*vremdelinghen*’ (foreigners) sold goods until far into the eighteenth century, according to De Ridder. These foreigners had not joined a guild and did not consider themselves obliged to comply with the Brussels regulations. Their merchandise was deemed inferior by the master craftsmen, which resulted in much hostility from the side of the latter.²⁸ Workers from France in particular were despised, not only because of

²¹ Heyde (2007), p.27.

²² Heyde (2007), p.29.

²³ Poncelet (1899), p.40.

²⁴ Poncelet (1899), p.40.

²⁵ Daniel Bovy, *Les XXXII bons vieux métiers de Liège* (Liège: Desoer, 1981), p.11.

²⁶ Malou Haine, Nicolas Meeùs, ed., *Instruments de musique anciens à Bruxelles et en Wallonie - 17^e-20^e siècles* (Liège/Brussels: Mardaga, 1985), p.52; Paul De Ridder, *Taferelen uit het Brusselse ambachtsleven* (Brussels: Vereniging voor Brusselse geschiedenis, 1997), pp.40-41.

²⁷ Paul Raspé, ‘DE LANNOY (de Lannoy)’, in Malou Haine, Nicolas Meeùs, ed., *Dictionnaire des facteurs d’instruments de musique en Wallonie et à Bruxelles du 9^e siècle à nos jours* (Liège/Brussels: Mardaga, 1986), p.114, at p.114.

²⁸ De Ridder (1997), pp.40-41.

the devastating French bombardment of Brussels in 1695, but also because of alleged espionage.²⁹ Another siege and subsequent occupation of the city by French troops, between January 1746 and January 1749, must not have been helpful in attenuating these sentiments.³⁰ Boussu and his family are listed under the heading '*vremdelingen*' in the Brussels census register from 1755 (see Section 2.5), which makes a membership of a guild in Brussels unlikely. As native French, they too may have been the object of suspicion and antipathy. Boussu's initial stay in the suburb Etterbeek, prior to establishing himself as a maker within the city walls, could have been a way to avoid the interference of a guild.

So, whereas a full apprenticeship is not very plausible, it is not unthinkable that in the initial stages of his violin making activities, Boussu may have sought advice from professional luthiers. He could, for example, have maintained contact with Jean François Foncez (active between 1726 and 1757, died before 1760)³¹ or Étienne Simonet (active around 1730),³² both from Mons, while still living in Hainaut. In Liège, he may have had contact with Georges Palate (active first half of the eighteenth century, *d*1756).³³

Moreover, although it has not been confirmed to date, a possible familial connection with the Parisian harpsichord maker Jacques Boussu, active in the first decades of the eighteenth century as evidenced by various notarial acts,³⁴ cannot be ruled out, especially since several of Benoit Joseph Boussu's family members, including three of his half-brothers and one of his sons, would live in Paris for a prolonged time. While an interesting idea, this type of speculation could only be evidenced by future research. In any case, it is obvious that from the moment Boussu started to make instruments around 1749, these activities were on a professional basis, and he very quickly became an exceptional luthier, as demonstrated by the earliest instruments of his hand that have been preserved. The morphological characteristics of these instruments, such as the neck and upper block made from a single piece of wood, show that he knew the local construction techniques, in which an inner mould was presumably not employed. Other constructional features, as well as stylistic details, demonstrate that he must have observed instruments by others, and that he had a natural talent for the craft.

To resume, given the complexity of the violin as a wooden structure, and thus the required craftsmanship to build it, it is highly unlikely that Boussu gained the skills and knowledge to make bowed string instruments without at least a minimum degree of

²⁹ De Ridder (1997), p.40.

³⁰ Th. Davidovic, A. Vanrie, '1000 jaar Brussel, de Brusselaars en hun soldaten', *Waar is de tijd*, no. 11 (1999), pp.250-271, at pp.257-258.

³¹ Mia Awouters, 'FONCEZ (Foncé), Jean-François', in Haine, Meeùs, ed. (1986), pp.170-171, at pp.170-171.

³² Nicolas Meeùs, 'SIMONET, Etienne', in Haine, Meeùs, ed. (1986), p.380, at p.380.

³³ Nicolas Meeùs, 'PALATE, Georges', in Haine, Meeùs, ed. (1986), p.319, at p.319.

³⁴ For example: Archives Nationales, Paris, France, inv. no. MC/ET/II/50: Archives des notaires de Paris, notary Louis Tranchard, Paris, act *en minute*, 5 August 1718.

(formal or informal) instruction or help. Still, our current evidence and constructed timeline point to a largely autodidactic pathway. Also, in order to get involved in such making activities, Boussu must have had affinity with woodworking, music and musical instruments. Due to the absence of any form of personal report, such as a diary (*livre de raison*) or a collection of letters, it is hard to exactly know his motives and motivations. The future discovery of a possible apprenticeship contract, or even the above-mentioned private writings, would permit us to better understand *why* and *how* Boussu got involved in the field of lutherie.

5.2. Music and instrument making in Brussels in the eighteenth century

Once Boussu had moved to the area of Brussels and started to produce violin-family instruments from a professional intention, he must have become part of the city's cultural scene. Therefore, a short overview will be given regarding the developments in music and violin making in Brussels during the seventeenth and eighteenth century.

The religious struggles in the Low Countries in the second half of the sixteenth century, when part of the local population revolted against the Catholic Spanish rulers, ultimately resulted in the division of the region into the Northern and the Southern Netherlands.³⁵ The seven Protestant northern provinces united into a republic from 1579, which would grow into a strong political and cultural force in the seventeenth century. The southern territories returned to be within the Spanish sphere of influence, with, from 1598, the archduke Albrecht and his wife archduchess Isabella (daughter of Spanish king Philip II) as sovereigns. At the beginning of the seventeenth century, Brussels functioned as the capital of the Southern Netherlands and under the regime of the archdukes, Catholicism was consolidated.

During Albrecht's and Isabella's regency, the court chapel orchestra became the most important musical ensemble in the Southern Low Countries. According to Awouters,³⁶ this stable situation ensured that from the middle of the seventeenth to the end of the eighteenth century, various families of musicians (instrumentalists as well as singers) and instrument makers would be employed by the court chapel for several generations. One such early chapel employee was Laureys Vander Linden, recorded as musician and

³⁵ Unless otherwise stated, the historical context is based on J. Blom, E. Lamberts, ed., *Geschiedenis van de Nederlanden* (Amersfoort: ThiemeMeulenhoff, 2012).

³⁶ Mia Awouters, 'De hofkapel en haar instrumentenbouwers ten tijde van Karel van Lotharingen', *Het tijdschrift van de Dexia Bank*, vol. 54, no. 212 (2000), pp.63-70, at p.63.

instrument maker in court documents during the period 1611-1653.³⁷ Subsequently, archival evidence demonstrates that successive members of the Borbon family worked at the chapel as musicians and/or string instrument makers from the 1640s until 1710.³⁸ Awouters distinguishes Peeter (i), Peeter (ii) and Gaspar, presumably grandfather, father and son.³⁹ They were succeeded by descendants of the Snoeck family – Egidius, Marcus and Henri Augustin – who would serve in the chapel as instrument makers and repairers between 1710 and 1764.⁴⁰ Several bowed string instruments by members of the Borbon and Snoeck family have been preserved in the collection of the MIM (Brussels).

Besides the chapel, another musical entity at the court during the seventeenth century was the chamber ensemble. Whereas the chapel musicians provided the music for the religious services at the court, the chamber orchestra, with a different music master, performed worldly repertoire for diversion of the nobility. Chapel players sometimes also worked for the chamber ensemble.⁴¹ In Figure 5.1, a painting by the Flemish artist Hieronymus Janssens (*b* Antwerp 1624 - *d* Antwerp 1693) is shown, depicting a court scene with a dancing nobleman and -woman, accompanied musically by a small group of string instrument players. This painting gives an impression of how musicians were deployed in seventeenth-century court life in the Southern Low Countries, and of the instruments they used.

³⁷ Karel Moens, 'Vioolbouw in de Oostenrijkse Nederlanden', *Arca Lovaniensis*, vol. 10/b, *Jaarboek 1981* (Leuven: Depret, 1983), pp.135-156, at p.144; Mia Awouters, 'VANDER LINDEN, Laureys', in Haine, Meeùs, ed. (1986), pp.427-428, at pp.427-428.

³⁸ Lutgart Moens, *De familie Snoeck, vioolbouwers aan het hof te Brussel in de 18^{de} eeuw* (unpublished licentiate thesis, University of Leuven, 1976), pp.34-38; Paul Raspé, 'La lutherie', in Robert Wangermée, Philippe Mercier, ed., *La musique en Wallonie et à Bruxelles*, vol. 1 (Brussels: La renaissance du livre, 1980), pp.275-284, at p.276; Moens (1983), pp.137-138, 142-145.

³⁹ Mia Awouters, 'BORBON', in Haine, Meeùs, ed. (1986), pp.60-61, at pp.60-61.

⁴⁰ Moens (1976), pp.79-86, 95-103, 117-123; Raspé (1980), pp.276-278; Moens (1983), pp.142-145; Mia Awouters, 'SNOECK', in Haine, Meeùs, ed. (1986), pp.385-388, at pp.385-388.

⁴¹ Robert Wangermée, 'La musique à la chapelle royale des Pays-Bas', in Wangermée, Mercier, ed. (1980), pp.201-210, at p.202.



Figure 5.1. Painting by Hieronymus Janssens (1624-1693) from 1658, titled 'Ball on the terrace of a palace'. Top to bottom: (a) entire painting, (b) detail. Palais des Beaux-Arts de Lille, Lille, France, inv. no. P186. Photo: © RMN-Grand Palais / René-Gabriel Ojéda.

A third major factor in musical life in Brussels was formed by the churches. In the seventeenth century, church music was given new colour due to the introduction of *basso*

continuo and violins.⁴² At times there was a strong musical connection between the ducal court and the St. Gudula collegiate church: Jan Tichon, for example, functioned as director of both their ensembles between 1658 and 1666.⁴³ In the course of the century, the Flemish musical tradition, initially still prevailing at the court chapel, would be gradually influenced and replaced by the more contemporary Italian styles.⁴⁴ In 1703 or 1706,⁴⁵ Venice-born Pietro Antonio Fiocco became the chapel master, and a new Italianate approach was introduced by him and his successors.⁴⁶

Following the deaths of the archdukes Albrecht and Isabella in 1621 and 1633 respectively, a series of Spanish governors ruled the Southern Netherlands throughout the seventeenth century. As a result of the War of the Spanish Succession in the early eighteenth century, the region, including Brussels, had come under Austrian government in 1715. A big fire in 1731 destroyed the ducal palace at the Coudenberg, including musical treasures which were kept there.⁴⁷ During the middle of the eighteenth century, under the regime of Charles of Lorraine (Governor-General of the Austrian Low Countries), who took a keen interest in science and art, music making at the court prospered. The direction was now in the hands of chapel master Jean Joseph Fiocco and his successor Henri Jacques De Croes, and the chapel included players like violinist and composer Pieter Van Maldere, harpsichordist, organist and composer Josse Boutmy and members of the Rottenburgh family.⁴⁸ Typically, the ensemble consisted of six to ten adult male singers and a number of choir boys, around ten players of bowed string instruments of various sizes and an organ player, completed by one or two oboists and a bassoonist.⁴⁹ By this time, the chamber orchestra was no longer a separate unit, since the chapel's instrumentalists provided music for religious as well as secular purposes.⁵⁰ Concurrently, Brussels opera theatre 'La Monnaie', founded in 1700, followed the fashion of other European capitals, especially that of Paris with French and Italian repertoire. Under the

⁴² José Quitin, 'La musique dans les églises urbaines', in Wangermée, Mercier, ed. (1980), pp.219-228, at pp.219-222.

⁴³ Denis Coekelberghs, André Vanrie, 'Brussel en de kunsten', in Jean Stengers et al., ed., Brussel - Groei van een hoofdstad (Antwerp: Mercatorfonds, 1979), pp.297-346, at p.345.

⁴⁴ Wangermée (1980), p.204.

⁴⁵ Moens, Awouters, and Weytjens state 1703 as the year of Fiocco's appointment as chapel master; see Moens (1976), p.14; Awouters (2000), p.64; Renate Weytjens, 'De Fiocco's: een Italiaanse muzikantenfamilie in de Zuidelijke Nederlanden', in Louis Peter Grijp, ed., Een muziekgeschiedenis der Nederlanden (Amsterdam: Amsterdam University Press/Salomé, 2001), pp.328-333, at p.330. On the other hand, Coekelberghs and Vanrie, and Sadie, state the year of appointment as 1706; see Coekelberghs, Vanrie (1979), p.345; Julie Anne Sadie, 'Biographical dictionary - The Low Countries', in Julie Anne Sadie, ed., Companion to Baroque music (Berkeley/Los Angeles: University of California Press, 1998), pp.319-325, at p.323.

⁴⁶ Coekelberghs, Vanrie (1979), p.345.

⁴⁷ Coekelberghs, Vanrie (1979), p.345.

⁴⁸ Koen Buyens, *Musici aan het hof - De Brusselse hofkapel onder Henry-Jacques De Croes (1749-1786): een sociaalhistorische studie* (Brussels: VUBPRESS, 2001).

⁴⁹ Moens (1976), pp.15-18; Buyens (2001), pp.79, 119-121.

⁵⁰ Wangermée (1980), p.209.

guidance of D'Hannetaire (Jean Nicolas Servandoni) and later Ignaz Vitzthumb, the theatre became renowned by the second half of the eighteenth century.⁵¹

Returning to the court's instrument makers, after the demise of Marcus Snoeck in 1762 and a short tenure of his son and successor Henri Augustin (1762-1764), the position of court instrument maker was abolished and replaced by that of repairer, wages being reduced from 300 to 50 florins.⁵² The new role was fulfilled by Egidius Michiels (appointed in 1764, d1783) and Joannes Nuemans (appointed in 1758, d1784).⁵³ While Michiels was in charge of the violin-family division, Nuemans appears to have tuned and maintained the harpsichords; few instruments are known by either of these two men, so it is likely that new instruments were bought from local independent makers or from abroad.⁵⁴ The last court maker was Henri Joseph De Lannoy, who was employed from 1785 until 1794.⁵⁵ At the time of his appointment, De Lannoy had already spent 50 years as an independent violin maker in various cities (starting in Brussels in 1730),⁵⁶ and he is mentioned in chapel payrolls as instrument maker rather than repairer.⁵⁷ Only one instrument from his time at the court is known, however, a violin from 1791,⁵⁸ although its authenticity has been questioned.⁵⁹ In 1794, the court chapel was disbanded, due to the annexation of the Austrian Low Countries by France.⁶⁰ This event ended the long tradition of Brussels court instrument making.

In parallel with the activity of these court makers, Brussels also harboured several independent violin makers.⁶¹ One of the earliest amongst them was Jan De Maseneer,⁶² who is believed to have worked around the same time as Gaspar Borbon. Other independent violin makers – Benoit Joseph Boussu, Jean Hyacinthe Rottenburgh⁶³ and Petrus Boom⁶⁴ – were active in the second half of the eighteenth century and must have taken advantage of the declining instrument-making activities at the court. Perhaps, the

⁵¹ Coekelberghs, Vanrie (1979), p.345.

⁵² Moens (1976), pp.119-121; Moens (1983), p.144.

⁵³ Moens (1976), pp.124-126; Moens (1983), p.144; Mia Awouters, 'MICHIELS, Egidius', in Haine, Meeùs, ed. (1986), pp.300-301, at pp.300-301; Mia Awouters, 'NUMANS (Nuemans, Neumans), Joannes Baptista', in Haine, Meeùs, ed. (1986), pp.312-313, at pp.312-313.

⁵⁴ Moens (1983), p.144.

⁵⁵ Moens (1976), pp.129-130; Moens (1983), p.144.

⁵⁶ Raspé (1986), p.114.

⁵⁷ Moens (1976), p.130; Moens (1983), p.144.

⁵⁸ Musical Instruments Museum, Brussels, inv. no. 2810.

⁵⁹ Moens (1983), p.144.

⁶⁰ Buyens (2001), p.232.

⁶¹ Moens (1983), pp.146-152.

⁶² Mia Awouters, 'DE MASENEER (De Maeseneer), Jan', in Haine, Meeùs, ed. (1986), p.127, at p.127.

⁶³ The Musical Instruments Museum, Brussels, collection includes a cello (inv. no. 1369) bearing the handwritten label reading 'Jean Hijacint Rottenbûrgh / maior fecit a bruxelles 1753', as well as a viola (inv. no. 2835) attributed by the nineteenth-century collector César Snoeck to 'J.H. Rottenburgh'.

⁶⁴ The Musical Instruments Museum, Brussels, collection includes two instruments by this maker: a violin from 1779 (inv. no. 2787) and a viola from 1776 (inv. no. 2837).

autonomous makers built instruments for use in the court chapel on occasions. It is known that at least Boussu supplied instruments to the St. Gudula church,⁶⁵ self-employed musicians⁶⁶ and amateurs.⁶⁷

In a previously published study by the current author and several co-authors, using CT scanning and digital endoscopy, we have thoroughly examined, visualised and compared four representative violins by historical Brussels makers – Jan De Maseneer (active in the second half of the seventeenth century), Gaspar Borbon (c1636-1710), Egidius Snoeck (c1660-after 1734) and Boussu – from the MIM collection. These instruments all still contain original, characteristic construction features and stylistic elements.⁶⁸ The results permitted us to comment on the architecture and aesthetics of these instruments. More specifically, we have identified authentic necks with integral upper blocks in two of the instruments and a remaining extended upper block platform on the back plate of the two other violins. Thus, all four violins were originally built with the neck and upper block made from a single piece of maple, where the upper rib parts were secured in side slots in the neck root, although this structure is only preserved in full in the examined Borbon and Boussu violins. Furthermore, with the exception of the Boussu violin, the ribs are fitted *into* a groove in the back plate. Corner blocks are present in all four violins. From these observations, we confirmed that all four studied instruments were assembled from the back plate without the aid of a (full) mould. It is thus interesting to note that this kind of construction system, normally associated with early making traditions,⁶⁹ was still in use by both court and independent makers in Brussels until well into the eighteenth century. We do not, however, want to classify these working methods as solely ‘Flemish’ or typical of the Southern Low Countries. After all, extant seventeenth- and early eighteenth-century violin-family instruments from other Northern European regions,

⁶⁵ Lewis Reece Baratz, ‘Les œuvres de Joseph Hector Fiocco (1703-1741) dans la bibliothèque du chanoine Vanden Boom (1688-1769)’, in Roland Mortier, Hervé Hasquin, ed., *Etudes sur le XVIII^e siècle*, vol.19: Musiques et spectacles à Bruxelles au XVIII^e siècle (Brussels: Editions de l’Université de Bruxelles, 1992), pp.47-77, at pp.48, 58. Baratz cites a document from the archive of the St. Gudula church (State Archive of Belgium, location Anderlecht, Oud archief van de kapittelkerk van Sint Michiel en Sint Goedele te Brussel, inv. no. 10125), stating that canon Vanden Boom (d1769) had donated to the church “[...] *seven Violen waer van een van Bossù, vier Violoncellen waer van een van Bossù, twee alto violen, twee dobbel Bassen waer van eenen van Bossù* [...]”.

⁶⁶ Marie Cornaz, ‘La vie musicale à Bruxelles entre 1741 et 1780 vue par le biais de la Gazette de Bruxelles et de la Gazette des Pays-Bas’, in Mortier, Hasquin, ed. (1992), pp.39-45, at pp.41-42. Cornaz reports that the Brussels music publisher and dancing master Joseph Claude Rousselet (d1760) owned a “*basse de Bossu*”, since his widow advertised it for sale in 1765.

⁶⁷ Jean-Philippe Van Aelbrouck, ‘Annonces concernant la musique dans les gazettes et périodiques bruxellois au XVIII^e siècle (1741-1780)’, *Tradition wallonne*, vol. 4 (Brussels: Ministère de la communauté française de Belgique, 1987), pp.761-799, at p.799. During a public auction announced in the *Gazette des Pays-Bas* of 17 July 1780, wine seller Jean Baptiste Van Dievoet offered for sale “*un violon fait en 1752 par B.J. Bossu*”.

⁶⁸ Geerten Verberkmoes, Anne-Emmanuelle Ceulemans, Danielle Balériaux, Berend Stoel, ‘An inside look at four historical violins by Brussels makers’, *The Galpin Society Journal*, vol. 69 (2016), pp.109-136, 159-165.

⁶⁹ Karel Moens, ‘De viool in de 16de en 17de eeuw. Oorsprong en ontwikkeling van haar vorm- en bouwkenmerken. Deel III: Reminiscenties aan de speelmanneninstrumentenbouw in de 17de-eeuwse vioolbouw’, *Musica Antiqua*, vol. 2 (1985), pp.85-90, at p.85.

such as England (William Prior from Newcastle and William Baker from Oxford)⁷⁰ and the southern Black Forest and Switzerland⁷¹ show similar constructional features. Lindeman⁷² states that Paris makers from the first half of the eighteenth century, Jacques Bocquay and Claude Pierray, still employed the ‘through neck’ method as well. This makes it legitimate to argue that during the seventeenth and eighteenth centuries, such kind of practice was customary rather than exceptional in northern parts of Europe.

From an aesthetic perspective, the court makers consistently employed a uniform style, apparently modelled after earlier South German and North Italian examples.⁷³ A representative instrument in this respect is a Gaspar Borbon viola from 1692 (MIM inv. no. 2836). Thus, it appears that makers attached to the Brussels court held on to aesthetic ideals that already had been internally established since the initial violin making attempts within the court chapel. Only in the work of Marcus Snoeck (active c1718-1762), the last court employee to build a substantial number of instruments, some contemporary stylistic influences become noticeable, despite his use of local construction methods.⁷⁴ On the other hand, the autonomous makers seem to have had a more adaptive attitude towards contemporary external guides, embracing influences from foreign examples, as can be seen in the instruments of De Maseneer and Boussu. Yet, this still could result in an individual style, as is especially evident in the work of Boussu. Eventually, these stylistic reflections must lead to the rejection of the idea of a collective ‘Brussels’ or ‘Flemish’ school.⁷⁵ After all, the court makers held on to an ‘old-fashioned’ style and also construction (f-hole shape, scroll style, sound box outline, arching, inlaid tailpiece and fingerboard, ribs set into the back plate, bass bar from the mass of the top plate, ‘through neck’),⁷⁶ mostly shaped after early foreign precedents, while the self-employed makers started to incorporate contemporary influences from abroad (stylistic features, glued-in bass bar, ribs glued onto the back plate, use of linings, separate upper block).⁷⁷

⁷⁰ John Milnes, Tim Baker, John Dilworth, Andrew Fairfax, *The British violin - The catalogue of the 1998 exhibition ‘400 years of violin & bow making in the British Isles’* (Oxford: British Violin Making Association, 2000), pp.398-399.

⁷¹ Olga Adelman, Annette Otterstedt, *Die Alemannische Schule - Geigenbau des 17. Jahrhunderts im südlichen Schwarzwald und in der Schweiz* (Berlin: Staatliches Institut für Musikforschung, 1997), pp.45-48.

⁷² Fred Lindeman, *The rebirth of the Baroque violin* (Amsterdam: Gopher, 2011), p.36.

⁷³ Moens (1983), p.140; Awouters (2000), p.63.

⁷⁴ Awouters, ‘SNOECK’ (1986), pp.386-387.

⁷⁵ Violin making was categorised in ‘schools’ in retrospect in the nineteenth century, in a time in which systems were devised to classify all forms of art. Wijnsouw states: “The means of classification of artists in national schools, originating in the nineteenth century and expanding into modern art historical scholarship, has been increasingly though not systematically scrutinized. Clearly, the use of this category of ‘national schools’ cannot be ignored as a historical reality, or as a means of classification, even for current research. Present scholars do propose a more inclusive vision of national schools as fluid entities, part of a symbiotic system, and have devoted increasing attention to their intellectual particularity, as well as the role and impact of mobility and exchange.” See: Jana Wijnsouw, *National identity and nineteenth-century Franco-Belgian sculpture* (New York/Abingdon: Routledge, 2017), p.4.

⁷⁶ Moens (1983), pp.139-140; Verberkmoes et al. (2016).

⁷⁷ Moens (1983), pp.146-152.

Moens has proposed that the independent Brussels makers of the eighteenth century were adhering less to the traditional local techniques, since as specialised craftsmen with advanced making skills, they worked at a higher technical level.⁷⁸ This may explain why they were more open to incorporate new constructional and stylistic elements into their instruments. In contrast, the court makers, since most of them were musicians as well, had for long preferred to maintain the employ of tradition-based, proven techniques.⁷⁹ In this respect, Awouters has argued that the persistence in clinging to the outdated construction methods by certain makers is largely due to the fact that these men worked within the protective environments of the guild, and of close familial and professional ties.⁸⁰ In these circles, knowledge was primarily passed on from father to son (or master to pupil) instead of being updated from outside examples.

As came forward from our previously published study,⁸¹ when looking at the internal construction of Boussu's instruments, a hybrid architecture can be distinguished, in which traditional elements (most notably the 'through neck') were combined with features present in contemporary examples from Tyrol and the north of Italy. Whereas Boussu had started to diverge from the local traditions, by abandoning the insertion of the ribs into a channel in the back plate and by incorporating corner blocks, linings and a glued-in bass bar, instruments of his contemporary fellow citizen Jean Hyacinthe Rottenburgh already fully display the classical ('Italian') constructional features, including a separate upper block.⁸² So, in the course of the eighteenth century, various independent makers in the Southern Netherlands, such as Boussu and Rottenburgh, but also De Ligne, Lorret and De Comble, would all to a lesser or greater extent include contemporary elements (glued-in bass bar, linings, corner blocks, separate upper block, use of a mould) into their practice, in addition to or as replacement for local habits, resulting for each of them in a personal method of production. By the beginning of the nineteenth century, the rise of French lutherie marked the definitive end of these local, diversified customs.⁸³

5.3. Boussu's construction methods

The study of around 50 instruments by Boussu, as presented in Chapter 4, has provided profound insights into his production rate, constructional and stylistic characteristics and evolution as a maker. From observations of this substantial collection of surviving

⁷⁸ Moens (1983), p.146.

⁷⁹ Moens (1983), pp.137-140, 146-147.

⁸⁰ Awouters (2000), p.63.

⁸¹ Verberkmoes et al. (2016).

⁸² Moens (1983), p.152.

⁸³ Moens (1983), p.156.

instruments, it appears as if Boussu developed his own hybrid working system. He most likely based his approach on both familiarity with local traditions (the ‘through neck’, where neck and upper block are made from a single piece of wood) as well as his observation of the constructional features of foreign instruments that came under his attention (ribs glued *onto* the back plate, *not* inserted *into* it, the use of linings and corner blocks and a glued-in bass bar). A maker like Boussu, who presumably did not receive a formal type of training in the craft, must have developed his own methodology based on the real-life observation of instruments, since the publication of treatises on violin construction – resulting in dissemination and standardisation of making methods – would still be decades away.⁸⁴

For several violins, cellos and violas by Boussu, as well as for several other instruments from the collection of the MIM by his Brussels predecessors and contemporaries (De Maseneer, Borbon, Snoeck), CT scanning and stylistic analysis was performed, as was already discussed in the previous section, in order to gain additional insight into their construction and to get a broader view of the development of violin-making techniques practised in that city. The results of these CT studies have been presented in Chapter 4 (for the instruments by Boussu) and in an article in *The Galpin Society Journal* of 2016 (for Brussels violins by four different makers).⁸⁵ The resulting CT visualisations offer detailed information on the internal architecture of the examined instruments, and have allowed us to place Boussu’s methods in a geographical and chronological perspective (see Section 5.2).

With the newly gained insights, a deduction of Boussu’s methods of violin and cello making could be attempted. Certainly, he made his instruments with a neck including an upper block from a single piece of maple, as can be seen in the violin with MIM inv. no. 2781 (see Figure 4.35(a)) and the cello with MIM inv. no. 1372 (see Figure 4.35(b)). This observation, in combination with the roundly finished upper block extending into a small but noticeable foot, supports the hypothesis of a making system without a full mould. A full outer (exterior) mould is ruled out because of the protruding neck. Furthermore, it has been suggested that exterior moulds only came (widely) in use in the nineteenth century.⁸⁶ An integrated upper block, if pre-shaped to its rounded form, is incompatible with an inner (interior) mould, since it could never be temporarily glued into the upper recess of such a mould (unless the upper block would initially be left in a rectangular

⁸⁴ The three earliest treatises discussing violin making in detail, known to the author, are: Antonio Bagatella, *Regole per la costruzione de’ violini viole violoncelli e violoni* (Padua: A Spese dell’Accademia, 1786); Giovanni Antonio Marchi, *Il manoscritto liutario di G.A. Marchi*, Roberto Regazzi, ed., Nicoletta Sbarra, trans., John Guthrie, rev. (Bologna: Forni, 1786/1986); Sébastien André Sibire, *La chélonomie, ou le parfait luthier* (Paris: author, 1806).

⁸⁵ Verberkmoes et al. (2016).

⁸⁶ Annette Otterstedt, Hans Reiners, ‘What old fiddles can teach us...’, *The Galpin Society Journal*, vol. 52 (1999), pp.219-242, at p.225; Stewart Pollens, *Stradivari* (Cambridge: Cambridge University Press, 2010), p.67.

block shape, a possibility that would entail several other practical problems, as will be discussed below). According to Otterstedt and Reiners, when discussing historical developments in violin making, “the following innovation took place in Italy, perhaps in Venice or Brescia, or Andrea Amati’s workshop in Cremona: the unity of neck and upper block was abandoned in favour of the use of an inner mould”.⁸⁷ This statement assumes a practical incompatibility between the two systems.

If however, for a moment, we imagine that Boussu would have used an interior mould, then the upper block should have been left in a rectangular block shape, to allow a snug fit into the mould’s upper recess (for alignment purposes) and to allow temporary gluing of the neck to the mould. The side of the upper block that should become spot-glued to the mould should have been finished in such way (flat, square to the bottom surface, perpendicular to the centreline of the neck), that upon placement of the neck part against the mould, the two parts would be in proper alignment.

Although this solution seems to permit the use of an internal mould, a number of impracticalities will present themselves. First of all, proper alignment of the neck (in all three planes) would be rather cumbersome when following this method. A small inaccuracy at the contact plane of the upper block with the mould easily results in unacceptable deviations from correct alignment at the scroll end of the neck, and therefore, meticulous and time-consuming fitting and checking would be required. Once, this had been accomplished, the neck/upper block combination could be attached to the mould, but since the temporary gluing surface of the upper block is at end grain orientation, the glue would be quickly absorbed, resulting in an unreliable (temporary) joint. Likewise, during the next step, the assembly of the ribs parts, problems could arise with the insertion of the wedges securing the upper rib parts into the slots of the upper block (the mould would partially block the slots). The mould would not only hinder insertion of the wedges, but in addition, excess glue could easily find its way between the rib parts and the mould, resulting in an unwanted bond between these parts.

Furthermore, only after completion of the rib structure, addition of the back plate to the structure and removal of the mould could the (still rectangular) upper block have been shaped to its final (rounded) form. Shaping the hardwood upper block at this stage is not a convenient task. Considerable force would be needed to remove the maple with a chisel, introducing the potential risk of deforming or even breaking apart the violin under construction. In addition, during this task, the craftsman could accidentally lose control over the chisel, damaging the block’s foot or even cutting into the back plate. When observing the upper block area of Boussu’s instruments, no such damage marks have been

⁸⁷ Otterstedt, Reiners (1999), p.230.

noticed. As can be seen in Figures 4.36(b), (c), (f) and (g), the original upper blocks and their supporting platforms are finished very neatly. At the end of the foot on these four surviving original upper blocks, a well-defined edge is present (especially visible in Figures 4.36(c) and (f)), which runs smoothly in a direction parallel to the back plate (see, for example, Figure 4.36(f)). This implies that the shaping tools (gouges, rasps) to make this edge have been used in a direction parallel to that edge. Since installed ribs would prevent, or at least impede, the use of these tools in this assumed cutting direction, it is highly likely that the upper block was brought into shape when the neck was not yet attached to the rib structure. This thus once more rejects the idea of Boussu using an interior mould. Interestingly, Figure 5.2 shows tool marks (probably by a rasp) on an integrated upper block that was once installed in a cello by Boussu from 1749 (database code BJB4901vc), and these marks run indeed parallel to the lower edge of the block. This observation further confirms that the upper block was shaped when the neck was not yet attached to the rib structure.



Figure 5.2. Detail of the integrated neck block of a cello by Boussu from 1749, displaying rasp marks in the direction parallel to the lower edge of the block (note that the damage at the front edge of the foot most likely occurred when the neck was removed from the cello).

Instead of relying on a (full) mould, Boussu presumably built from the back plate upwards, thereby using the plate's outline as a guide for the final shape of the sound box. Given the observed high degree of longitudinal symmetry, see Figure 5.3, and dimensional uniformity of the back plate contours of this maker's violins (see Section 4.9), it is most likely that the back plate's outline was drawn on the joined and levelled maple board in the initial stage of making the plate, using a half-template that could be flipped over the central longitudinal axis of the board, thus yielding left and right halves of optimal uniformity.⁸⁸ After the back plate was completely shaped, arched and graduated, the

⁸⁸ When comparing a making system without a mould (where the back plate outline is drawn from a half-temple) to a system with an inner mould (where the back plate outline is constructed based on the rib garland), the first method is expected to produce the highest degree of longitudinal symmetry within the back plate. Tracing the

neck/upper block combination could be glued on, a job that had to be done with some sort of aid to ensure that the neck would be aligned in the continuous extension of the back plate's central axis. Several possible versions of this aid can be imagined (ruler, wire, jig), although some further clues in Boussu's instruments point towards a distinct variation.

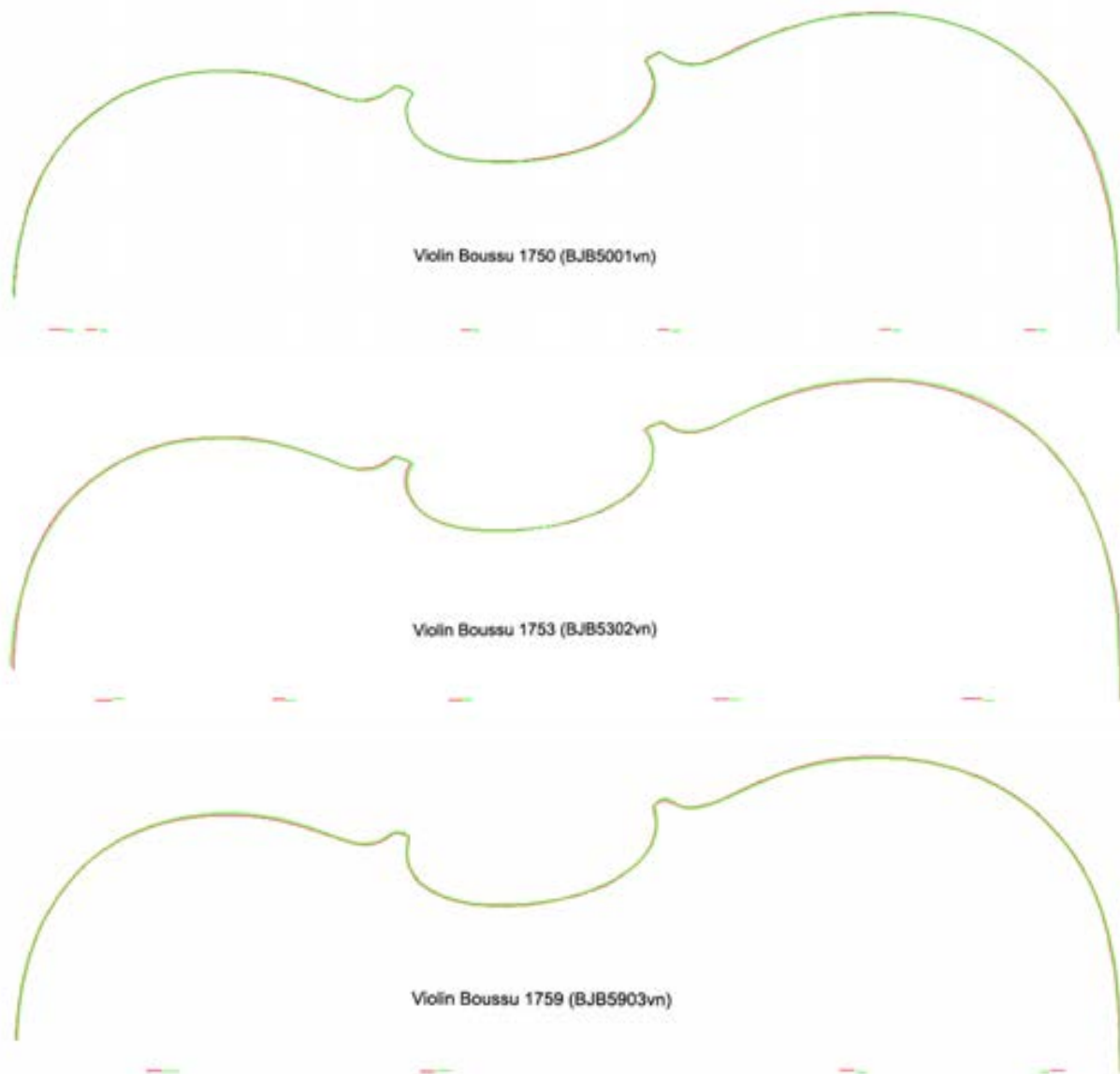


Figure 5.3. Back plate contours for the treble side (red line) and bass side (green line) of three violins by Boussu, traced from CT reconstructions. Top to bottom: (a) back plate contours for a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn), (b) back plate contours for a violin from June 1753 (MIM inv. no. 2784; database code BJB5302vn), (c) back plate contours for a violin from 1759 (database code BJB5903vn). Small deviations between two paired halves may also be the result of wear.

outline directly from a template leaves the least room for deviations, while the mirroring of the template ensures an optimal symmetry of the marking. In case of the second method, where the back plate outline is constructed based on the rib garland, an accumulation of small errors (asymmetry in the mould itself, ribs not fully connecting to the mould, rib deformation, variations in constructed plate overhang, deviations in length and shape of the plate corners) will introduce certain deviations in the back plate outline, especially noticeable at the plate corners.

A very peculiar feature of this maker's violins is the highly identical ear-to-ear width of the scrolls. For example, the five original scrolls on the instruments from the MIM collection have scroll widths of 36.5, 36.0, 36.0, 36.5 and 35.8 mm (average: 36.2 mm, standard deviation: 0.29 mm). The majority of scrolls on other violins by this maker in private ownership show very similar widths (see Table 4.4). Of course, this precision could have resulted from the maker's apparent strict routines (the back plate lengths of his many surviving violins have a typical uniform length of 361 to 363 mm), but the uniformity of the scroll widths could also have had a functional purpose: this dimensional homogeneity may point towards an alignment aid which included some sort of fixture to receive the scroll, the width of the fixture opening being the standardised scroll width of around 36.5 mm. My interpretation of such a table, or work board, is depicted in Figure 5.4. The back plate can be clamped on this table, aligned with the table's centreline, and after that, the completed neck (including upper block with side slots) can be easily positioned in appropriate alignment and glued on.



Figure 5.4. Alignment table as made and used by the author for making three violin replicas.

As a next stage in the proposed making sequence for Boussu, a lower block and four corner blocks – pre-shaped at the sides that would receive the ribs – could have been glued to the back plate, serving as guides to help position the six rib parts during the next construction step.⁸⁹ In this consecutive step, pre-bent rib parts may have been glued to the blocks and the back plate, subsequently followed by the application of linings where ribs and back plate meet. However, another observation leads to reconsideration of such a working order for the rib structure. In several of the earliest instruments by Boussu, from 1749 until around 1751, very small original linings are present at the connection between the plates and ribs, whose cross section can approach dimensions of only around

⁸⁹ Since no spaces are observed between the corner blocks and rib parts in original instruments (see CT reconstructions in Figures 4.40 and 4.41), it can be concluded that Boussu placed the pre-shaped corner blocks first, followed by the ribs (and not in the reverse order). Fitting the flexible ribs to the pre-shaped blocks is an easier and more effective way of working, compared to shaping the blocks to make them fit onto an existing rib structure.

1.5 × 1.5 mm, see Figures 4.38(a) through (d). Most present-day violin makers would agree that it would be impossible to directly apply such small-sized linings at the junction formed by the ribs and back plate, due to their tendency to warp during the gluing process, and the inability to properly clamp them in place. Moreover, the linings are not inserted in the corner blocks, but have feathered ends that always seem to terminate a little before touching the blocks. From these observations, another way of assembling the rib parts and linings is proposed. It may have been possible that Boussu employed ‘partial moulds’: a separate external counter-form for each rib part type (see Figure 5.5(e)). A maple strip, to become a rib part, could be bent and clamped on such form, and after it maintained its shape upon drying, linings could be glued on at either side. In case of very small-sized linings, as observed in Boussu’s earliest instruments, the linings (and the ribs on either side) could be initially made to some extra height (c1-2 mm), which would facilitate gluing and clamping. The excess height could be planed off once the linings had been glued on, and the ends of the linings facing the corner blocks were cut to a tapered point. After planing the resulting rib part on either side, including its glued-on linings, to the appropriate height (32 mm, in case of a violin), the stable pre-formed part would be ready to be incorporated into the rib structure. Although in later instruments (c1752-1761) more robust linings are observed (around 2 × 5 mm), presumably Boussu did not change his way of producing the rib structure due to the change in lining dimensions, since other properties of the rib parts and linings remained unchanged.

At the neck-to-body connection, Boussu inserted the upper rib parts into pre-sawn slots in the neck root, and secured them by two complementary, tapered wedges on either side, see Figure 4.37. It is possible that for each slot, one of the wedges was pre-glued to the rib, so that only the counter-wedge had to be glued and pushed tightly into the slot’s remaining space. At the rib corners of original instruments, the rib parts are joined in a mitre joint instead of an overlapping one (possibly a feature taken over from the local tradition of working without corner blocks⁹⁰). By leaving the vertical sides of the corner blocks facing the inside of the instrument square initially (see Figure 5.5(d)), clamping of the ribs to the blocks during gluing would be an easy task. After completion of the rib structure, the inward sections of the corner blocks could be carved to their final shape.

Another common feature found on almost all examined original instruments is a glued-in strip, often of a dark hardwood, at the position where the two rib parts of the lower bout meet at the bottom block, see Figure 4.34 for several examples. The width of this strip varies from instrument to instrument, an indication that Boussu employed such a strip to compensate for variations in the length of the pre-fabricated lower rib parts.

⁹⁰ Moens (1983), p.140.

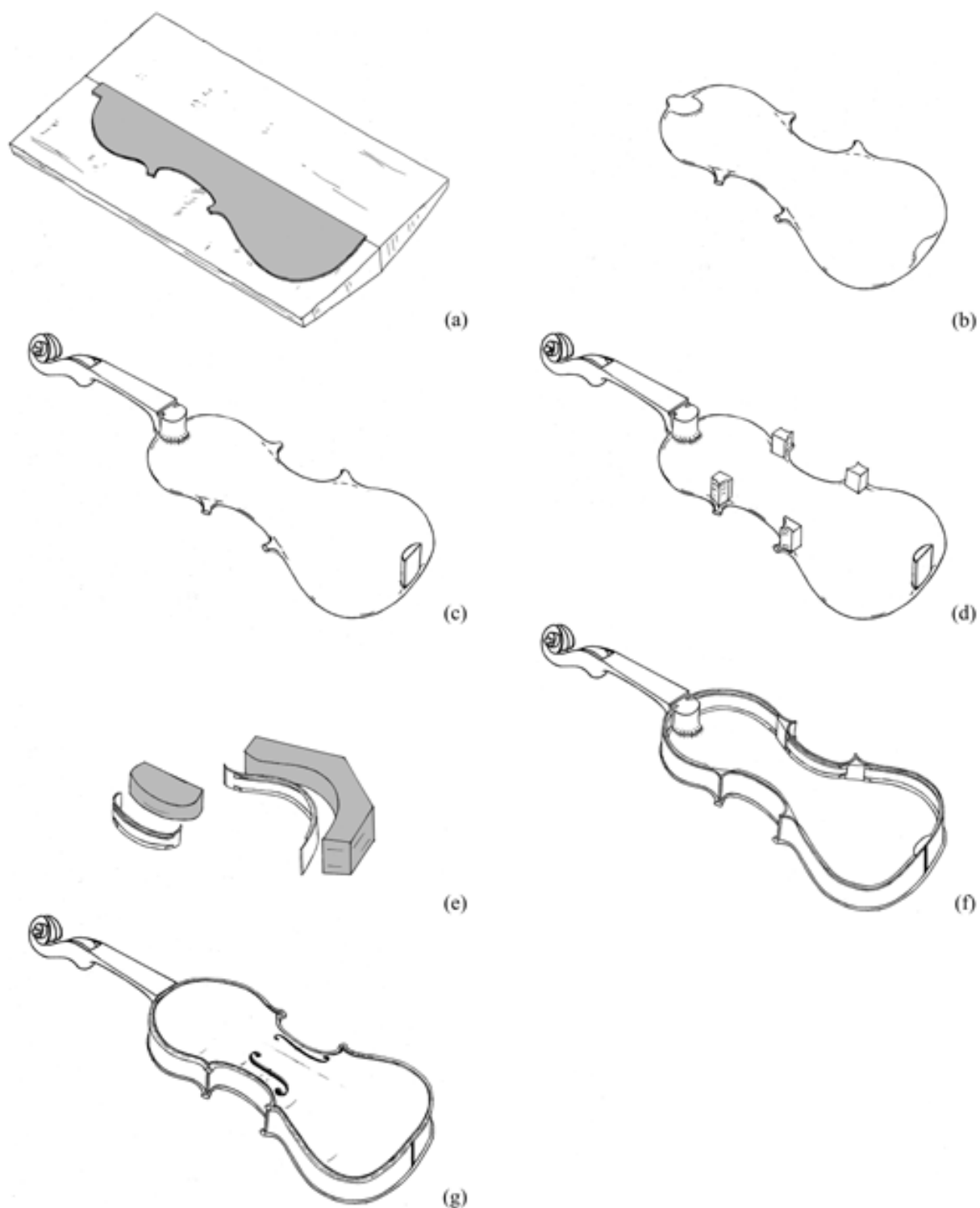


Figure 5.5. Proposed violin construction sequence for Benoit Joseph Boussu: (a) marking the back plate contour with a half-template, (b) finished back plate, (c) gluing the neck/upper block/scroll combination and lower block to the back plate, (d) gluing on the corner blocks, (e) preparation of the rib parts, including their linings, (f) assembly of the rib structure, (g) gluing the top plate in place.

The violin-in-progress now consisted of a back plate, neck and ribs, so the only part missing from the basic structure would be the top plate, which could be made and attached by Boussu in the common fashion. The entire construction sequence just described is summarised in the drawings in Figure 5.5. Although now presented here as a more or less sequential process, the described system would also lend itself for separate advance preparation of backs, neck/upper block/scroll combinations and rib parts, which would make it possible to perform the final assembly of these parts into a complete violin structure within a confined time span. The next section will present arguments to demonstrate that the Boussu workshop could indeed have operated according to such a modular principle.

5.4. The organisation of Boussu's workshop

New information about Boussu's production practices has not only been gained by the study of extant instruments (see Chapter 4 and Section 5.3), but also by the performance of instrument replication (see Chapter 6). This practical work gave understanding of the feasibility and time-efficiency of the proposed, and executed, construction sequence, as will be discussed in the next chapter. Moreover, by combining the insights of both these ways of research, it has become possible to imagine how Boussu ran his workshop, and how he achieved the considerable annual production as evident from serial numbering in some of his earliest instruments.

As was demonstrated in Section 4.5, Boussu's workshop produced a substantial number of instruments. Based on the exact dating and numbering information given by his instrument labels and inscriptions, we know for certain that during his initial years as a luthier in Liège and the Brussels suburb Etterbeek, between 1749 and early 1753, his workshop produced 37 violins and at least seven cellos. The move from Etterbeek to the interior of the Brussels city walls later in 1753 must not have had an inhibitory effect on his business. On the contrary, indications of a diverse and notable customer base (see Section 2.2) confirm Boussu's good reputation, which would have contributed to continuous sales throughout the 1750s. Our estimations in Section 4.5 indeed suggest that the workshop had a rather stable output for most of its active period between 1751 and 1761. Based on these calculations, Boussu's workshop is thought to have been capable of constructing and selling 12 to 15 violins and around three cellos per year.

Considering this output, we may ask ourselves whether Boussu worked all by himself, or alternatively, whether he ran a workshop with some assistants. An answer could be found by comparing the output of his workshop to that of the workshops of some of his contemporaries. It must already be noted, however, that the circumstance of Boussu's

serial numbering – allowing us to exactly know his output numbers, at least between 1749 and early 1753 – is rather uncommon for eighteenth-century makers.

To obtain a preliminary idea of possible numbering practices of eighteenth- and early nineteenth-century violin makers (and thus about their production rate), four publications listing short violin maker biographies and depictions of their labels were searched for makers adding ‘serial numbers’ to their labels.⁹¹ This exploratory investigation yielded 16 violin makers predominantly active in the eighteenth century⁹² and ten makers predominantly active in the first two decades of the nineteenth century.⁹³ First of all, these results suggest that not many makers in the eighteenth and early nineteenth century numbered their instruments, especially considering the plenitude of makers included in these four publications. Based on the initial findings, numbering seems to have been done not very frequently in those days. For the makers identified as having numbered their instruments, mostly only one example, or sometimes maximum two or three examples, of numbered and dated labels were found. Also, the exact meaning of the numbers is not always entirely clear; they might be (continuous) serial numbers, but they could also be numberings per year, model numbers or even house numbers. This ambiguity could be clarified in case more label information per maker would be available. Adding to that, the trustworthiness of labels in historical violins (such as depicted in publications like those used here) is considered problematic.⁹⁴ In conclusion, the

⁹¹ Paul de Wit, *Geigenzettel alter Meister vom 16. bis zur Mitte des 19. Jahrhunderts*, vol. 1 (Leipzig: Paul de Wit, 1910); Paul de Wit, *Geigenzettel alter Meister vom 16. bis zur Mitte des 19. Jahrhunderts*, vol. 2 (Leipzig: Paul de Wit, 1922); Willibald Leo Freiherr von Lütgendorff, *Die Geigen- und Lautenmacher vom Mittelalter bis zur Gegenwart*, vol. 2 (Frankfurt am Main: Frankfurter Verlags-Anstalt, 1922); René Vannes, *Dictionnaire universel des luthiers* (Paris: Fischbacher, 1932). Searching was done by browsing the printed versions of the books, mainly focusing on the depicted labels. However, in case of the book by Von Lütgendorff, searching was also performed inside the digitised version of the book (1922 edition), using search terms as ‘no(.)’, ‘number’, ‘Nummer’, ‘nr(.)’, ‘opus’, etc..

⁹² The following makers have been identified (when available, the year and serial number, or other information, is included in brackets. DW = De Wit, LU = Von Lütgendorff, VA = Vannes): Charles Frédéric Borel (VA: 1802/no. 38), Ignaz Brandstätter (LU,VA: 1789/no. 23), Gabriel David Buchstetter (LU,VA: 1752/no. 26; VA: 1752/no. 29; LU,VA: 1767/no. 15), José II Contreras (LU,VA: 1792/no. 11; LU: 1793/no. 16; VA: 1802/no. 41), Antonio di Chiusòle (LU: 1784/“opus II”), Zacharias Fischer (LU: 1799/no. 37), Annibale Imperio (LU: 1750/“opus 15”; VA: c1750/“opus 17”), Mathias Per Kraft (LU: 1781/no. 39; LU,VA: 1796/no. 593), Andreas Carl Leeb (LU: 1790/no. 67; LU,VA: 18.../no. ...), Joseph Merlin (LU,VA: 1779/no. 104), Rocco Muratori (LU,VA: 1704/“opus ...”), Giuseppe Odoardi (LU,VA: 1784/no. 149), Casper Strnad (LU: 1801/no. 4, numbering per year), Giuseppe Termanini (LU,VA: 1755/no. 5), Franz Xaver Wimmer (LU: 1743/no. 3), Sebastian Wutzelhofer (LU,VA: 17.../no. 311).

⁹³ The following makers have been identified (when available, the year and number, or other information, is included in brackets. DW = De Wit, LU = Von Lütgendorff, VA = Vannes): Andreas Ludolph Breitling (LU: 1801/no. 121; LU: 1803/no. 132), François Chanot (LU,VA: 1818/no. 244; DW1: 1818/no. 268), William III Foster (LU: 1809/no. 43), Joseph II Hornsteiner (LU: “manchmal auch mit Nummern bezeichnet”), Carl David Kursch (LU: 1808/no. 413), Andreas I Postacchini (DW2,VA: 1819/no. 111; LU: 1824/“Opus 214”; VA: 1824/“OPUS 224”), Math. Sailer (LU: 1820/no. 124), Ignaz Stoß (LU,VA: 1813/no. 5), Raffaele Trapani (LU: “Napoli No . . .”), Bernard Wutzelhofer (LU,VA: 1818/no. 65).

⁹⁴ Alberto Bachmann, *An encyclopedia of the violin* (New York: Da Capo Press Inc., 1976), p.9; Erin Shrader, ‘An insider’s guide to violin labels’, *Strings* (2006). Available from: <https://stringsmagazine.com/an-insiders-guide-to-violin-labels/> (accessed May 2020); Laurence Libin, ‘Ethics, evidence, and authentication’, in Tom Wilder, ed., *The conservation, restoration, and repair of stringed instruments and their bows*, vol. 1 (Montreal: IPCI-Canada, 2010), pp.236-243, at p.241.

information retrieved from sources such as the four examined books will not allow for detailed and reliable calculations of production rates within the scope of the currently presented study.

Another maker who applied numbering to his instruments came to our attention, Thomas Perry (Dublin, c1745-1818). Three- or four-digit number codes, in the form of branding marks at the button, are sometimes present on his violins, although these figures “are probably only stock numbers, and have no real bearing on the quantity of instruments made”.⁹⁵ So, as is evident from the above examples, in order to assess production rates, we will likely be more successful when we turn our attention to inventories of surviving instruments (without numbering added by the maker), although this is a less accurate indicator of actual total manufacture. Yet, for some previously studied workshops, results will be discussed now, in order to compare their output with that of Boussu’s workshop.

For the workshop of Deleplanque and his assistant and later successor Peerens, (producing instruments in Lille between 1760 and 1799), 69 instruments have been identified, while for 53 of these the current location is known (the others are known from descriptions only).⁹⁶ Hemmy *et al.* characterise this quantity as “unusually abundant for an eighteenth-century French provincial instrument-making workshop”.⁹⁷ The majority of the identified instruments consists of guitars and citterns (c50), often highly adorned with elaborate inlay work of exotic materials. In addition, a dozen bowed string instruments has been documented. In order to estimate the annual production of the workshop, it would be appropriate to only consider the period up to Deleplanque’s death in 1784. From this 25-year period, c50 instruments⁹⁸ have survived. Furthermore, we have to make two assumptions. Firstly, we presume that the inventory presented by Hemmy *et al.* is fairly comprehensive, i.e. that most extant instruments by this workshop have been identified. Secondly, given their decorative value, we can expect the preservation rate of instruments to be relatively high, let’s assume at least 50 % (even though both the type of cittern and guitar originating from this workshop would become musically obsolete not long after their creation). Based on these premises, the average annual production number over the specified period would vary between two and four. Finally, in order to compare this output to that of the Boussu workshop, we must take the construction duration of the typically produced instruments (citterns and guitars versus violins) into account. The preparation and application of the elaborate decorative elements in the instruments of Deleplanque must have been time consuming, although it

⁹⁵ Milnes *et al.* (2000), p.68.

⁹⁶ Christine Hemmy, Philippe Bruguère, Jean-Philippe Echard, ‘New insights into the life and instruments of Gérard Joseph Deleplanque, maker in eighteenth-century Lille’, *The Galpin Society Journal*, vol. 71 (2018), pp.5-34, at p.16.

⁹⁷ Hemmy *et al.* (2018), p.22.

⁹⁸ Hemmy *et al.* (2018), pp.23-27.

has been suggested that some of the decorative parts (e.g. the more elaborate roses) could have been purchased from outside.⁹⁹ Also, with flat plates, a simple two-part rib structure and a fairly plain headstock, the basic construction of a cittern or guitar is less complex than that of a bowed string instrument (which involves carving and sculpting). All things considered, the time to make a decorated cittern or guitar on the one hand and a violin or viola on the other hand would not have differed too much. Therefore, based on our estimations, the productivity of the Boussu workshop (12 to 15 violins and around three cellos per year) must have been much higher than the turnout of Deleplanque and Peerens. Even when considering a certain underestimation for the latter workshop, based on the available data, it is unlikely that this workshop was more productive than its counterpart from Brussels.

A further, more well-known workshop for which the production rates have been studied, is the one of Antonio Stradivari. Pollens discusses the numbers for the total production of this workshop (during its entire seven decades of operation) as provided by Hill in 1902 (1,116 instruments,¹⁰⁰ of which 602 extant specimen had been identified¹⁰¹) and Heyde (at least c2,000 instruments).¹⁰² He rejects both the calculation of Hill (because based on a too optimistic assumption of an annual production of 25 violins,¹⁰³ and for the improbability that 50 % of the instruments would have been destroyed, given the sought-after nature of the instruments¹⁰⁴) and that of Heyde (as being based on incorrect interpretation of Stradivari's financial situation¹⁰⁵), and suggests that the corpus of c600-700 surviving instruments must be not too far from Stradivari's total output.¹⁰⁶ Based on Goodkind, Pollens also provides a graph displaying the annual numbers of dated, surviving instruments between 1665 and 1737 (designated as "Stradivari's instrument production"). Displaying 691 instruments in total, the annual number varies between less than five in the two initial decades to 20 to 24 instruments annually in a few of the later peak years.¹⁰⁷ From the graph, for the period between 1683 (when the annual number of surviving instruments suddenly increases) and 1737 (the year of Stradivari's death), an average of 12 instruments per year can be derived. At its highest capacity, according to Pollens, the

⁹⁹ Hemmy et al. (2018), p.19.

¹⁰⁰ W. Henry Hill, Arthur F. Hill, Alfred E. Hill, Antonio Stradivari - His life and work (1644-1737) (New York: Dover Publications Inc., 1963), p.226.

¹⁰¹ Hill et al. (1963), p.231. Regarding this estimate of preserved instruments made in 1902, the Hills state that an additional c100 violins, one or two violas and seven to eight cellos, still not identified, may exist. See: Hill et al. (1963), p.232. This would bring the number of surviving instruments to around 700.

¹⁰² Heyde (2007), p.50.

¹⁰³ Pollens (2010), p.40.

¹⁰⁴ Pollens (2010), p.41.

¹⁰⁵ Pollens (2010), p.42.

¹⁰⁶ Pollens (2010), p.40.

¹⁰⁷ Pollens (2010), p.39.

workshop personnel consisted of three to four workers: Stradivari, his two sons and an occasional assistant.¹⁰⁸

When comparing the estimated output of Boussu's workshop with that of the workshops of Deleplanque/Peerens and Stradivari (based on Pollens' estimation), it can be concluded that the one of Boussu was not the least productive. On the contrary, our estimative comparison shows that the Brussels workshop had a higher average annual turnout number compared to the two other evaluated units. Since the other two workshops both were operated by a small team, as explained above, it is highly likely that, in order to achieve a comparable or even somewhat larger production, Boussu did not work alone either, but that he rather headed a workshop with one or two hired assistants, further augmented with help from members of his family.

The workshop of Joachim Tielke (1641-1719) in Hamburg is extensively studied as well. It produced a large variety of plucked and bowed string instruments, highly embellished with marquetry and carved heads.¹⁰⁹ At the moment, 174 instruments ascribed to the Tielke workshop have been identified,¹¹⁰ which were made throughout the five decades of the workshop's activity. Due to their exceptional decorative value, it may be presumed that a large portion of instruments from this workshop has survived. Pilipczuk and Boerner have suggested that Tielke was more an entrepreneur than an actual maker, leaving the manual labour to independent contractors.¹¹¹ Such kind of "manufacturing firm" was frequent in Hamburg in Tielke's days, and allowed the owner(s) to make large profits.¹¹² This hypothesis is supported by the wide diversity of artistic and technical quality observed among extant instruments from Tielke's workshop.¹¹³ Both Boussu and Tielke had a 'literate' background (Tielke studied medicine and philosophy at Leiden University¹¹⁴). This may explain why both men were capable of organising their workshop and work process in an efficient and innovative way. However, the stylistic and technical unity among the instruments by Boussu's workshop, in contrast with the diversity of the output attributed to the Tielke workshop, makes a business model like the one assumed for Tielke much less plausible for Boussu, as will be further argued at the end of this section.

¹⁰⁸ Pollens (2010), p.40.

¹⁰⁹ Günther Hellwig, Joachim Tielke - Ein Hamburger Lauten- und Violenmacher der Barockzeit (Frankfurt am Main: Verlag das Musikinstrument, 1980); Friedemann Hellwig, Barbara Hellwig, Joachim Tielke - Kunstvolle Musikinstrumente des Barock (Berlin/Munich: Deutscher Kunstverlag, 2011).

¹¹⁰ http://www.tielke-hamburg.de/htm_english/addenda.htm (accessed May 2020).

¹¹¹ Alexander Pilipczuk, Carlos O. Boerner, 'Joachim Tielke: instrument-maker and merchant of Hamburg - Recent findings about his education and professional life', *The Galpin Society Journal*, vol. 61 (2008), pp.129-146, at p.138.

¹¹² Pilipczuk, Boerner (2008), p.139.

¹¹³ Pilipczuk, Boerner (2008), p.139.

¹¹⁴ Pilipczuk, Boerner (2008), p.131.

The question that arises next, concerns the organisation of the workflow in the Boussu workshop. In his former notary profession, which Boussu practised for almost 20 years, eye for detail and punctuality would have been valued qualifications. Or, as Honoré de Balzac – once a law clerk himself – derisively wrote in 1840: “*un notaire qui ne serait pas rangé comme une vieille fille [...] perdrait sa clientèle*”.¹¹⁵ Such rigor must also have been beneficial for a meticulous job as the construction of high-quality violins, and indeed, his instruments show a remarkable level of precision and finesse, as was demonstrated throughout Chapter 4. Moreover, the uniform and exact dimensions of Boussu’s instruments, as well as certain constructional details, strongly point towards a standardised and modular production process. Based on observations and deductions from the construction characteristics in Boussu’s instruments, presented in Section 5.3, it was already concluded that it is highly likely that in the final stages of the making process, these instruments were assembled from uniformly sized ‘modules’, prepared in advance (back plate, neck/upper block/scroll combination and pre-bent rib parts). It may be noteworthy that Boussu was familiar with the advantages of modular and serial working from his days as a notary, where handwritten acts were copied in advance from formula books, sometimes leaving specific information such as client names and dates open to be filled in later (interestingly, a similar approach can be observed in his third and fourth type of printed violin label, which had all information included, except for the last digit of the production year, see Section 4.2).

Not only would the making system proposed here allow for a modular way of constructing a single instrument at once, it would be perfectly suitable too for the parallel assembly of multiple instruments – for example in case of a sudden accumulation of orders – provided that a sufficient stock of the various components was available. This hypothesis is supported by the existence of two original violins from the workshop, with serial numbers 14 and 17 (database codes BJB5102vn and BJB5103vn). These instruments are, by means of a label text and internal inscription, signed on 22 May and 7 June of the year 1751 respectively. Thus, the basic structures of the violins with the serial numbers 15, 16 and 17 were completed within the time span of just two weeks. Even when considering the workforce of more than one person, it is hard to imagine that these three instruments were built from scratch in a sequential order within such a short time frame. Much more likely though, is that they were assembled in parallel, using parts prepared in advance as described above, and finished almost simultaneously. By maintaining a buffer stock of ‘modules’, instruments could be assembled ‘on demand’ relatively fast.

The use of an efficient modular process and division of labour could ensure a prolific output in combination with a high degree of quality and uniformity. In this respect, it

¹¹⁵ Honoré de Balzac, *Le notaire* (Paris: Arvensa Editions, 2019), p.8.

must be remembered that under the influence of the rationalism of the Enlightenment and on the eve of the Industrial Revolution – with the wider breakthrough of the steam engine just decades away – strong transformations were about to happen in all branches of product manufacturing in the middle of the eighteenth century. In fact, already in the preceding centuries, initiatives to produce objects in a more large-scale and/or standardised manner were introduced all over Europe. Letterpress printing arose in Europe in the fifteenth century, enabling the production of multiple copies of the same book batch-wise, by separately printing all the individual sheets in the required quantity and subsequently binding them together to form the batch of books.¹¹⁶ One century later, in Venice, galleys were built using assembly line techniques. This way, up to 16,000 workers could produce a ship “in a day or so”.¹¹⁷ From 1714 onwards, a system to produce standardised muskets in a modular manner from pre-produced components was developed by the British government. The separate parts were ordered from various gunsmiths around Britain and stocked at the Tower of London, from where they could be distributed in time of need to private contractors to perform the stocking and finishing according to a prototype musket example.¹¹⁸ During the course of the seventeenth century, in the Brussels region where Boussu would later become active, lace traders developed a new system where the production of separate lacework units would be divided over many female homeworkers. The various ‘modules’ would then later be collected and assembled to form a large piece.¹¹⁹ Such illustrative examples of forerunners of scaled-up production demonstrate that the idea of the solitary craftsman of the pre-industrial age, independently making an object in a sequential manner from self-produced parts, is not universally valid. Apparently, the advantages of divided labour and associated larger scale and modular manufacturing were already known in Europe long before the full onset of the Industrial Revolution.

To further focus on Brussels, a trend of nascent industrialisation during the middle of the eighteenth century is noted by both De Peuter¹²⁰ and Van Opbroecke.¹²¹ From 1750 onwards, a number of important manufacturing facilities was founded, such as the tobacco factory of De Brauwer (with 150 employees), three sugar refineries, manufactories of wall paper, earthenware and glassware and a facility for potash

¹¹⁶ Rob Banham, ‘Printing to 1970’, in Simon Eliot, Jonathan Rose, ed., *A companion to the history of the book*, vol. 1 (Hoboken: John Wiley & Sons Ltd, 2020), pp.95-109, at pp.97-98.

¹¹⁷ Marcus Doel, *Geographies of violence - Killing space, killing time* (London: Sage, 2017), p.77.

¹¹⁸ George Neumann, ‘The Redcoats’ Brown Bess’, *American Rifleman*, vol. 149, no. 4 (2001), pp.48-52, at p.48.

¹¹⁹ Roland Van Opbroecke, *Brusselse kant & kunst*, vol. 1 (Brussels: BRT, 1982), p.44; Claire Billen, ‘Brussel, het centrum van een Europees slagveld’, in Claire Billen, Jean-Marie Duvosquel, ed., *Brussel* (Antwerp: Mercatorfonds, 2000), pp.82-93, at p.90.

¹²⁰ Roger De Peuter, ‘De economische ontwikkeling’, in Jean Stengers et al., ed., *Brussel - Groei van een hoofdstad* (Antwerp: Mercatorfonds, 1979), pp.116-129, at p.122; Roger De Peuter, *Brussel in de achttiende eeuw* (Brussels: VUBPRESS, 1999), p.344.

¹²¹ Van Opbroecke (1982), p.44.

production.¹²² Around 1764, 88 independent weavers were active in the city, with a total capacity of 788 looms (three times as many looms as in 1704).¹²³ The coach maker Jan Simons produced 600 vehicles between 1759 and 1769, many intended for export abroad, and he would further expand by founding a company where hundreds of workers made luxury carriages between 1770 and 1790.¹²⁴ In this climate of manufactural transformation, characterised by larger scales, labour division and standardisation, it is actually not unthinkable that Boussu as well applied some of these concepts to his instrument production.

From the above examples, it is evident that throughout Europe, including in Brussels, at least certain economic sectors had already undergone considerable operational changes during the pre-industrial era. But did such developments also commonly occur in the field of musical instrument production during this period? According to Hargrave, it is “highly likely” that in Cremona, during the days of the classical makers, violin components were prepared in batches, either by the makers themselves, or by their colleagues, apprentices or outworkers,¹²⁵ a notion shared by Heyde (regarding the deployment of contractors for the lower work cycles by Stradivari).¹²⁶ Sinier and De Ridder make mention of the Parisian sculptor Lafille, who is said to have been specialised in carving the heads of musical instruments for others.¹²⁷ But the information given is sparse, and not in all cases scientifically substantiated nor referenced.

An in-depth study on the production modes of the instrument-making sector in Paris is presented by Haine, and although the focus is directed towards the nineteenth century, some of the findings can be related to eighteenth-century violin making. Haine points out that from the 1820s onwards, in certain branches within Parisian musical instrument production, such as the piano-making sector, several large workshop developed. They became organised according to the principle of large-scale divided labour, and were further industrialised with the introduction of the steam engine throughout the course of the century.¹²⁸ This tendency would however only result in a relatively small number of large production facilities, but these were responsible for a major part of the total production. Most other businesses still consisted of an independent master craftsman working alone, or with an assistant, not very different from the operation modes of the

¹²² De Peuter (1979), p.122.

¹²³ De Peuter (1979), p.122.

¹²⁴ De Peuter (1979), p.122.

¹²⁵ Roger Hargrave, ‘Seeking Mrs Guarneri’, pp.95-101, at p.99. Available from: https://www.roger-hargrave.de/PDF/Artikel/Strad/Artikel_2000_09_Seeking_MRS_Guarneri_PDF.pdf (accessed May 2020).

¹²⁶ Heyde (2007), pp.49-50.

¹²⁷ Daniel Sinier, Françoise de Ridder, ‘Restauration d’une vielle à roue de Nicolas Pierre Tourte dit “Tourte père”’. Available from: <http://www.sinier-de-ridder.com/restaurations/tourte.html> (accessed May 2020).

¹²⁸ Malou Haine, *Les facteurs d’instruments de musique à Paris au 19^e siècle - Des artisans face à l’industrialisation* (Brussels: Editions de l’Université de Bruxelles, 1985), pp.64, 213.

eighteenth century.¹²⁹ In addition, home-workers and small businesses acted as providers for large clients, focusing on the manufacturing of specific parts, instead of producing complete instruments.¹³⁰ As a consequence of this specialisation, dedicated professions developed in the piano-making segment, each devoted to a certain part of the instrument.¹³¹ Similar differentiation occurred in the brass instrument and organ sectors.¹³² Nevertheless, some workshops, such as the one of piano maker *maison* Bord, held on – for much of the nineteenth century – to a workflow organisation where each employee was involved in multiple making stages.¹³³ While this case was clearly an exception in the piano sector, a more noticeable absence of division of labour was still apparent in the Parisian instrument-making branches where artisanal production formats had persisted, more specifically in violin and wooden wind instrument production.¹³⁴

Away from the big cities, the nineteenth century would further see the rise of violin making centres such as Mittenwald (Bavaria) and Markneukirchen (Saxony), where large quantities of instruments were produced by various labourers, each specialised in making individual parts, assembly or varnishing, working from home according to the so-called ‘cottage-industry’ principle.¹³⁵ Similar large-scale production was established in the nineteenth century in Mirecourt (France). Ultimately, machinery was employed for carving jobs and pressing plates.¹³⁶

So, according to Haine, upscaling and associated production organisation mainly developed in instrument making in the course of the nineteenth century. However, even in a metropolis like Paris, violin making would be one of the last segments to hold on to artisanal methods and production formats, without division of labour.¹³⁷ This perspective implies that the prevailing production structures in lutherie from a century earlier, when Boussu was active, must have been of a similar or even more traditional nature.

A divergent view on the production modes of the instrument-making sector in pre-industrial times is presented by Herbert Heyde. While discussing a number of case studies from the sixteenth to the eighteenth centuries, including the workshops of Laux Maler, Moisé Tieffenbrucker, Joachim Tielke, Antonio Stradivari and a number of wind

¹²⁹ Haine (1985), p.213.

¹³⁰ Haine (1985), p.219.

¹³¹ Haine (1985), p.228.

¹³² Haine (1985), p.228.

¹³³ Haine (1985), p.232.

¹³⁴ Haine (1985), p.228.

¹³⁵ John Dilworth, ‘The violin and bow - origins and development’, in Robin Stowell, ed., *The Cambridge companion to the violin* (Cambridge: Cambridge University Press, 1992), pp.1-29, at p.20.

¹³⁶ Dilworth (1992), p.20.

¹³⁷ Haine (1985), p.228.

instrument makers, Heyde claims that these outfits were operated according to an entrepreneurial model,¹³⁸ based on principles such as investment of money, competition, profit making, rationalisation and optimisation of the production process, technical innovation and cost reduction.¹³⁹ In practice, such workshops would operate according to division of labour or piecework by outside contractors.¹⁴⁰ To succeed, the enterprise had to meet several requirements. Firstly, sufficient financial resources to invest had to be available. Also, the entrepreneur had to have a suitable background, preferably as craftsman and musician, in order to design musical instruments, in addition to market knowledge, creativity and management competencies. Finally, membership of a guild or trade society was required.¹⁴¹

Three possible business models are described by Heyde. In the 'pyramidal model', design, process management and instrument finishing is done by the workshop leader, while lower work is done by (outside) contractors. Assembly is done at the entrepreneur's workshop. In case all work is done at one facility, the designation 'manufactory' is applicable. The 'maker-merchant' model applies when the making of entire instruments is outsourced, but still the design, production control, finishing and set-up are performed by the entrepreneur. Finally, in the 'merchant' model, the entrepreneur is mainly a trader, no longer involved in the artistic side. Production is completely done by outside workers.¹⁴² Although not strict categories (overlap could be possible), the first and second models would produce instruments of high quality. This was achieved primarily by the strong artistic involvement and quality control of the entrepreneur,¹⁴³ in combination with increased specialisation and labour division within the production chain, through which each contributor could fully master his individual task and thus deliver workmanship of a higher quality.¹⁴⁴ Since many entrepreneurs, regardless of their role in the process, signed instruments with their own name, there is confusion among present-day collectors and organologists about the exact contribution of the entrepreneur.¹⁴⁵ According to Heyde, low-cost production, both by entrepreneurs and individual makers, would mainly establish in the rural regions of Markneukirchen, Mittenwald and Mirecourt already in the pre-industrial era.¹⁴⁶ Especially in the major cities and cultural centres, however, small self-contained workshops continued to exist in parallel, where

¹³⁸ Heyde (2007).

¹³⁹ Heyde (2007), pp.29-35.

¹⁴⁰ Heyde (2007), p.32.

¹⁴¹ Heyde (2007), pp.29-30.

¹⁴² Heyde (2007), pp.32-33.

¹⁴³ Heyde (2007), pp.32-33.

¹⁴⁴ Heyde (2007), p.34.

¹⁴⁵ Heyde (2007), p.61.

¹⁴⁶ Heyde (2007), p.35.

new instruments where built from scratch, repairs were performed and old instruments were traded, in service of a finicky clientele.¹⁴⁷

Heyde proposes the pyramidal production model also for the Stradivari workshop, according to which Stradivari would have concentrated on the conceptual tasks and final work cycles, while two or three outside contractors did the rougher work. In addition, the two sons became gradually involved in the assembly and finishing process. This way, a total production of at least c2,000 instruments would have been achieved.¹⁴⁸ This is three times more than the total output assumed by Pollens, who claims that the Stradivari core team would have consisted of only three members,¹⁴⁹ supposedly all working under the same roof. Despite difference in proposed scale and workshop organisation, in both scenarios, to a greater or lesser extent, division of labour under the supervision and final artistic control of the workshop leader is assumed to have taken place. Regarding these aspects, the two scenarios are not contradictory.

As for Boussu's workshop, the notion of a modular making system, combined with a necessity for multiple labourers to ensure the estimated output, leads us to believe that the facility was manned by a small team, whose members all had more or less fixed subtasks within the production process, such as preparing the wood, pre-shaping the rib parts (as explained in Section 5.3), carving the plates and scroll, assembly and varnishing. Possibly, some of the more basic parts (e.g. the rib parts, squared neck blocks and joined plate blanks) could even have been provided by contractors who worked outside the workshop, while accessories (pegs, bridges and tailpieces) could have been bought from commercial suppliers. Boussu's two eldest sons, Pierre Antoine and (Jean) François, in their teenage years during the 1750s, could well have been amongst the workshop personnel. Both of them became silversmiths in their later life (see Section 2.6), so we know they were able to work with their hands. Boussu's second wife and the two eldest daughters could also have been involved, for example in the varnishing or set-up stages. The more artistic tasks, such as carving the scrolls, final arching, cutting the f-holes, as well as purfling and edgework, would have been performed by Boussu senior himself, since in all the instruments from the workshop's most prolific years (1749-1761), we consequently observe a single, highly recognisable and secure hand in the more aesthetic aspects (see Section 2.9), independent of production location (and therefore of local, hired workforce). It may even be possible that Boussu was the only person within the team capable of performing these more demanding tasks. Division of the labour over several people, each with a specialised task, would increase the efficiency and quality of the

¹⁴⁷ Heyde (2007), pp.51-52.

¹⁴⁸ Heyde (2007), p.50.

¹⁴⁹ Pollens (2010), p.40.

production. Management and control of the process would have been performed by Boussu.

A registration of his household recorded during the Brussels census of 1755, discussed in Section 2.5, does not mention any resident (in-house) employees. Thus, in case personnel from outside the family was working in the workshop, they were not living in Boussu's house. Assuming that this house in the *Spellekens* Street in Brussels was identified correctly (see Section 2.5, Figure 2.10), this building appears to have been big enough to accommodate both the large family and a workshop of the size as described in the previous paragraph.

The workshop organisation proposed here shows many similarities with the pyramidal model as described by Heyde (see above), especially when considering the relatively high production numbers and the consistent quality of the instruments originating from the workshop. Adhering to this model, we should assume that Boussu somewhere during his life must have developed skills in or at least a strong affinity for both woodworking and musicianship, possibly already during his decades in his birth area in France. Although it might well be possible that he gained such experiences as result of amateur activities in these fields, no proof has been found for this so far. Furthermore, the third prerequisite proposed by Heyde, concerning guild membership, has also not been evidenced for Boussu. On the contrary, his name is thus far not found in the relevant guild registers (see Sections 2.5 and 5.1). Nevertheless, there might have been possibilities for him in Brussels to work as a 'free', independent maker (see Section 5.1). A starting capital for his business could have been available from the earnings of the notarial activities and the financial investments he had made (see Sections 3.6 and 3.7).

A rather different scenario, worthwhile to contemplate, is that of Benoit Joseph Boussu as mainly or solely an investor and entrepreneur, rather than a craftsman, similar to the 'maker-merchant' or even the 'merchant' model as proposed by Heyde. Was Boussu not merely the business manager of a violin making workshop, leaving the actual labour to a team of employed craftsmen, or even to outside contractors? From an economic and legal point of view, this possibility is certainly plausible, especially when considering his background in the notarial field (where he was used to work with contracts, see Section 3.6) and his familiarity with financial investments (see Section 3.7). However, this idea seems to be in contradiction with the strong homogeneity of stylistic and structural features observed within the entire group of instruments made at the locations Liège (c1749-c1750), Etterbeek (c1750-1753) and Brussels (1753-c1761), see Section 4.17. Had Boussu indeed been working with local employees or contractors (a group changing in composition, depending on the location of the workshop), and had he avoided all woodworking himself, then we would be able to observe noticeable changes in the

execution of structural and stylistic details, or even a more radical change in overall aesthetics, at least around each moment of relocation. The obvious and convincing absence of such diversity in style, as well as in construction features, confirms our hypothesis that Boussu was involved in the actual crafting, more specifically as the constant factor responsible for stylistic and technical continuity.

With the arguments for a modular making system as well as for division of labour in mind, let us for a last time revisit the issue of the possible use of a mould in this light. As proposed in the previous section, Boussu's workshop employed a process without a full interior or exterior mould. Such a mould-less system would combine well with division of fixed tasks over the team members and an assembly method based on modules (e.g. parts that could be prepared in advance, and put together to form the basic framework of an instrument within a limited time span of one or two days). In such a manufacturing environment, one worker would be independently occupied with crafting the necks, a second one could bend rib parts while a third one would work on the back plates. The actual assembly of one or more violins or cellos could commence at any time, once sufficient amounts of the various parts were available. Meanwhile, the preparation of further parts could continue, to ensure buffer stocks large enough to avoid unwanted hampering of the process. Necks, rib parts and back plates could be produced from scratch completely independent from each other - providing the workflow with a high degree of flexibility - while the parts would have the highest possible degree of uniformity required to produce, in a modular way, an instrument with the precise built characteristic for Boussu. In contrast, in case a production system based on one or more full moulds would have been employed, then the assembly of a new rib garland could only start once both a free mould and a finished neck/upper block/scroll combination would be available. Subsequently, a back plate could only be started once a neck-to-garland structure was finished, since the garland would be needed to trace the back plate's outline. Such dependency of the workers upon each other's output and upon the availability of free moulds would make a mould-based making procedure less suitable in a setting of divided labour and team work. This new argument in disadvantage of the use of a full mould adds up to the previously presented technical objections against such a system.

The modular making process proposed for Boussu, as argued throughout this thesis, would thus be well-suited within a more entrepreneurial approach to violin making. It shows that he was aware of innovation, or even a forerunner, in the changing field of violin production. Further study would be required to identify similar uses of modular methods (using pre-bent rib parts, for example) among other (lesser-known) violin makers from the eighteenth century, to clarify if such practices were known and employed at that time, and if so, how frequently they occurred. A first case for such a

comparative analysis would be the violin maker (or possibly trader) William Pryor, of whom a violin is on display at the musical instrument collection of the Royal College of Music in London (Gateside, 1710, no inv. no., loan). This instrument shares remarkable structural similarities with the instruments of Boussu, such as the ‘through neck’ construction, upper block shape and the shape of the glue linings (see Figure 5.6). Other eighteenth-century bowed string instruments with an original ‘through neck’ should be tracked down and studied as well, in order to find indications for the way they were constructed.



Figure 5.6. Violin by William Pryor (Gateside, 1710), on display at the musical instrument collection of the Royal College of Music in London (no inv. no., loan). Left to right: (a) detail of upper block, (b) detail of corner block and linings.

As was discussed in Section 2.2, Boussu managed to attract a local clientele from various backgrounds. This indicates that there was a certain market in Brussels for his output. From around 1750 onwards, generally speaking, music acquired a public status throughout Europe,¹⁵⁰ with new instruments appearing designed mainly for domestic use, such as the cittern (English guittar)¹⁵¹ and the pedal harp,¹⁵² and the publication of affordable sheet music.¹⁵³ However, Buyens has pointed out that, during the period 1740-1780 (coinciding with the regime of Charles of Lorraine), the musical life in Brussels was first and foremost still very much dominated by the nobility and elite.¹⁵⁴ Involvement of the bourgeoisie was limited, which hindered the development of a musical market.

¹⁵⁰ See, for example: Neal Zaslaw, ‘Music and society in the Classical era’, in Neal Zaslaw, ed., *The Classical era - From the 1740s to the end of the 18th century* (Houndmills: The Macmillan Press Ltd, 1989), pp.1-14, at p.9; Koen Buyens, ‘Muziek en stedelijkheid in de Nederlanden’, *De Achttiende Eeuw*, vol. 37, no. 2 (2005), pp.132-134, at p.133; Heyde (2007), p.51.

¹⁵¹ Panagiotis Pouloupoulos, *The guittar in the British Isles, 1750-1810* (PhD diss., University of Edinburgh, 2011).

¹⁵² Jeremy Montagu, *The world of Baroque & Classical musical instruments* (Newton Abbot/London: David & Charles, 1979), pp.118-119.

¹⁵³ Zaslaw (1989), p.9.

¹⁵⁴ Koen Buyens, ‘Het muziekleven te Brussel, 1740-1780’, *De Achttiende Eeuw*, vol. 37, no. 2 (2005), pp.135-155, at pp.148-149.

Further, printed music as well as musical instruments were relatively expensive in Brussels,¹⁵⁵ and it is therefore unlikely that these items were sold in large quantities to members of the middle class for domestic music making. This makes one wonder whether part of Boussu's considerable output may have been intended for export to locations outside the direct vicinity of Brussels, although during the currently presented study, no evidence has been encountered to support this idea. The absence of instruments intended for use by amateurs (such as citterns) from Boussu's Brussels oeuvre might be indicative for a cultural climate in which domestic music making was of minor importance. Nevertheless, Boussu's entrepreneurial spirit and associated production methods must have helped him achieve commercial success in the violin trade, either on the local market or on a more remote one, although we must not forget that he had financial stability and backup in the form of regular income from investments in his native region, as was discussed in Section 3.7.

¹⁵⁵ Buyens, 'Het muziekleven te Brussel, 1740-1780' (2005), pp.149-150.

Chapter 6

Replication of a violin and cello after Boussu

6.1. Introduction

The study of musical instruments can be approached from many different perspectives and backgrounds. Musicologists and musicians may investigate and classify instruments by their musical functionality and applications. Acousticians will be interested in the sonic properties and the way these musical tools function from a physical point of view, whereas historians and cultural sociologists may research the role of instruments in past and present communities.

A somewhat peculiar category of individuals to study musical instruments is formed by instrument makers, since they are usually more involved in the practical side of things, the actual manufacturing, and less in scholarly activities surrounding instruments. Still, they have a very close relationship to the object, even literally in the sense that they have shaped and held in their hands each of its individual components. In order to comprehend the architecture and manufacturing process of (historical) instruments, makers are inclined to look beyond outer characteristics and musical application, trying to understand what is beneath that surface of wood, metal or ivory. They want to look inside, or even better, through the objects of their interest, and nowadays the technical means to do so are available more than ever before.

It is from this deep incentive to understand the structure and creation process of instruments that makers can contribute their unique expertise and methodologies to the field of organology. Moreover, in making reconstructions or replicas of historical instruments, their practice-led activities could become the nucleus of a multifaceted organological study project, where ‘workbench research’ generates questions, answers and understanding, while also allowing for the practical testing of construction hypotheses. Section 6.2 will discuss the pivotal role the instrument (re-)construction process can play as a catalyst for new knowledge, methods and collaborations within the field of organological research.

During the final stage of the currently presented PhD project, the obtained insights from the previous research stages have been ultimately employed, and at the same time critically assessed, by constructing violin and cello replicas after original examples by Boussu (the latter are now in a museum collection, where they are no longer allowed to be tuned or played). This phase will be discussed in Sections 6.3 through 6.5. Subsequently, these replicas are used in a musical project to perform repertoire from the same time and place as the original instruments, in order to assess the sonic and playing characteristics of the newly made instruments, as is explained in Section 6.6.

This chapter is written from the perspective of the research on and replication or reconstruction of violin-family instruments, but the ideas and concepts expressed may also be valid for the study of other types of instruments.

6.2. Instrument (re-)construction as a catalyst for organological research

“The doers are the major thinkers...”¹

According to a common generalisation, there are ‘thinkers’, and there are ‘doers’.² As is often thought, makers of musical instruments, like other manual labourers, are exponents of the latter archetype. Considering their intensive physical activities needed to repeatedly produce material objects such as musical instruments, it might be tempting to assume that makers must not be living too much inside their heads, but instead must remain focused on materialising and completing their creations without the inhibitions of too much rationalisation and reflection.

In contrast, scientific research on musical instruments is typically performed by scholars with a thorough academic background. Even today, the majority of organological publications comes from authors with a degree in musicology, art history, art conservation or a comparable field, people that may easily be counted among the ‘thinkers’ category, while makers are still in minority when it comes to contributions to organological literature and conferences. Perhaps hints of the old dogma of the ‘trade

¹ Steve Jobs, in interview with PBS NOVA, 1990. YouTube video ‘Steve Jobs on thinkers and doers - 2 mins of inspiration’, available from: <https://www.youtube.com/watch?v=mARuuW2BGeE> (accessed May 2020).

² The issue of separation between head and hand in modern-day society, as opposed to the holistic approach of true craftsmanship, is addressed in more depth by authors such as Sennett and Korn. See: Richard Sennett, *The craftsman* (New Haven: Yale University Press, 2008), pp.37-45; Peter Korn, *Why we make things and why it matters - The education of a craftsman* (London: Vintage, 2017), pp.49-56.

secrets' from the guild times³ still quietly persist within the present-day craft field, despite the more open attitude of the profession internationally in recent decades. Also, instrument investigations of instrument makers, dealers and musicians ('the doers') are often impelled by private financial or artistic motives, whereas academics or museum professionals ('the thinkers') typically perform research as representatives of a public institution serving the wider public and cultural heritage preservation. This may be one distinguishing factor that frequently causes conflicting views between the two camps, such as regarding the dilemma 'to play or to preserve'.⁴ This makes one wonder if there is a place for practice-oriented crafts(women) within the arena of scholarly musical instrument research.

Yet, for several reasons, it can be argued that instrument makers bring unique qualities and skills to the research table. First of all, the maker's attention to detail, sharpened by the practice of instrument construction, can allow him or her to notice things that other observers might overlook. Likewise, their hands-on know-how of various construction processes allows them to interpret the smallest particularities, such as tool marks, scratch lines or signs of modifications, as clues for the making techniques employed by the original maker, or as signs of later changes or repairs.

Furthermore, the result-driven approach of makers investigating an original instrument – where the examination is often aimed at documentation in service of the construction of a convincing copy – encourages them to examine not only the superficial appearance of an instrument, but also the interior. Nowadays, state-of-the-art techniques, such as computed tomography (CT) scanning⁵ and digital endoscopy, enable such revealing examinations and may even allow 'virtual' measurements to be taken and construction drawings to be produced. Obviously, to make advanced investigations like these possible, a maker would have to seek collaboration with museums, scanning facilities and radiological specialists. Similarly, a maker may want to cooperate with chemists, acousticians, wood technologists and dendrochronologists in order to collect a variety of additional information required for an instrument reconstruction or replication. Consequently, the practice-oriented maker would have to enter the field of scientific research. This may be an intimidating step, but when taken, the reconstruction process could become the nexus around which an interdisciplinary research project develops.

³ According to Libin, the "secretive, exclusive craft guilds" strived for "restricting [...] the transmission of knowledge among instrument makers". See: Laurence Libin, 'Progress, adaptation and the evolution of musical instruments', *Journal of the American Musical Instrument Society*, vol. 26 (2000), pp.187-213. Online version, available from: <https://search.proquest.com/docview/207668007> (accessed January 2018).

⁴ Robert Barclay, *The preservation and use of historic musical instruments - Display case and concert hall* (London: Earthscan, 2004), p.xi.

⁵ Terry Borman, Berend Stoel, 'Review of the uses of computed tomography for analyzing instruments of the violin family with a focus on the future', *J. Violin Soc. Am.: VSA Papers*, vol. 22, no. 1 (2009), pp.239-250.

This approach may even be extended to the historical, social, cultural and musicological areas, for example by studying the biography of a historical maker and the social and economic conditions under which he lived and worked, to find out if these circumstances had any influence on his production rate, creative decisions, material selection, clientele and so on, while instrument attributions (based on label texts) could be validated by comparison to archival data. And, of course, the field of musicology could be entered to clarify the musical applications of a replica under construction. Again, to collect and interpret such contextual information, collaborations must be developed, this time with scholars in the field of humanities.

Recently, several of such interdisciplinary research projects, comprising a scholarly as well as a practical side, have emerged. For the sake of illustration, representative examples in the field of string instruments are briefly discussed here. The PhD project of Jonathan Santa Maria Bouquet focused on the lute maker Sixtus Rauwolf, and combined a study and documentation of the life of this maker, six of his extant lutes and a cross examination of additional sources with the actual reconstruction of an instrument.⁶ A comparable project, now involving the replication of a Renaissance viol by Gasparo da Salò, has been performed by Sebastian Kirsch.⁷ John McLennan has investigated the transition from the 'Baroque' to the 'Romantic' violin, by stepwise alterations to one and the same – self-built – instrument (starting as a 'Baroque' violin and through subsequent modifications to bass bar, top plate thickness, soundpost, bridge, neck, fingerboard, strings and bow finally arriving at a 'Romantic' configuration). By measurements and recordings performed after each operation, the effects of each modification step could be analysed.⁸ In the PhD study of Tim Duerinck, the possibilities of new materials for bowed string instruments are investigated, by building prototype violins and cellos from resin-infused fibre materials. His instruments are assessed by acoustical and vibrational measurements, in musical performances as well as in player and audience listening tests.⁹ Christina Linsenmeyer was trained as a violin maker, and later gained a PhD, with her study on the influence of Stradivari and other Cremonese makers on Parisian lutherie of the first half of the nineteenth century.¹⁰ Although this latter study did not contain an

⁶ Jonathan Santa Maria Bouquet, *Reconstructing a lute by Sixtus Rauwolf* (PhD diss., University of Edinburgh, 2017).

⁷ Sebastian Kirsch, Nanke C. Schellmann, Alfons Huber, Wolfgang Baatz, *(Re)constructed harmony - The replication of a Renaissance viol aided by historical sources* (2014). Available from: https://www.researchgate.net/publication/322131730_ReConstructed_Harmony_-_The_replication_of_a_Renaissance_viol_aided_by_historical_sources (accessed May 2020).

⁸ John McLennan, *The violin - Music acoustics from Baroque to Romantic* (PhD diss., University of New South Wales, 2008).

⁹ Tim Duerinck, Geerten Verberkmoes, Claudia Fritz, Marc Leman, Luc Nijs, Mathias Kersemans, Wim Van Paepegem, 'Listener evaluations of violins made from composites', *Journal of the Acoustical Society of America*, vol. 147, no. 4 (2020), pp.2647-2655.

¹⁰ Christina Linsenmeyer, *Competing with Cremona: violin making innovation and tradition in Paris (1802-1851)* (PhD diss., Washington University in St. Louis, 2011). Available from: <https://openscholarship.wustl.edu/etd/204/> (accessed June 2020).

explicit practical component, the researcher's experience-based understanding of violin making must have been beneficial. In all the above-cited projects, the researchers have experience in musical instrument making or conservation. These initiatives demonstrate the successful amalgam of scholarly research and practice-induced knowledge acquisition, yielding both new understandings as well as methodologies, and thus evince the significance of the involvement of the scholar/maker in the field of organology.

Beyond the scope of musical instrument research, a rise of academic studies that include both a theoretical (or reflective) and a performative component took place since the 1980s.¹¹ Such research in the field of arts and humanities with a strong incorporation of practice can be designated as either 'practice-based' or 'practice-led'.¹² Both forms can be exercised by practitioners like artists, designers, curators, musicians, writers, lecturers, and so on, often as a form of PhD research.¹³ Within the first type of research, an original study is performed with the aim to generate new knowledge, in part through practice and the outcomes of it. The creative artefact is an essential part of the research results, i.e. a direct reference to it is required to fully understand the significance and context of the claims made, with regard to originality and contribution to knowledge.¹⁴ The second type, practice-led research, is concerned with the nature of the practice itself and results in new or advanced understanding that has operational relevance for that same practice. Often the results of the study may be completely expressed in written form, essentially without the need for inclusion of any created objects.¹⁵ Organological research projects containing a practical component, such as the currently presented one, can mostly be assigned to this second category. When such projects incorporate the replication or reconstruction of historical instruments, parallels can also be found with the activities of experimental archaeology, where the goal is to "reach back and experience some parts of ancient life [...] through attempts to reproduce former conditions and circumstances".¹⁶

¹¹ Linda Candy, *Practice based research: a guide* (Sidney: University of Technology, 2006), p.4. Available from: https://www.researchgate.net/publication/257944497_Practice_Based_Research_A_Guide (accessed May 2020).

¹² Candy (2006), pp.2-3.

¹³ Candy (2006), p.2.

¹⁴ Candy (2006), p.1.

¹⁵ Candy (2006), p.1.

¹⁶ John Coles, *Experimental archaeology* (London: Academic Press, 1979), p.1.

The ‘Making and Knowing Project’ (2014-2020) at the Center for Science and Society at Columbia University aims at an exploration of the intersections between scientific knowing and artistic making, currently often regarded as separate domains, but early on in the Scientific Revolution “nature was investigated primarily by skilled artisans by means of continuous and methodical experimentation in the making of objects – the time when ‘making’ was ‘knowing’”. The initiative intends to investigate and re-establish the relationship between science, art and craft, by organising hands-on seminars for its students on historical techniques and materials (e.g. metalworking, colour making, printmaking), guided by experts. The project also emphasises the importance of practice-led exploration and interpretation of historical texts related to the operations performed.¹⁷ All above-mentioned initiatives are representative of a growing awareness of the value of ‘practice’ in research in the arts and humanities, including the field of organology.

Besides their practice-oriented approach, another argument for the integration of makers into the organological community can be found in the close connection between instrument making and the field of musical performance. Historically, makers and musicians have had professional relationships,¹⁸ sometimes even uniting both occupations within the same person.¹⁹ Musical developments in the course of the past century have revived these connections.²⁰ Authentic performance practice, or historically informed performance as it is more recently called, has developed since the beginning of the twentieth century.²¹ An important question, and one that we can never fully answer due to the “incompleteness of the evidence”,²² remains ‘how did the music really sound in the days when it was composed’? The use of appropriate instruments, originals or replications, closely connected to the chronological and geographical provenance of the played repertoire, is one of the fundamental prerequisites in attempting a faithful performance. In reality, even today after more than five decades of endeavour for historically informed performance, it does not always seem possible or practically feasible to employ instruments exactly tailored for a specific repertoire due to unavailability of a broad range of suitable instruments, leading to compromises regarding sound, set-up, pitch and temperament. For example, the performance of Baroque

¹⁷ The Making and Knowing Project, <https://www.makingandknowing.org/about-the-project/> (accessed May 2020).

¹⁸ Herbert Heyde, ‘Methods of organology and proportions in brass wind instrument making’, *Historic Brass Society Journal*, vol. 13 (2001), pp.1-51, at p.9.

¹⁹ Karel Moens, ‘De viool in de 16de en 17de eeuw - Oorsprong en ontwikkeling van haar vorm- en bouwkenmerken - Deel I’, *Musica Antiqua*, vol. 2, no. 1 (1985), pp.24-26, at p.25.

²⁰ Laurence Libin, Jessica Wood, ‘Historical instruments’, in Deane Root et al., ed., *Grove Music Online* (2013). Available from: <https://doi.org/10.1093/gmo/9781561592630.article.A2241722> (accessed May 2020).

²¹ Harry Haskell, ‘Early music’, in Deane Root et al., ed., *Grove Music Online* (2001). Available from: <https://doi.org/10.1093/gmo/9781561592630.article.46003> (accessed May 2020).

²² Bernard D. Sherman, ‘Authenticity in music’ in M. Kelly, ed., *Encyclopedia of Aesthetics*, vol. 1 (Oxford: Oxford University Press, 1998), p.167, at p.167.

repertoire from between 1600 and 1750 on truly suitable violins would require at least three or four instruments in different configuration and set-up (with corresponding bows), an effort that not all present-day Baroque violinists can or will make. According to Wilson,²³ “such very practical considerations have had a bearing on what was and what was not done by way of ‘historically informed performance practice’”. Also, personal preferences on the part of musicians, for example regarding playing comfort or aesthetics, may further contribute to the use of instruments that are not fully justifiable for a certain repertoire. In addition, in more recent years, the focus of the historically informed performance practice community has gradually expanded towards repertoire beyond the Renaissance and Baroque era. Informed performance of music from the Classical and Romantic periods will ask for different instruments, and this opens a whole new field of instrument research and (re-)creation.

As a consequence of these developments, the specific expertise and interest of makers regarding technical aspects – such as instrument configurations (for both original instruments, reconverted originals or present-day replicas), dimensions and string choice – calls for their participation in organological research and performance practice initiatives. In the case of replicas and reconstructions, makers are the manufacturers of the sound-tools used by performers, and are thus providing the essential physical equipment required to convert the ideas of musicians, composers, music theorists and musicologists into a sounding musical reality. Historical instruments, or replicas and reconstructions manufactured after them, with their distinct particularities and deviations from the modern standards, could cause performers to approach the music in a fresh way. Or, as Taruskin states: “the unfamiliarity of the [old] instrument forces mind, hand and ear out of their familiar routines and into more direct confrontation with the music [...] The presentation of a familiar object (the music) in an unfamiliar context (the instrument and the new problems it poses) forces one to see it freshly, more immediately, more observantly – in a word, more authentically”.²⁴ However, the tools for true ‘informed performance’ will only be as satisfactory and reliable as possible if they are maintained, modified or newly produced according to the concept of ‘informed making’. And this is exactly where the expertise of the instrument maker is indispensable.

The knowledgeable examination of a musical instrument will not only expose its current state and condition, but can also reveal clues regarding previous configurations or even the construction process. This type of information can be interpreted to derive the possible techniques employed by the maker of the original instrument, or even to propose

²³ Nick Wilson, *The art of re-enchantment - Making Early music in the modern age* (New York/Oxford: Oxford University Press, 2014), p.72.

²⁴ Richard Taruskin, *Text & act - Essays on music and performance* (New York/Oxford: Oxford University Press, 1995), p.79.

a hypothesis on construction sequence or workshop organisation. Once such a hypothesis has been formulated, an effective way to test it is to actually execute the proposed steps, in the production of test pieces or even an entire instrument.²⁵ Researchers with an instrument-making background would be among the most suitable candidates to execute such performative investigations, and make sense of the outcomes in terms of practical feasibility, resulting product specifications and time-effectiveness.

From the above arguments, it may be concluded that there is certainly a role for makers within the organological community. In order to fulfil such a position, however, affinity and experience regarding systematic research are essential. A researching instrument maker would thus have to develop in dual directions, becoming a scholar in addition to being a craftsman, a ‘thinker’ as well as a ‘doer’, and to adopt a *modus operandi* in which theory feeds practice and *vice versa*.

To achieve this duality, nonetheless, there may be some pitfalls along the way. A craftsman willing to undertake organological research according to established academic principles will have to come out of his or her practice-drenched comfort zone and gain the appropriate academic attitude and skills. Theoretical knowledge, ranging from musicology to physics, and from organology to social and cultural history, has to be

²⁵ When an instrument – or any other object – is produced after a (historical) example, there are several ways to name the resulting product. The terms ‘copy’ or ‘reproduction’ are the more generic designations, indicating that an object was produced in the image of an original, the degree of similarity to the original being more or less pronounced. In instrument making in particular, the indication ‘inspired copy’ implies that the copyist’s intention was more to capture the spirit or concept of the original, rather than to duplicate the original as precisely as possible. Some makers even employ acoustic techniques to pursue a ‘tonal copy’, reproducing the instrument’s sound more than its appearance, or a ‘bench copy’, normally an imitation of a famous instrument, up to the point where even the smallest scratches and dents are copied. When a maker tries to reproduce an original instrument that has been modified throughout time, with the aim to reflect in the newly made instrument a possible earlier or initial state, then the denomination ‘reconstruction’ comes in use. An illustration of this is the present-day production of a violin in ‘Baroque’ configuration, based on a seventeenth-century, but throughout time modified, original. In order to make the reconstruction as faithful as possible, research is needed to find information for the reconstructed parts. Sources such as remnant well-preserved instruments or iconography become crucial. The denominations ‘replica’ and ‘facsimile’ indicate that a maximum degree of exactitude was envisioned, possibly also involving historical, and sometimes forgotten, production processes, as well as study of the materials used in the original, to achieve the highest level of similarity between copy and original. In this respect, the study of the making process can become a goal by itself. The words ‘imitation’, ‘duplication’ and ‘clone’ are less often used for musical instrument copies, while the terms ‘fake’, ‘forgery’ or ‘counterfeit’ are obviously employed to indicate that the maker of the copy had less than honourable intentions. Please note that all the above definitions are intended as a clarification of how I use these terms in the currently presented study. The terms furthermore are used in their contemporary connotation, as they are historical expressions as well whose meaning may have changed over time, and in the context of organological research. Further discussion on this specific terminology can be found in: Gerard L’E. Turner, ‘An inquiry into the imitation of scientific instruments’, in Peter R. De Clercq, ed., *Scientific instruments: originals and imitations - The Mensing connection* (Proceedings of a symposium, held at the Museum Boerhaave, Leiden, 15-16 October 1999) (Leiden: Museum Boerhaave, 2000), pp.49-60, at p.58; John Ray, Antonio Manjón, Aaron Garcia, ‘Adopting a policy of faithful copies of historically important musical instruments as an alternative to restoration’, in Marco A. Pérez, Emanuele Marconi, ed., *Wooden musical instruments - Different forms of knowledge - Book of end of WoodMusICK COST Action FP1302* (Paris: COST/Cité de la musique - Philharmonie de Paris, 2018), pp.53-66, at p.55.

acquired, along with abilities in areas such as data acquisition and analysis, project management and writing and presentation skills. Scholarly values, such as objectivity and ethical practice must become second nature, while furthermore, the crafts(wo)man may have to put aside any objections towards the theoreticism of the scholar. Moreover, although makers have valuable expertise and skills, which allow them to study instruments in detail, as mentioned above, they can sometimes be blinded by adhering too much to handcraft traditions and by repeating the same tasks, whereas scholars who are not makers can come up with novel questions and innovative approaches; often the most basic, naïve questions can open new windows to knowledge.

Heyde claims that some organologists have developed theories about past practices on the basis of “current craft experience, common sense, and logical reasoning”, but warns that these judgemental devices “may appear to be timeless, but in fact are not”.²⁶ While such a warning could be directed at certain organological scholars, as Heyde does, it certainly would be applicable to makers too. The same author furthermore claims that organological research is often focusing solely on the instrument’s “physical side” (i.e the maker’s ‘comfort zone’), which is “methodologically safe and simple, but one-sided”. In the end, such an approach would not prove to be gratifying, given the broad cultural relevance of musical instruments.²⁷

What is more, in some branches of the musical instrument field, there appears to be a fascination with big maker names and a certain mythology. The violin world, where these pre-occupations appear to be strongest of all, has its ‘Cremona cult’,²⁸ leading to the belief among many players and listeners that a soloist can only deliver a worthwhile performance when playing a famous antique Italian instrument, and sustaining a dominant monoculture of Stradivari-copying amongst makers. Moreover, ‘elite violins’ have become, even when not played, objects of art and financial investment for dealers and collectors.²⁹ From such points of view, there may be strong scepticism towards organological scholarship, since its activities and findings could be regarded as an attempt to undermine the constructed myths and conditioned market. The controversies

²⁶ Heyde (2001), p.10.

²⁷ Heyde (2001), p.5.

²⁸ According to Linsenmeyer, the nineteenth century saw the establishment of “the transcendent violin-making canon, the foundation of a cult of the violin, [which] endures [today] to such a degree that the narrative is still somewhat a product of our own time”. See: Christina Linsenmeyer, ‘Sibire’s aesthetic sensibility: Stradivarius, the Classical ideal and a new noble purpose’, in Pérez, Marconi, ed. (2018), pp.227-247, at p.241.

²⁹ Libin (2000); Herbert Heyde, ‘Entrepreneurship in pre-industrial instrument making’, in Boje E. Hans Schmuhl, Monika Lustig, ed., *Musikalische Aufführungspraxis in nationalen Dialogen des 16. Jahrhunderts - Teil 2: Musikinstrumentenbau-Zentren im 16. Jahrhundert* (Michaelsteiner Konferenzberichte, vol. 72, no. 2) (Augsburg: Michaelstein, 2007), pp.25-63, at p.51.

surrounding the attribution of the ‘Messiah’ violin may be illustrative in this light.³⁰ Whilst these views appear to be most common amongst players, dealers, collectors and makers of the violin, a similar fixation with name and fame occurs within the areas of some other instrument families too. But in the field of bowed string instruments, such biases are most persistent, even to an extent that “current scholarship and museum practice have failed to overcome the violin’s transcendent status and violin-making’s hierarchical canon”.³¹

Another sensibility and competency the researching instrument maker will have to develop in order to transform into a full-fledged organologist, is the habit of communicating his or her research findings through the proper scientific channels. Articles written specifically by makers are hard to find in organological publications such as *The Galpin Society Journal* and the *Journal of the American Musical Instrument Society*, while makers are also under-represented at organological conferences. Certainly, the violin community has its own monthly periodical, aimed at players, dealers and makers, which regularly features interesting contributions written by the latter.³² Yet, this magazine does not practise the peer review process, nor does it include reference footnotes, and thus, the scientific validity of its articles must be critically approached. And is the information contained in leather-bound books issued by the violin business truly objective, or are these publications primarily intended as prestigious promotional material?

Last but not least, due to their backgrounds, makers may not be always properly trained to judge the fragility of cultural heritage objects and to handle them accordingly. In addition, their pragmatic attitude may push them to take a certain measurement at all cost, losing sight of the well-being of the instrument under study. It would therefore be necessary to train instrument makers with research aspirations how to safely and responsibly perform their instrument investigations. An unfortunate example to illustrate this issue is provided by cases of indentation damage to the top plate of both the Boussu violin MIM inv. no. 2781 and the Boussu cello MIM inv. no. 1372, discovered in March 2016 during the course of the currently presented research project. This damage must have been caused only fairly recently by – thus far unidentified – examiners who had apparently used a profile gauge in an attempt to register top plate cross arching profiles of both instruments, likely to collect this information for the purpose of making

³⁰ Jon Whiteley, ‘Le Messie Stradivarius?’, *The Galpin Society Journal*, vol. 55 (2002), pp.240-243, at pp.240-241; Laurence Libin, ‘Ethics, evidence, and authentication’, in Tom Wilder, ed., *The conservation, restoration, and repair of stringed instruments and their bows*, vol. 1 (Montreal: IPCI-Canada, 2010), pp.236-243, at pp.239, 241.

³¹ Linsenmeyer (2018), p.228.

³² The Strad, <https://www.thestrad.com/> (accessed May 2020).

a copy.³³ Such incidents demonstrate the importance of awareness of the vulnerability of old instruments and the abandoning of potentially harmful examination methods in favour of contactless ones, such as CT scanning, in order to prevent similar damage to other instruments in the future.

Thus, the requirements imposed on a researching maker in relation to the above viewpoints are not to be neglected. Still, if makers are prepared to make the transition from their workshop to the academic arena, they can become valuable contributors and initiators in the territory of musical instrument research, and their specific know-how and practice-driven approach can bring new insights and élan to the field. The reverse could also be argued: not only should instrument makers be familiar with academic research, but academics should also have experience with practical making techniques and hands-on research (as advocated by the ‘Making and Knowing Project’ discussed above). By better understanding each other’s potential and needs, the two worlds can come closer and form valuable collaborations and exchanges, where each participant can still, or even more effectively, contribute from his or her own expertise and identity.

To look ahead to the upcoming section, several authors have commented on the value and sense of making instrument copies. Their opinions vary from “bowed and plucked strings are impossible to copy”,³⁴ via “the copy may have embodied in it all the projected features of the original, when new, and thus will provide a much closer simulacrum than the restored original [...] nevertheless [...] in truth there is no such thing as an accurate copy, because every action we perform is one of interpretation”,³⁵ to “[we] are aware that we have yet to learn what it is that makes each instrument-maker unique and how to replicate the effect of that. Furthermore, working with a material as variable as wood

³³ On detailed photographs taken on 7 November 2014 by a visitor of the MIM who examined the violin from 1750 (MIM inv. no. 2781), the damage to the instrument is not yet visible, confirming that the damage occurred after that date. It is truly regrettable that this damage occurred to this unique instrument, even more so since instead of using a profile gauge, the arching profiles could have been retrieved from CT scan data of the instrument (available since November 2012, see Appendix VII). After the discovery of the indentations on the 1750 violin, the other instruments by Boussu in the MIM collection were checked as well. Unfortunately, similar dents, although much less deep, were observed on the top plate of the cello from 1757 (MIM inv. no. 1372). Possibly, these latter indentations may have been present for a longer time, but had stayed unnoticed due to their more superficial nature.

³⁴ Jeremy Montagu, ‘Can you reproduce an instrument?’ (2019), pp.1-5, at p.4. Available from: <http://www.jeremymontagu.co.uk/CanYouReproduceAnInstrument.pdf> (accessed March 2020). In the conclusion of this essay, at p.5, Montagu tempers his initial scepticism a bit, at least with regard to copying woodwind instruments, by stating: “There are always upper-class customers for all instruments, but there are also professional musicians and ordinary amateurs who just want a good working instrument. Some of our modern makers need to bear this in mind and put themselves, in their imagination, into the workshops of the original makers. Then, if they’ve compared a number of instruments or drawings from the same maker that they’re trying to copy, instead of trying to produce impossible one-off reproductions, they can produce the generic Stanesbys, Monzani or Denner like those that those makers produced, and with luck and if they’re as good craftsmen as the original makers were, their instruments will sound near enough, but never exactly like the originals may have sounded when they were new.”

³⁵ Barclay (2004), pp.78-79.

means that the same result as in the original is harder to achieve [...] but in the meantime, we firmly believe that making a copy which is as exact as possible is much better than making changes in the original instrument”.³⁶ Koster³⁷ starts a plea for making copies with noticing that “there is something about a copy that is disdained [...] with works of art, copying their essential nature is usually regarded as impossible”, but then continues, in favour of copying musical instruments, thusly: “it follows that we today, by studying and following their [the historical makers’] designs and materials, should be able to reproduce their results [...] obviously this ideal is unattainable, but it can, I believe, be approached [...] it is appropriate for museums, as institutions of education, research, and cultural preservation, to promote the making of copies”. In the course of this section, I hope to have demonstrated a new perspective to complement the visions of these previous authors, namely that of instrument replication as a manifestation of organological scholarship, i.e. ‘workbench research’.

The next section will discuss how the findings from the initial stages of this PhD study – the biographical and instrument research, as well as the deduction of a hypothetical construction sequence for Boussu – have been employed in order to build replica instruments based on the studied originals, thereby illustrating the holistic approach of the maker/scholar. By practically performing the proposed construction steps, answers can be found and new questions arise, which can then become the basis for new research. This iterative interaction between ‘practice’ and ‘theory’ can thus function as a propelling force in the study of musical instruments.

6.3. Workbench research - the replication process

6.3.1. State and condition of the original examples

Since the violin with MIM inv. no. 2781 and the cello with MIM inv. no. 1372 will be used as the examples for making the replicas, let us first summarise what is known about their state and condition, in addition to our own observations as discussed in Chapter 4. Condition and conservation reports for these instruments are present at the MIM, but their content is brief. Caruso *et al.* state, when describing nine instruments from the MIM collection, including the said violin and cello: “no documentation is available about possible conservation treatments carried out on the instruments. In fact, conservation reports on six of the nine studied instruments (violins 1338, 2774, 2781, 2782, 2836 and cello 1372) exists [sic] only after the beginning of the 1980s. Nevertheless, they are about some delicate conservative actions (e.g. soaping of the pegs, gluing of detached parts, etc.)

³⁶ Ray *et al.* (2018), p.63.

³⁷ John Koster, ‘The ‘exact copy’ as a legitimate goal’, CIMCIM Publications, no. 3 (1994), pp.7-13, at pp.7, 10, 12.

and not concerning the varnish.”³⁸ Our own consultation of the dossiers for the violin with MIM inv. no. 2781³⁹ and the cello with MIM inv. no. 1372⁴⁰ has shown that this documentation indeed only describes minor conservational interventions performed in and after 1982. So, from the documentation available at the MIM, we cannot learn whether structural modifications to the violin (with MIM inv. no. 2781) and the cello (with MIM inv. no. 1372) were performed during the earliest decades of their incorporation in the museum collection (between c1900 and c1980).

Nevertheless, several previous authors have commented on the state of this violin and cello. In 1903, Snoeck mentions, regarding the violin: “39. -- VIOLON. B. J. Boussu, Etterbeek 1750. *Volute caractéristique du maître, il n’a subi aucune réparation et se trouve dans son état primitif avec le vieux manche et le vieux cordier*”.⁴¹ The cello is not described by Snoeck, since it was not part of his collection (another Boussu cello, now with MIM inv. no. 2863, is included⁴²). Regarding the violin, Mahillon partially repeats Snoeck in 1912: “*cet instrument se trouve dans son état primitif avec le vieux manche et le vieux cordier*”.⁴³ He does not specifically describe the state of the cello.⁴⁴ Moens, in 1983, discusses the violin and cello as follows (translated from Dutch): “two instruments preserved in completely original state in the Brussels Musical Instruments Museum” (their inventory numbers are given by Moens in an accompanying footnote).⁴⁵ In 1985, Awouters claims that the violin is “*très homogène*” and has a “*manche original*”⁴⁶ and that for the cello, its “*manche d’érable, avec chevillier et volute, est original*”, and that the ebony fingerboard is of “*longueur*

³⁸ Francesco Caruso, Steven Saverwyns, Marina Van Bos, Delia Francesca Chillura Martino, Anne-Emmanuelle Ceulemans, Joris De Valck, Eugenio Caponetti, ‘Micro-X-ray fluorescence and the old masters’, *Applied Physics A*, vol. 107, issue 1 (2012), pp.197-202, at p.198.

³⁹ MIM documentation (from 1982) for the violin with MIM inv. no. 2781, contains the following descriptions of condition and conservational interventions: “condition: good, worm damage in belly lower right”, “light moist cleaning [with] H₂O + Agepon with cotton”.

⁴⁰ MIM documentation (from 1982) for the cello with MIM inv. no. 1372, contains the following descriptions of condition and conservational interventions: “condition: in absolutely orig. condition, tables loose from bouts in many places”, “gluing of tables to bouts with dilute hot glue, in several places the bouts no longer pass [fit] due to shrinkage, these were left alone”, “general cleaning with H₂O + Agepon soaked cotton”, “polishing of ebony parts with microc. wax in Esso Varsol”, “soaping of pegs”, “veneer of tailpiece reattached in places with hot glue”. Another report, from 2006, mentions that dust was removed.

⁴¹ César Charles Snoeck, *Catalogue de la collection d’instruments de musique flamands et néerlandais formée par C. C. Snoeck* (Ghent: Vanderpoorten, 1903), p.8.

⁴² Snoeck (1903), p.20.

⁴³ Victor-Charles Mahillon, *Catalogue descriptif et analytique du musée instrumental (historique et technique) du Conservatoire royal de musique de Bruxelles*, vol. 4 (Ghent: Ad. Hoste, 1912), p.403.

⁴⁴ Victor-Charles Mahillon, *Catalogue descriptif et analytique du musée instrumental (historique et technique) du conservatoire royal de musique de Bruxelles*, vol. 3 (Ghent: Ad. Hoste, 1900), p.31.

⁴⁵ Karel Moens, ‘Vioolbouw in de Oostenrijkse Nederlanden’, *Arca Lovaniensis*, vol. 10/b, *Jaarboek 1981* (Leuven: Depret, 1983), pp.135-156, at p.149.

⁴⁶ Mia Awouters, ‘VIOLON - Benoît-Joseph Boussu, Bruxelles, 1750.’, in Malou Haine, Nicolas Meeùs, ed., *Instruments de musique anciens à Bruxelles et en Wallonie - 17^e-20^e siècles* (Liège/Brussels: Mardaga, 1985), p.53, at p.53.

intermédiaire entre la touche baroque et la touche moderne".⁴⁷ Because the conservation reports of the MIM, available since the early 1980s, do not mention the performance of any structural modifications to both instruments, we may assume that their current constructional state is still as described by Moens and Awouters in 1983 and 1985 respectively.

Our own observations, already extensively presented and discussed in Chapter 4, confirm the opinions of the above-cited experts, namely that this violin and cello have to a large extent retained the structural features with which Boussu had created them in the 1750s. For the violin, using endoscopy and CT scanning investigations, it has been demonstrated that at the inside of the sound box, the plate surfaces and rib structure appear to be undisturbed from human interventions. No open cracks or patches for repaired cracks are visible at the plates and ribs. It is highly likely that the violin has never been opened after it had left the workshop of Boussu in 1750. Inside the sound box of the violin, around the linings, white, flake-like particles are noticeable, of unknown origin (see, for example, Figure 4.36(b)). A small spot of repair is present on the lower treble side of the violin's top plate, to conceal minor woodworm damage (see Section 4.19). Some other woodworm holes are present in the violin's pegbox, on the treble side above the a'-string peg.

The cello has a repaired crack in the top plate that runs just outside the treble-side bridge foot, from the level of the upper end of the tailpiece to the level of the upper eye of the treble-side f-hole. At the inside of the top plate, a white, rather new-looking strip of textile (c9 cm long) is glued on to reinforce this repaired crack. Next to this strip, on the centre joint, two shorter strips of the same material are added to reinforce the glue joint (see Figure 4.49). All three strips are discernible on the CT scan reconstruction in Figure 4.48(b). The presence of these strips implies that the instrument must have been opened at least once. Possibly, another glued crack, yet shorter, is present in the top plate, at the level of the end of the bass side of the fingerboard (the existence of this crack should be confirmed during a future examination of the instrument). No cracks have been observed in the back plate. The button on the back plate of the cello has been renewed, likely to replace the broken original button. This suggests that the instrument must have been damaged rather seriously at one point, and that the back plate has been removed to perform the button repair. Since the back plate appears to have been glued back with a rather constant overhang over the ribs, only a minor effect on the neck inclination, as result of the back's removal, is expected to have happened. Possibly, deformations of the instrument as a result of string tension may have had a larger effect on the neck

⁴⁷ Mía Awouters, 'VIOLONCELLE - Benoît-Joseph Boussu, Bruxelles, 1755 [sic].', in Haine, Meeùs, ed. (1985), p.54, at p.54.

inclination.⁴⁸ Currently, the purfling running below the back plate's button has become unglued from its channel and partly sticks out over a distance of several centimetres. The button repair must have been performed before 1984, since the presence of the button graft is mentioned in a letter from that year by the violin maker François Louant, who made a technical drawing of the instrument, to then MIM-curator Mia Awouters (the letter is preserved in the archive of the MIM).

Moreover, the cello has an unrepaired rib crack, running with the grain, in each of the middle bout parts (likely due to shrinkage damage) and one more complex, unrepaired fracture in the bass-side lower rib part, near the lower block, as well as several open joints between plates and rib garland. Woodworms have attacked the cello in several small spots: in the upper rib part on the treble side, in the middle bout edge of the top plate on the treble side, in the wall of the pegbox on the treble side and at the backside of the scroll.

Plate thickness graduations in both the violin and cello are very likely unmodified, as discussed in Section 4.10, but due to the thin plates of the cello, deformation of the plates has occurred (see Section 4.11). The bass bar in both instruments is believed to be original (as argued in Section 4.14). In particular, no signs of modification can be discerned concerning the main characteristic constructional features ascribed to Boussu, such as the neck with integral upper block, linings, and lower and corner blocks, see Sections 4.12 and 4.13.

The varnish coat on both the violin and cello is believed to be largely intact and original, as was argued in Section 4.19, except for some places of the usual wear due to playing and handling. The presence of most of the original varnish on the necks of both instruments (detected with UV-induced fluorescence) strongly suggests that the necks have not been thinned, see Section 4.19. Also under UV light, retouches on the cello are visible at the top of the scroll and along the transition between the neck and the fingerboard. This latter observation suggests that the solid ebony fingerboard on the cello is a replacement (further arguments in support of this presumption are presented in Section 4.16). The veneered fingerboard on the violin is believed to be original, as was argued in Section 4.16.

Furthermore, on both instruments, dents and scratches – to be expected for instruments of this age – are present to a moderate degree, along with some wear and tear on the plate edges, especially at the top plates, and on the scrolls. The edgework on the back plates

⁴⁸ The original neck angle can be derived fairly accurately from measuring (in a CT scan reconstruction) the angle between the wall of the slot in the neck root (which touches the inserted upper rib part), and the plane of the gluing surface of the neck (at the end close to the sound box).

has maintained much of its original definition of finishing. Unfortunately, both instruments display surface damage on their top plate due to recent improper measurement operations, as was discussed in more detail in Section 6.2.

Regarding the smaller accessory parts, these have been reviewed in Section 4.20. An original lower saddle from bone, inserted to half the depth of the top plate, is still present on both instruments. A corresponding bone nut is installed on the violin. On the cello, an ebony nut is present, likely a replacement for the original bone nut from the time when the new fingerboard was installed. The bridges at both the violin and the cello are clearly not in eighteenth-century style. The violin presumably has retained three of its original pegs, the cello all four. The tailpieces are in 'Baroque' style; whereas the cello tailpiece is thought to be original, the violin tailpiece could well be a replacement part.

When well-preserved historical bowed string instruments are encountered, the reason for their exceptional state of survival can be questioned. Did they endure in this state because of coincidence or maybe because they were considered unworthy for 'updating' in the centuries following their production. When assuming this latter scenario, instruments which have survived in a (near-)unaltered construction may not always be the best examples to copy. On the contrary, they may have been judged acoustically inapt (from the perspective of a past prevailing fashion of taste) and may have hence escaped modification. As for the two well-preserved instruments by Boussu that were selected for our most extensive investigations and subsequent replication, these display features, with regard to their design, proportions and materials, that were also observed, although less well-preserved, in other instruments by Boussu which did get played for much longer and were consequently more modified.⁴⁹ So, as may be assumed, the two 'fossilised' instruments would not have sounded or played very differently from other instruments by this maker. Rather, they are lucky and coincidental exceptions to the general trend of 'upgrading' in the nineteenth century. As for the violin, this instrument may perhaps have been locked away at the end of the *Ancien Régime*, as part of some church inventory or private household, until it was unearthed and purchased by the collector Snoeck decades later for his collection. The cello appears to have been in musical use for a bit longer throughout the nineteenth century, considering the circumstance that its fingerboard had been replaced by a version of medium length and of solid ebony, and the presence of several repairs (soundpost crack repair and button replacement).

Given their exceptionally well-preserved constructional state, both confirmed by previous experts and during our own study, this violin and cello are highly suitable candidates for extensive investigation and documentation, and also to serve as an

⁴⁹ With the exception that the cello with MIM inv. no. 1372 has the singular feature of relatively thin plates.

example for instrument replication. The other seven instruments by Boussu from the collection of the MIM are in a state that shows, to a lesser or greater extent, signs of alterations and repairs that were performed during their years of musical use and maybe later, during their ‘career’ as museum objects. Nevertheless, in all of them, uniform features are still present that point towards their original construction, as was comprehensively discussed in Chapter 4 and Section 5.3.

6.3.2. The actual replication

In February 2017, a start was made with the actual construction of replica instruments after Boussu. Two violin replicas were built in parallel, based on the original, extremely well-preserved violin in the collection of the Musical Instruments Museum in Brussels (MIM inv. no. 2781; database code BJB5001vn). The practical work took place during the rest of 2017, but not on a continuous daily basis because other activities had to be carried out as well. The two violin replicas, named ‘BIO01’ and ‘BIO02’ respectively (‘BIO’ is an abbreviation for ‘Boussu Inside Out’), were finished in December 2017. Directly following the completion of the two violins, the construction of replica cello ‘BIO03’ was started. This instrument, based on an original, well-preserved cello by Boussu (MIM inv. no. 1372; database code BJB5701vc), was finished in June 2018. A third violin replica (‘BIO04’) was built ‘in white’ during continuous daily work in September 2019, after some previous days of preparatory work. Finally, a replacement top plate for replica BIO01 was made and installed in December 2019, since the first top plate was thought to be too heavy.

Serving as an important foundation for the replication process, the obtained CT scan data for the original violin and cello provided scale 1:1 cross sections, which in printed form could serve as accurate construction drawings and templates (see Figure 6.1). Our ‘real-life’ and ‘virtual’ measurements provided the required dimensional data, while photographs and endoscopy images of the instruments were selected for visual information. Furthermore, thickness and arching height maps as produced by Prof. dr. Berend Stoel (for examples, see Sections 4.10 and 4.11) gave additional information to aid the replication. During the entire making process, the CT data could also be consulted on a laptop computer in the workshop with the use of the appropriate software (in our case the software packages OsiriX DICOM Viewer⁵⁰ and RadiAnt DICOM Viewer⁵¹), which made the performance of additional ‘virtual’ measurements possible, as well as any kind of CT scan reconstruction, such as longitudinal and transverse arching profiles at any cross section and 3D views.

⁵⁰ Pixmeo Sàrl, Bernex, Switzerland.

⁵¹ Medixant, Poznan, Poland.

As much as possible, only (non-electrical) hand tools were used to make the replicas, to ensure that the employed tools matched those of the eighteenth century as closely as possible. These were mostly of present-day origin, although resembling their historical equivalents. Figure 6.2 shows some examples of these violin making tools (all made by the author), in comparison to their eighteenth-century counterparts, as presented by Diderot and D'Alembert in their *Encyclopédie*.⁵² Other modern devices and materials, such as sandpaper and synthetic glues, were avoided as well. The instruments were assembled using solely bone glue, a product also available and widely used in the days of Boussu, and still the preferred choice for today's makers. Bending the rib parts was done with an electrically heated bending iron, since no facilities for heating a bending iron on open fire or a stove were available in the workshop. Plate thicknesses were measured with a modern-style dial-type thickness gauge. For replica BIO04, the plate thickness marker shown in Figure 6.2(e) was adopted.

The plate thickness graduations for the violin replicas were copied as accurately as possible from the thickness patterns from the original instrument (as recorded with a magnetic thickness gauge); other dimensions were copied as exactly as achievable too. On three minor aspects, it was decided to depart from the original violin from 1750. The size and shape of the glue linings, the shape of the upper block and the shape and material of the filler strip at the joint of the lower rib parts were all copied from original instruments by Boussu dated from mid-1752 onwards.⁵³ As a result, the replica violins have a rounded upper block, glue linings with a cross section of about 2×4 mm and a filler strip between the lower bout ribs made from ebony (instead of maple). The reasoning behind this compromise was twofold. Firstly, since the majority of Boussu's instruments must have been made with a rounded upper block and larger linings, including these features in the replicas would make them representative for the more frequent and common design. Furthermore, assuming that Boussu made the changes in mid-1752 as a structural and/or acoustical improvement in his design, the replicas including these revised features would also mirror the improved configuration. The use of ebony as a filler strip between the lower rib parts, as opposed to the use of other materials, was Boussu's preferred – albeit rather randomly inspired – choice (see Section 4.12). Therefore it was considered legitimate to select ebony for the filler strip in the replicas. The construction sequence and methods would in no way be affected by these choices.

⁵² Denis Diderot, Jean le Rond d'Alembert, ed., *L'Encyclopédie - Lutherie* (Paris: Inter-livres, undated). Twentieth-century facsimile print. Plates 12 and 13 show several tools used by violin makers.

⁵³ As can be learned from Section 4.13, Boussu changed the shape of both the linings and upper block in his instruments in the course of 1752.

Replication



Figure 6.1. Examples of scale 1:1 construction plans and templates, based on the CT scan data of the Boussu violin with MIM inv. no. 2781 (database code BJB5001vn).

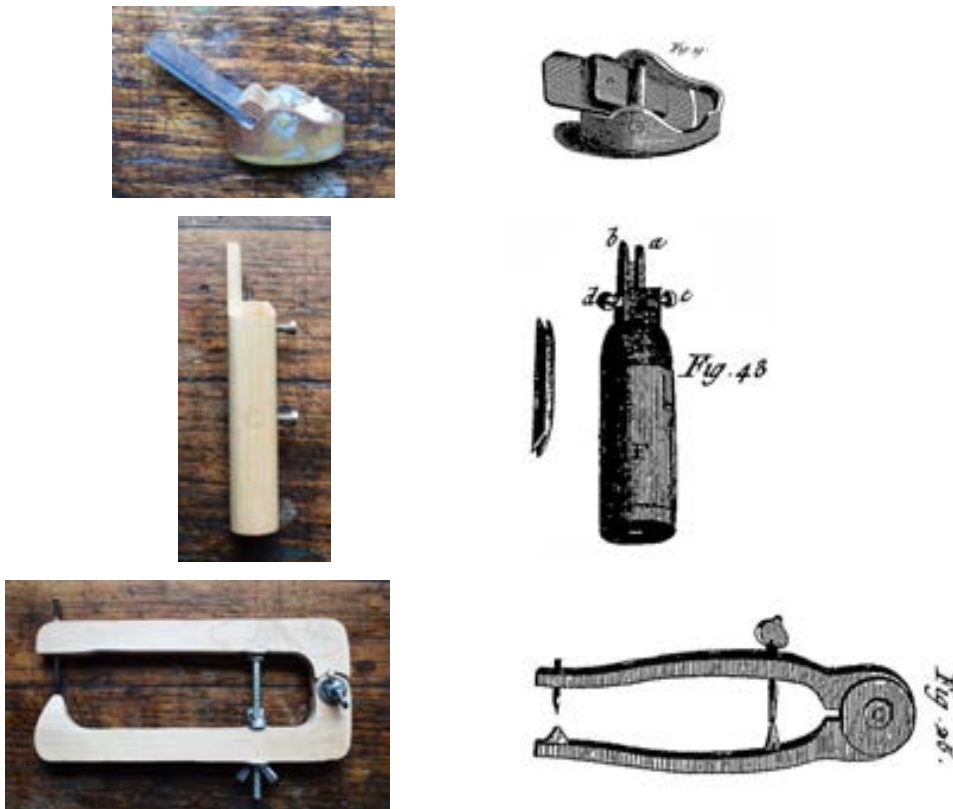


Figure 6.2. Several examples of the hand tools used during the replication phase (left column), in comparison to their eighteenth-century counterparts as displayed by Denis Diderot and Jean le Rond d'Alembert (right column). Top row, left to right: (a) thumb plane, (b) thumb plane. Middle row, left to right: (c) purfling marker, (d) purfling marker. Bottom row, left to right: (e) plate thickness marker prototype, (f) plate thickness marker.

For the cello replica, all dimensions were copied to the best effort following the 1757 original (with MIM inv. no. 1372; database code BJB5701vc), except for the thicknesses of the top and back plate. Given the unusually thin plates of the original, and their resulting

stress-induced deformations (see Section 4.11), it was decided to make the plates of the replica cello somewhat thicker. Whereas in the original example, the top and back plate had a central maximum thickness of 4.5 mm and a thickness in the peripheral areas of 2.8 mm (see Section 4.10, Table 4.7), for the replica, it was decided that these local thicknesses would be established at 4.7 mm and 3.3 mm respectively, in order to avoid distortion. These latter values coincide closely to the graduations of the other Boussu cello in the collection of the MIM, with inv. no. 2863 (see Table 4.7), an instrument for which the plates show much less deformation.

Initially, the wood for the first two violins replicas, BIO01 and BIO02, was selected merely on visual appearance. As explained in Section 4.8, Boussu used rather plain (lightly figured) maple wood for his instruments, especially those of his earlier career. Therefore, the maple selected for the replica instruments was mostly of the lowest tone wood grade. The wood selected for all four replicas is described in Table 6.1. Only after it turned out that the top plate of violin replica BIO01 was relatively heavy (see Section 6.4), the wood for the top plate of the next violin replica (BIO02) was selected for density. For this second violin replica, from all spruce wedges for violin tops at that time present at the workshop, the wedge with the lowest density was picked. This wood had a density of 0.41-0.42 g/cm³, determined from the volume of the wedge-shaped billet (measured by dimensions) and its mass, and later confirmed by density analysis of CT data from scanned scrap wood pieces of the same billet. In December 2019, the heavy top plate of violin replica BIO01 (mass: 85 g; density, determined from CT data: 0.48 g/cm³) was replaced by a top plate made from much lighter spruce (density: 0.38 g/cm³, determined from the mass and volume of the unprocessed spruce billet). For the violin replica BIO04, wood of similarly lower density was chosen in advance.

Table 6.2 gives the densities for the top plate, back plate and neck material for all four replica instruments. Wood densities were determined for two reasons. Firstly, to be able to compare and match the densities of the materials for the replica instruments to the densities of the materials used in original instruments (as far as these latter had been determined or estimated during the currently presented study, see Section 4.21). This way, a correspondence regarding an important parameter for physical wood characterisation could be achieved. Secondly, because wood density, together with the Young's modulus, strongly determines the acoustical properties of the material.⁵⁴ However, unlike density (from CT scan data), the Young's modulus cannot be easily determined in materials from historical museum instruments. By knowing the density of the materials constituting the replicas, we can later (in future research) attempt to correlate the densities to their acoustical behaviour.

⁵⁴ Ulrike G. K. Wegst, 'Wood for sound', *American Journal of Botany*, vol. 93, no. 10 (2006), pp.1439-1448, at p.1440.

Replication

Violin replica BIO01	
Back plate:	maple / Bois de Lutherie Aigrisse, La Louvière, Belgium / 1997, low grade (student) quality
Top plate:	plate 1: spruce / unknown tone wood supplier / marked as quality 'X' (lowest grade) plate 2: spruce / Tonholz Kreuzer, Mittenwald, Germany / quality 'B' (medium grade)
Neck:	maple / Belgian all-purpose wood supplier / no figure
Sides:	maple / Bois de Lutherie Aigrisse, La Louvière, Belgium / low grade (student) quality
Fingerboard:	spruce core, ebony veneer top layer, blackened fruitwood sides
Violin replica BIO02	
Back plate:	maple / Tonholz Kreuzer, Mittenwald, Germany / quality 'O' (lowest grade)
Top plate:	spruce / unknown tone wood supplier / marked as quality 'X' (lowest grade)
Neck:	maple / Belgian all-purpose wood supplier / no figure
Sides:	maple / Tonholz Kreuzer, Mittenwald, Germany / quality 'O' (lowest grade)
Fingerboard:	spruce core, ebony veneer top layer, blackened fruitwood sides
Cello replica BIO03	
Back plate:	maple / Tonholz Kreuzer, Mittenwald, Germany / quality 'O' (lowest grade)
Top plate:	spruce / Tonholz Kreuzer, Mittenwald, Germany / quality 'B' (medium grade)
Neck:	maple / Tonholz Kreuzer, Mittenwald, Germany / quality 'O' (lowest grade)
Sides:	maple / Tonholz Kreuzer, Mittenwald, Germany / quality 'O' (lowest grade)
Fingerboard:	cherry wood core, ebony veneer top layer
Violin replica BIO04	
Back plate:	maple / Tonholz Kreuzer, Mittenwald, Germany / quality 'O' (lowest grade)
Top plate:	spruce / Tonholz Kreuzer, Mittenwald, Germany / quality 'B' (medium grade)
Neck:	maple / Belgian all-purpose wood supplier / no figure
Sides:	maple / Bois de Lutherie Aigrisse, La Louvière, Belgium / low grade (student) quality
Fingerboard:	spruce core, ebony veneer top layer, blackened fruitwood sides

Table 6.1. Overview of the wood used for the four replicas.

	Violin replica BIO01	Violin replica BIO02	Cello replica BIO03	Violin replica BIO04
Density wood top plate (from mass and volume, g/cm ³)	plate 1: - plate 2: 0.38	0.42	-	0.38
Density wood top plate (from CT data, g/cm ³)	plate 1: 0.48 plate 2: -	0.41	0.42	0.40
Density wood back plate (from mass and volume, g/cm ³)	-	-	-	0.58
Density wood back plate (from CT data, g/cm ³)	0.65	0.62	0.61	0.60
Density wood neck/upper block/scroll (from mass and volume, g/cm ³)	0.62	0.62	-	0.62
Density wood neck/upper block/scroll (from CT data, g/cm ³)	0.61	0.60	0.59	0.63

Table 6.2. Overview of the densities (in g/cm³) of the wood used for the four replicas.

Densities were determined using two different methods. According to the first method, the unprocessed, wedge-shaped billet was weighted⁵⁵ and its dimensions measured for calculation of its volume. This method could result in somewhat inaccurate results given the irregular shape of the billets and the inaccuracy of the balance used. For the second method, scrap wood pieces (from top plate, back plate and neck material) collected during the making process of all four replicas were CT scanned at the Leiden University Medical Center,⁵⁶ and from the CT data, the density of the pieces was determined, including a calibration based on the scanning of a set of reference samples of known density.⁵⁷ In addition, in some cases, the wood density was determined in a similar way from the CT scan data of an actual replica instrument. The two CT-based variants (on scrap wood pieces and on a replica instrument) gave comparable results. Also, as can be seen in Table 6.2, for the cases where the density was determined both by the mass-volume method and the CT method, similar values were obtained, confirming the validity of the obtained results. The density for the spruce of replica BIO01 (second top plate) and replica BIO04, with a value of around 0.38 g/cm³, falls in the lower density-range for Norway spruce (*Picea abies*).⁵⁸ Similarly, the maple for the back plate of replica BIO04 has a relatively low density.⁵⁹ When comparing the densities in Table 6.2 to those found for two original violins by Boussu (see Section 4.21), it may be concluded that the densities of the woods in the replicas and the originals are in good agreement, except that the original violin from 1750 has a higher estimated density for the neck wood (0.65 g/cm³), while for the violin from 1759, the wood of the top plate is heavier (0.44 g/cm³). No density determination for the wood of the original cello from 1757 has been performed.

After the wood for a replica instrument was selected, the manufacturing process could commence. The working sequence employed during the making of all four replicas was exactly as hypothetically proposed in Section 5.3. Several key steps of the violin replication process are illustrated by the photographs in Figures 6.3(a) through (d) and Figure 6.4.

⁵⁵ A consumer model digital balance was used, with an accuracy of +/- 1 g. This accuracy was checked against a more accurate digital laboratory balance (by weighing the same object and comparing the measurement results).

⁵⁶ Scanner: Aquilion (Toshiba, Japan), scanner settings: 80 kVp, slice thickness: 0.5 mm, pixel spacing: 0.49 mm, exposure: 50 mAs, X-ray tube current: 50 mA, convolution kernel: FC86.

⁵⁷ This calibration procedure is discussed in Section 4.21.

⁵⁸ The density of Norway spruce (*Picea abies*) ranges from 300 to 680 kg/m³. See: Janusz Surmiński, 'Wood properties and uses', in Mark G. Tjoelker, Adam Boratyński, Władysław Bugała, ed., *Biology and ecology of Norway spruce* (Dordrecht: Springer, 2007), pp.333-342, at pp.336-337.

⁵⁹ The density of maple (*Acer*, various species) ranges from 550 to 750 kg/m³. See: R.P. van der Zwan, A.L. van Oosten, *Hout herkennen* (Deventer/Antwerpen: Kluwer Technische Boeken, 1996), p.105.



Figure 6.3. Several representative steps in the 2017 construction process of a violin replica after Bousu. Top row, left to right: (a) marking the back plate contour (template produced from CT data), (b) gluing the neck to the back plate using an alignment table. Bottom row, left to right: (c) making the rib parts on partial moulds, clamping is done by rope, (d) gluing the rib parts, including their linings, to the internal blocks.



Figure 6.4. A modular system: several prepared violin parts ready to be assembled. Linings are pre-installed on the rib parts, thereby preserving the bent shape of the ribs.

To document the violin and cello replication, and to make the practices performed during this ‘workbench research’ phase available for future scholars and makers, the process was captured entirely by means of video recordings. For each instrument type (i.e. violin or cello), five edited videos are available, each documenting a specific stage of the replication process: (1) making the neck, (2) making the back plate, (3) making the rib structure, (4) making the top plate and (5) finishing and set-up. These recordings have been uploaded to the YouTube channel ‘Boussu_Inside_Out’.⁶⁰ In Appendix IX, an overview is provided of the content of the available videos, with an index listing the subsequent construction operations. Since many steps in the cello replication are similar to those of the preceding violin replication, in the videos documenting the cello making process, footage of some more basic procedures is omitted. Some other steps are shown in a condensed way. In order to further clarify the replication process, now a written description will be given, with an emphasis on the steps and particularities that are inherent to Boussu’s presumed making system.

The construction of each replica would start with the preparation of the required pieces of wood. Top and back plate billets were joined and the bottom surface was planed level. The maple block for the neck was planed to a rectangular shape with the correct width (the width of the block determines the width of the scroll, for the violin replicas: 36.5 mm, for the cello replica: 60.5 mm). The strips for the ribs were prepared to the required thickness using a block plane and steel scrapers. We imagine that in the Boussu workshop, one employee, or possibly an outside contractor, would be in charge of these preparatory tasks, to maintain a sufficient stock of starting materials and thus ensure a solid base for the workshop’s workflow.

⁶⁰ YouTube channel ‘Boussu_Inside_Out’, https://www.youtube.com/channel/UChivkXPogBhUIj3X2I_DFWA (accessed February 2020).

Replication

Once all wood was prepared, the making of the neck could commence. On the upper surface of the neck block, the centreline and perpendicular marking lines for the nut and side slot locations were applied. Subsequently, on both sides of the neck block, the lines marking the side slots in the neck root were applied using a sliding bevel set to the correct angle. Other marking lines to indicate the depth of the slots were applied too. (Remains of such markings have been observed on a detached cello neck by Boussu, see Figure 4.17(b).) Then, with a template, the outline of neck and scroll was transferred to both the sides of the block, using the nut lines as indicator for the correct placement of the template. Next, the side slots were cut out, first using a small saw to make two perpendicular cuts at each side to the required depth, followed by a chisel of the appropriate width to clean out the slot. Subsequently, the scroll/neck/upper block shape could be sawn out, and its profile finished with chisels, rasps and thumb planes. Also, at the top-plate side of the upper block, where the block converts into the neck, a small rectangular recess was cut out, to later receive the upper edge of the top plate.

The upper block with its characteristic foot was shaped next. Circular templates were used to mark off the top and bottom profile, after which shaping could start using first a small saw, to quickly remove most of the excess wood, followed by chisels and finally rasps. This step is only shown in the first of the five cello making videos. (Note that tool marks of a rasp have been observed on the upper block of a cello by Boussu, see Figure 5.2.) The shaping of the sides of the external neck heel was done next; in case of the cello, a template was employed to check the symmetry between the two sides while bringing them to shape. Both chisels and small thumb planes were used for this job. The rounding of the neck heel was not done yet, this step would only be done once the neck was incorporated into the instrument's main structure. A scribe centreline was applied along the curved outer surface of the scroll and pegbox (for later guidance while cutting the fluting), using a marking gauge with a sharp scribing knife. (Note that scribe lines are observed on the highest point of the fluting on many scrolls by Boussu, see Figure 4.14.) Next, the volute and pegbox were marked and sculptured in the usual way. To achieve the deep and smooth finishing of the undercutting of the volute, as characteristic for Boussu's instruments, a small steel scraper with a matching curved form was made and used. The neck itself was left in rough shape, and would only be finished once it had been attached to the sound box and with the fingerboard glued on, together with the final shaping of the neck heel. (Alternatively, the neck itself could have been shaped to a near-finished state, prior to installation to the main structure; the order of this finishing step has no big implications for the overall making process.)

The next stage of the replication consisted of the making of the back plate. As an important first step, the contour of the plate would be transferred to the flat side of the joined maple board, using a half-template (based on CT scan data of the original violin,

see Figure 6.3(a)). The centreline on the board, coinciding with the glue joint, was used for correct orientation of the template, and the marking was done with a steel scribe. Once one half of the outline was marked, the template was flipped over to the other side and the second half was marked off. Next, the plate could be roughly sawn out and further finished to the correct outline. The button was left somewhat oversized for the moment.

A platform with the final plate thickness and appropriate width was established around the perimeter of the plate, using chisels and thumb planes, in which the purfling could be inlaid next. The inlay channel was marked with a marking tool with two small knives set at the correct distances, and after that, the purfling channel was cut and chiselled out to the correct depth. The part of the channel just below the button was marked with a template. Meanwhile, the purfling itself was prepared from two pieces of walnut wood veneer (dyed for about one hour in a hot iron(II) sulfate solution and rinsed well with water afterwards) and a centre veneer of maple. For each particular piece of three-ply purfling, the three separate strips were glued together with animal glue in a pre-bent shape, using counter-forms (actually the same partial moulds that would later be used for pre-shaping the ribs). Rope and a thick piece of leather were used to press the three strips together against the mould, with wax paper between the three-ply laminate and the mould to prevent them from becoming glued together. Once the laminate, with a height of about 3 cm, had dried, strips of 2 mm height were cut with the aid of a marking gauge, knife and block plane. (We have no indications that Boussu employed this exact method of preparing his purfling, but it was employed here since bending of flat pre-glued purfling laminate on a hot bending iron resulted in the sandwich becoming easily unglued. Furthermore, based on observations on extant instruments, Boussu made the purfling for both the upper and lower bout of the back plate in one piece, whereas in the replicas, two complementary pieces were used.) Next, the purfling could be inserted in the usual way, forming mitres at the corners, and an overlap joint where two pieces had to be joined in the upper and lower bouts.

Then, the back plate's external arching was finished, with gouges, thumb planes and scrapers. During the arching process, the cross and longitudinal arching shapes were monitored using a profile gauge, with which the plate archings under construction could be registered and compared against cross sections derived from CT scan data (see Figure 6.1). (The instruments of Boussu display a narrow but deep re-curve channel, see Section 4.11, and such channel was created during the replication process using a very small thumb plane followed by steel scrapers of the appropriate curvature.) To establish the edgework, a scribe line was applied 1.5 mm inside the perimeter of the plate (as observed on Boussu's instruments, see Figure 4.15), as a guide for the highest point of the plate edge. At the outside of this line, the plate edge would in a later stage be rounded. At the inside, a steep hollowing away from the scribe line was achieved with a curved scraper.

With the outer arching completed, the back plate could be hollowed out, according to the thickness pattern observed in the original instrument. To do so, first a scribe line was applied on the bottom side of the plate, 8 mm inside the plate's perimeter. This line indicated the outermost border for hollowing the plate (such a scribe line is also observed in a violin by Boussu, see Figure 4.16.) For the first three replicas, thicknesses during the hollowing process were monitored with a modern thickness calliper, comparing the measured values to the values as documented for the original instrument. While hollowing out with gouges and thumb planes, the plate rested in a holding cradle, from which it could easily be taken out for measurements. The use of a thickness scratching marker (see Figure 6.2(e)), instead of a calliper, for the fourth replica resulted in more accuracy and evenness in the final plate thickness (see Section 6.5). Finishing of the inner surface was done with a steel scraper, yielding a smooth interior as observed in the instruments by Boussu. Once the plate was brought to final graduation, only the edge at the underside of the plate would be rounded using a thumb plane, a knife, a file and scrapers. The upper side would be left unfinished until the sound box was fully assembled.

The third phase of the replication process, the assembly of the rib structure, makes use of the alignment table already discussed in Section 5.2 (see also Figures 5.4, 6.3(b) and 6.3(d)). But first, the straight maple strips for the ribs, already brought to the right thickness, had to be further prepared. The strips were planed to the correct height, leaving some excess wood (2 to 4 mm) to provide a margin for later bringing the rib parts to the desired final height. Then, the strips were bent, using a heated bending iron while moderately wetting the wood, and subsequently placed against the appropriate partial mould (essentially an external counter-form) and clamped against it with rope (see Figure 6.3(c)) to fully dry and become fixed in shape.

After drying, the rope was removed, but the bent strip was now clamped against its mould with one or more clamps, in such a way that the rib part protruded $c10$ mm over the mould at one side, to allow clamping and gluing of a lining strip. Next, a pre-bent strip of poplar wood, $c2 \times c7$ mm in cross section, and cut to the correct length (to later fit between the internal blocks) was glued to the rib and clamped, using in this case a series of clothespins, letting the lining strip protrude $c1$ mm over the rib (excess would later be planed away, together with some wood of the maple rib strip, so that a lining height of $c5$ mm would result). As an aid, the position of the lining had been marked on the rib to ensure proper positioning. Once the glue had dried, the lining strip at the other side was glued on in the same manner, after the rib part was first repositioned on the mould. When both lining strips had been attached, the resulting rib part could now be planed level on the side that would be glued against the back plate. Care was taken to establish that the rib part would stand perpendicular on a flat plane, and that a good fit was obtained to that test surface. The other side of the rib part would be left unfinished, resulting in a

little excess height, to be planed away once the entire rib garland was completed. (The bent rib parts with glued-on linings were remarkably stable in shape, showing no signs of straightening or other deformation in time, see Figure 6.4. This would certainly be an advantage in a modular production environment, allowing the rib parts to be stocked for a longer period without loss of shape.)

When all six required rib parts were available, the assembly of the violin could now start (see Figure 6.4). As a first step, the neck had to be glued onto the back plate. As explained in Section 5.3, an aid, in our case in the form of an alignment table, was employed (Boussu might have used an aid with the similar functionality of properly aligning neck to back plate, but in a different guise). After placing the back plate onto the table according to the centreline present on the table, the incorporated clamping system consisting of four bolts and wingnuts ensured a fixed positioning of the plate. Now, the neck could be glued on in a simple procedure. Since the scroll was held snugly in proper alignment between two support blocks on the upper part of the table (see Figure 6.3(b)), the only point of attention was the positioning of the upper block on the plate. As soon as glue was applied on both the back plate upper platform and the underside of the neck's upper block, the neck could be positioned in place, its longitudinal orientation checked and corrected if needed, followed by the application of two clamps (with a specially shaped clamping block between clamps and upper block), see Figure 6.3(b). Basically, after curing of the glue, the partial assembly could now be removed from the alignment table for installation of the rib parts, but in our case, it was decided to leave the assembly attached to the table, and build the rib structure in that arrangement.

The following step consisted of the making of the internal blocks: four corner blocks and one end block. Spruce was used, as in most instruments by Boussu, and the orientation of the grain in the blocks was chosen as in the originals, see Figures 4.40 and 4.41. The hollow gluing surfaces of the corner blocks (for receiving the ribs) were formed after first marking the profile on both the end grain faces of each block using a template. In addition, the same profile was marked on the back plate as a guide for gluing the blocks, using a purfling marking tool set to the same marking distances as for marking the purfling channel. The concave gluing surfaces of the blocks were hollowed out with gouges, thumb planes and rasps (so not following the method using a profile plane as proposed in Section 4.13, since this insight was only gained after the four replicas were finished). Checks were made to ensure that the two hollowed-out surfaces of a corner block were perpendicular to a flat testing surface, when the block was standing straight up on that surface. For the moment, the sides of the corner blocks facing the inside of the sound box were left straight and square, to accommodate the use of clamps, see Figure 6.3(d). The convex gluing surface at the garland side of the lower block was formed as well.

Once all five internal blocks were pre-shaped, they could be glued onto the back plate, held in place during gluing by clamps and positioned according to scribe lines applied to the back plate. Subsequently, the rib parts had to be further prepared for installation against the blocks. First, a check was performed regarding the length of the linings, by putting the rib part in place against the corresponding blocks and inspecting the fit. In case a lining would be too long, it was trimmed to the right size. The linings were then given tapered ends where they would meet the corner blocks (as in the instruments of Boussu, see Figures 4.38 and 4.39), but not at the ends facing the upper and lower block. (In original instruments by Boussu, the tapered ends of the lining strips often almost touch the corner blocks, see Figure 4.38, but in some cases the linings are too short, leaving space between the block and the lining's end, see Figure 4.39(e). A tapered end has the advantage of staying better glued to the rib part, due to less stress in the strip, and also because in case the lining strip would be left a bit too long, the tapered end would fit easily between the rib and the block, something that is indeed observed in a few original instruments by Boussu. This characteristic made it less important to prepare the linings exactly at the right length, clearly an advantage when using pre-produced parts that were supposed to universally fit in various instruments under construction.) The underside of the lining (opposite to its gluing surface against the plate) was rounded using a knife and scraper. With the lining strips now finished, the rib parts had to be made to the right length.

The rib parts of the middle bout were positioned in place, so that their final length could be marked (including the required length protruding over the corner blocks), as well as lines that marked the beginning of their protrusion over the blocks. The ribs were sawn to length, leaving about 1 mm excess at each side. Then, for each middle bout rib part, the two marked areas that would protrude over the corner blocks were tapered at the inside using a chisel, almost towards a feathered ending. The rib parts of the middle bout were now glued to the corner blocks (only to the blocks, gluing to back plate was done in a separate, later step). For clamping, counter-blocks in half-cylindrical shape were used, in combination with small clamps. After the glue had dried, the clamps were removed.

Next, the two upper rib parts were made to the correct length and fit, also with a feathered end at the corner block side. Special attention was given to ensure the proper length at the side that would become inserted into the slot in the neck root (see Figure 4.37). Before gluing could be performed, two sets of two complementary wedges had to be made to secure both upper rib parts in the neck root. Within such a set, one wedge had its growth lines orientated perpendicular to the other one, as was observed in three surviving instruments of Boussu where this construction has survived (see Figure 4.37). For the two first violin replicas, the gluing of the upper rib parts into the neck root's side slots proceeded as follows: first, glue was applied in the slot, followed by subsequent

insertion of the rib part, the first wedge (from above) and the second wedge (pushed in sideways). For the cello replica, one wedge was pre-glued to the rib part, the complementary one was hammered in from above (pushing in by hand was not possible). In hindsight, the action of hammering in the wedge is believed to give too much impact load, especially considering the fragile wooden construction. So, for the fourth replica, yet another method was tried out. Again the first wedge (the one with the quarter sawn grain orientation), was pre-glued to the rib part, while the second one (in slab cut grain orientation) was lightly pre-compressed by clamping it under controlled pressure in a vise. By doing this, it was easier to slide in the wedge from above. Moreover, by absorbing glue, the wedge would then expand back to its original shape, even giving some compression to the three-ply sandwich inside the slot. At the corner blocks, the upper rib parts were glued on using clamps and half-cylindrical cork-lined clamping blocks (see Figure 6.3(d)).

Finally, the rib parts for the lower bout were made to the right fit. At the corner block end of the rib part, a complementary feathered edge fitting against the adjacent feathered edge of the middle bout rib part was cut. At the lower block end, a straight cut was made, which did not have to coincide exactly with the centre of the block, since a filler strip would be fitted here later. Gluing to the blocks could then be performed (at the lower block, a suitable cork-lined counter-block was used), with some attention to achieve an even overhang of the back plate over the ribs. (In Boussu's instruments, a very regular overhang of the back plate over the rib structure is observed.) Small corrections in overhang could be made by adjusting the overlap of the rib part at the lower block.

At this stage, the instrument under construction could be removed from the alignment table. With all six rib parts already glued to the blocks, they were then glued to the back plate, aided by the use of spool clamps. It has to be noted that in case of the cello replica, a double-cross structure of beams was employed, attached to the upper side of the six internal blocks, to stabilise the structure during garland assembly and avoid excessive deformation of the structure. The final steps of the assembly of the rib structure consisted of removal of the excess wood at the inner side of the corner blocks, the trimming of the mitre at the rib corners (producing a crisp flat plane at the corner's extremity, as observed in Boussu's instruments, see Figure 4.33) and insertion of the filler strip at the bottom side of the garland. After this, the upper surface of the rib structure was planed level to the required height, the label was glued in and the soundpost marking applied (see Figure 4.12).

The final step in the assembly of the main structure consisted of making the top plate. First, the upper edge of the joined and levelled spruce panel had to be made straight and perpendicular to both the centreline and the underside of the panel (this step is shown in

the fourth violin making video from the time mark 1 minute 25 seconds). A straight and square upper edge is required, since the top plate has to fit in the small rectangular recess that is cut out in the neck/upper block combination. Next, the spruce panel was properly positioned and clamped against the rib structure, and the outline of the garland was marked onto the spruce panel. At the outside of this scribe line, at regular distances, an overhang of 2 mm was marked, and with the aid of the half template (as used for marking the outline of the back plate), the outline of the top plate was constructed. In order to create a harmonious outline, some minor compromises regarding the amount of plate overhang had to be made at some spots. The subsequent steps of finishing the top plate outline, inlaying the purfling, sculpting the arching and hollowing the plate were done in a same manner as was described for the back plate.

The f-holes were marked on the outside of the plate using a template derived from a plaster cast (or, in case of the cello a rub transfer on aluminium foil) of an original f-hole. Then, the circular holes were first punched out with hollow metal tubes of appropriate diameter (sharpened at one open end, i.e. a cork drill), and the holes were finished with files afterwards. The elongated middle part of the f-hole was sawn out and then the f-hole was further finished with a knife. The bass bar position was marked out at the inside of the top plate, with the location and length based on measurements of the original instrument's authentic bass bar. Fitting the bar was mainly done with thumb planes, and during the gluing of the bar, pressure was applied with multiple clamps. The bar was shaped to its final dimensions using a thumb plane.

After having rounded the underside of the edge of the top plate, the plate was glued onto the rib structure using a series of spool clamps. After drying of the glue overnight, the edgework of the plates could be finished, the decorative channel below the button was cut and the surface of the sound box was refined using scrapers and dried horsetail plant.

The neck of the instrument was still in unfinished state, and no fingerboard was glued on yet. Given the observations that in the violin by Boussu from 1750 (MIM inv. no. 2781; database code BJB5001vn) the sides of the fingerboard appear to be finished and varnished along with the neck, and that varnish is also present on the top plate below the fingerboard, it was decided that during the replication, the replicas would be varnished in two stages. First, the sound box was completely varnished. Next the fingerboard was glued on and the neck was shaped to its final form. Then the neck and scroll could be varnished. The fingerboard was constructed by first shaping the curved upper surface of the core (spruce wood for the violin replicas, cherry wood for the cello replica; in case of the violin replicas, side veneers of fruit wood, dyed with oak galls and hot iron(II) sulfate solution, had been added). Bending of the ebony top veneer (1.5 mm thickness) by wetting and heating over a flame was performed and finally the veneer was glued on (using rope

to clamp). During clamping, the fingerboard under construction was temporarily spot-glued onto a supportive base. After the veneer had been glued on, the end of the fingerboard that protrudes over the top plate was further shaped by removing wood at the underside. The fingerboard was then attached in proper alignment to the neck (thus after the sound box had been completely varnished), and subsequently the neck could be formed to its final shape using mainly rasps, files and scrapers, and aided by templates of various neck cross sections. The neck, scroll and fingerboard sides could now be varnished, after which the inside surface of pegbox and f-holes were coloured with brown oil paint. A bone saddle (inserted to half the depth of the top plate) and bone nut were installed after all varnishing work had been completed.

Now, the varnishing procedure will be described in more detail. First, the appropriate varnish had to be decided. A true chemical analysis to identify the organic components of Boussu's varnish (and ground material) has not yet been performed (as discussed in Section 4.19), and whereas that would be an interesting exercise, it has already been previously assumed that Boussu applied a shellac-based varnish.⁶¹ This assumption was confirmed by our investigations of Boussu's varnish with the use of UV light: a bright orange fluorescence, characteristic of non-purified shellac, is observed on both the entire violin MIM inv. no. 2781 and the cello MIM inv. no. 1372, with original varnish even still present on the necks (see Section 4.19, Figures 4.66 and 4.67). Based on these observations, it was decided that the first two violin replicas would be finished with a varnish based on raw sticklac, with the addition of some dragon's blood resin (for colour adjustment) and some sandarac and elemi to temper the hardness of the shellac. The employed varnish composition was based on historical recipes (see Section 4.19), although it was decided that less soft resin was added to avoid stickiness of the varnish.⁶² For the varnish of the sound box of the first two violin replicas (BIO01, with its initial top plate, and BIO02), the varnish contained 210 g/l sticklac, 55 g/l Moroccan sandarac and 15 g/l elemi (all resins from Kremer Pigments GmbH & Co. KG, Aichstetten, Germany), dissolved in $\geq 95\%$ ethanol (Bio-ethanol, Espar Nederland, Aalten, The Netherlands). This varnish by itself had a yellow-brown colour due to the colourants present in the sticklac, but in order to make this initial colour a bit warmer, a small amount of dragon's blood resin was added. After all components were completely dissolved, the varnish was filtered. For the sound box of the cello replica, a similar varnish and varnishing procedure as for the violin replicas was applied, although the elemi resin was replaced by a similar concentration of mastic (Verfmolen De Kat, Zaandam, The Netherlands). For the third violin replica (BIO04), the varnish for the sound box now contained two softeners, elemi and mastic, both at a concentration of 15 g/l. This varnish was also used on the replacement top plate for violin

⁶¹ Moens (1983), p.152.

⁶² From our own experiments with different formulations, it appeared that the abundant amounts of plasticisers (elemi, mastic) prescribed in some historical recipes yields varnish coats that remain soft and sticky.

replica BIO01. In the varnish for the neck and scroll for all three violin replicas as well as the cello replica, the softeners were omitted in order to avoid stickiness of the varnish due to warming by the left hand of the player.

After having refined the bare outer surface of the instrument with steel scrapers and dried horsetail plant, a ground would be applied prior to the coloured varnish. No analysis of Boussu's ground material and method has been performed. This topic could be investigated in future research. An eighteenth-century French description for a glue-ground is provided in Section 4.19. For the replicas, various types of historically justifiable grounds were tried out, to obtain hands-on knowledge: a ground of several coats of clear shellac (for replicas BIO01, BIO02, and BIO03 and the top plate of replica BIO04), a pumice/shellac pore-filling ground (for the back plate and sides of replica BIO04) and a glue ground, followed by several coats of clear shellac (for the replacement top plate of replica BIO01). The pumice/shellac ground and the glue ground yielded very smooth surfaces after varnishing had been completed, similar in appearance to those of the original instruments. Future research could provide information regarding the nature of Boussu's ground material and procedure.

Following these sealing coats, around 15 coats of the main coloured varnish were applied, with levelling with pumice and water on felt pads between every four to five coats. After the final coats, the surface was again levelled with pumice, and after that, a few thin layers of clear shellac were applied by French polishing.

Regarding the fittings for the violin replicas, the pegs and tailpiece were copied from the presumably authentic parts preserved with the original violin (MIM inv. no 2781; database code BJB5001vn). The bridge on this latter instrument (depicted in Figure 6.5(a)), on the contrary, is likely not original. Therefore, a suitable model had to be found. Several historical violin and viola bridges from the former Schreinzer collection,⁶³ said to be dating from the second half of the eighteenth century,⁶⁴ and now preserved at the Germanisches Nationalmuseum in Nuremberg⁶⁵ – see examples in Figures 6.5(b) and (c) – served as inspiration, but the design was slightly adapted to give the bridge a more 'Baroque' appearance. The resulting shape (see Figure 6.5(d)) was not very far from the 'transition' violin bridge model 'BM1' as offered commercially by the manufacturer Milo

⁶³ Klaus Martius, 'Die Sammlung von Geigenbestandteilen des Wiener Musikers Karl Schreinzer - und die Umstände, warum diese heute nicht mehr geschlossen in Wien aufbewahrt wird', in Beatrix Darmstädter, Rudolf Hopfner, Alfons Huber, ed., *Die Sammlung alter Musikinstrumente - Die ersten 100 Jahre* (Vienna: Praesens Verlag, 2018), pp.145-160.

⁶⁴ Kenneth Skeaping, 'The Karl Schreinzer collection of violin fittings', in Unity Sherrington, Guy Oldham, ed., *Music, libraries and instruments* (London/New York: Hinrichsen, 1961), pp.251-253, at p.252, plates 121, 122.

⁶⁵ Germanisches Nationalmuseum, Nuremberg, Germany. Unpublished inventory of the violin, viola and cello bridges from the former Schreinzer collection.

Stamm.⁶⁶ At the feet, the bridge thickness was brought to 4.0 mm. Future research, including an iconographical study and survey of extant mid-eighteenth-century examples, would have to be conducted in order to learn more about the patterns for (French) violin bridges from that period. A soundpost with a diameter of c5.5 mm was installed in the violin replicas.



Figure 6.5. Left to right: (a) violin bridge currently present on a violin by Boussu from 1750 (MIM inv. no 2781; database code BJB5001vn), (b) viola bridge from the former Schreinzer collection, now at the Germanisches Nationalmuseum, Nuremberg, Germany (inv. no. MI 403, St Va 2), (c) violin bridge from the former Schreinzer collection, now at the Germanisches Nationalmuseum, Nuremberg, Germany (inv. no. MI 403, St V 15), (d) violin bridge as made by the author for violin replica BIO04.

For the cello replica, the tailpiece was copied from the veneered one present with the original cello from 1757 (MIM inv. no. 1372; database code BJB5701vc). For the fingerboard, it was decided to install a composite type, ebony top veneer over a local fruitwood core (length: 524 mm, projection at bridge: 70 mm), similar to examples seen on iconography (see, for example, Figures 4.69 and 4.70), since the solid ebony fingerboard currently present on the cello from 1757 is thought to be non-original. The pegs now installed on the replica BIO03 are modified modern ebony ones. Pegs modelled after the original examples currently present on the cello from 1757 will be installed in the future. Since no original bridge was preserved with the cello from 1757, a suitable model had to be found. For the time being, a bridge was cut inspired by a commercially available ‘Baroque’ cello bridge,⁶⁷ but with some stylistic features (like the central heart) matching those of the bridges cut for the violin replicas. At the feet, the thickness of the finished bridge measured 10.2 mm. As is the case for the violin bridges, a future study of (French) mid-eighteenth-century cello bridges (if available...) could provide more information, resulting in a more faithful bridge for the replica. The soundpost placed inside the replica cello has a diameter of 9.5 mm, closely matching the diameter of the presumably original post in the instrument from 1757.

⁶⁶ Milo Stamm Ponticelli (Hamburg, Germany), http://www.milostamm.com/violin_bridges_transition.htm (accessed February 2020).

⁶⁷ Milo Stamm, model ‘BC3’. See: Milo Stamm Ponticelli (Hamburg, Germany), http://www.milostamm.com/baroque_bridges_for_violoncello_1.htm (accessed February 2020).

As for the violin strings, initially the following historical set by Aquila Corde Armoniche⁶⁸ was selected: g-string: silver-wound gut, medium tension (type 17F), d'-string: plain gut 1.12 mm (type 112HR), a'-string: plain gut 0.85 mm (type 85HR) and e''-string: plain gut 0.62 mm (type 62HR). Later, after the musicians had played the instruments for a while, the e''-string was replaced by a 0.60 or 0.62 mm plain sheep gut specimen by the manufacturer Gamut Music, Inc.,⁶⁹ while the g-string was replaced by a medium-plus tension silver-wound gut specimen by that same company. The tuning was based on a' = 415 Hz, as suggested by the tuning of an oboe by the Brussels maker G.A. Rottenburgh (MIM inv. no. 2610), made somewhere between 1740 and 1800.⁷⁰ According to the musicians performing on the replica violins, this tuning gave better playing and sonic results than a lower tuning of around a' = 400 Hz.

The cello was strung with the following set from Aquila Corde Armoniche: C-string: silver-wound gut, light tension (type 64F), G-string: plain gut, roped 2.2 mm (type 220V), d-string: plain gut 1.6 mm (type 160HR) and a-string: plain gut 1.16 mm (type 116HR). So, a plain gut G-string was employed, in accordance to the stringing that can be seen on a painting by Delaporte (see Figure 4.69). No changes in stringing of the cello replica were done afterwards.

6.4. Evaluation of the making process

For the most part, the construction sequence employed – and at the same time evaluated – during the making of the violin and cello replicas proved efficient and convenient, whereas the resulting replicas showed a great similarity to the original instruments, both in overall appearance as well as regarding dimensions and maker-specific constructional details (as will be seen in Section 6.5). In general, the modular construction process progressed smoothly, and the employed making sequence allowed for a logical and effective working order. All individual steps could be performed without any particular difficulties, and the required technical actions appeared to be feasible. Proper alignment of the neck was easy with the use of the alignment table, although other, more simple variations of such aid are also thought to be effective for this task. In case of the cello, however, the assembly of the rib structure took more time and effort than expected, especially to ensure a symmetrical and perpendicular placement of all rib parts. Nevertheless, this step may progress more fluently during a future cello construction,

⁶⁸ Aquila Corde Armoniche Srl, Caldogno, Italy, <https://aquilacorde.com/en/> (accessed February 2020).

⁶⁹ Gamut Music, Inc., Duluth, United States of America, <https://www.gamutmusic.com/> (accessed February 2020).

⁷⁰ Stefaan Verdegem, The Brussels Musical Instruments Museum oboe collection (2011). Oboe by G.A. Rottenburgh with MIM inv. no. 2610, <http://brusselsmimoboecollection.kcb.be/instrument-checklist/2610rottenburghga/> (accessed February 2020).

due to gained learning experiences. As said, Boussu may not have employed an alignment aid exactly resembling the one used during the current replications (see Figures 5.2 and 6.3(b) and (d)), but given the insights and experiences gained during our ‘workbench research’, it is highly likely that his workshop contained a device – in whatever shape – with a similar functionality. Considering both our study of original instruments and our workbench experiences, it may thus be concluded that Boussu in all likelihood employed a comparable construction system as tried out during our replication process.

The parallel making of the two violin replicas, BIO01 and BIO02, up to the unvarnished state but including the production of the veneered fingerboards, took 80 effective working days in total, thus 40 working days per instrument. The third violin replica, BIO04, was built to the unvarnished state in 25 consecutive days, so significantly faster than the first two replicas. It has to be said, however, that several preparatory tasks (such as joining the halves for the plates and dimensioning the neck block and rib strips) for this latter instrument were done in advance. Speaking from my own point of view of an experienced musical instrument maker, I have to say that the construction of the third violin replica, in about one month time, was done in a time span that corresponds with my highest achievable personal work pace. Furthermore, the construction durations mentioned here are without inclusion of the time needed for varnishing; for a violin, this finishing job could take another additional 20 to 30 hours, scattered over several weeks. The replication experiments thus support the idea, that from the point of view of production rate, Boussu must have had one or a few assistants, as was already put forward in Section 5.4. For the cello replica BIO03, 70 working days were needed to complete the instrument ‘in white’. This may seem long, especially considering the output rate of Boussu’s workshop (see Section 4.5), but with the acquired experience and know-how, it should be possible to make a future copy in a somewhat shorter time span.

Especially for the fourth replica, violin BIO04, the making process became somewhat more intuitive. While shaping the outer arching of the plates, there was less need for repeated checking of the arching shape against the axial CT reconstructions of the sound box. At this point, the concept of Boussu’s archings was better understood, which allowed for a faster and more targeted way of sculpting. Likewise, the shaping of other details, such as the scroll, f-holes, purfling inlay and rib joints was done from a deeper understanding of Boussu’s making habits and style. Thus, in the case of making the replica BIO04, the work was no longer mere ‘copying’, but rather working according to the concepts of the original maker. Although respecting the overall dimensions, the aim was more directed at the overall aesthetics and character, than for a very exact replication. In other words, the replication was done with the intention of creating an instrument that could have originated from Boussu’s workshop 260 years ago.

6.5. Characterisation of the replicas

To illustrate the appearance of a replica instrument, compared to the original on which it is based, Figure 6.6 shows both the original violin (MIM inv. no. 2781) as well as replica BIO04.⁷¹ The somewhat lighter colour of the replica's top plate may be explained by the lack of prolonged exposure to natural light, so that no darkening of the spruce wood has occurred yet. In Figure 6.7, the scrolls of the same two instruments are displayed.

Despite some difference in colour mainly due to age effects, the resulting amber colour of the varnish finishing on the replicas shows convincing similarity with the varnish on the original instruments, although for the first three replicas it proved hard to achieve the same level of evenness in colour and surface smoothness in comparison to Boussu's examples (see Section 4.19, Figure 4.65). From this observed discrepancy in varnish surface appearance between the replicas and the original instruments, it may be concluded that Boussu applied a pore filling ground coat, possibly based on mineral powders, or, alternatively, a surface treatment with dilute glue. Since such a ground layer was not applied on the first three replicas, slight irregularities were present in their varnish coat. For the final replica, BIO04, the back plate was treated with pumice powder, resulting in a smoother varnish film. The second top plate for the violin replica BIO01 received a ground coat of dilute bone glue, which also resulted in a more smooth varnish surface compared to the result for top plate of replica BIO02, which was prepared with a ground of clear shellac varnish.

The structural similarity between a replica and the original instrument can be assessed by comparing endoscopy photos. Figure 6.8 shows such images of the upper block area of both violin replica BIO04 and an original violin by Boussu from 1753 (MIM inv. no. 2784; database code BJB5302vn). In Figure 6.9, corresponding endoscopy images are shown for replica cello BIO03 and the original example on which it is based. In both cases, a convincing similarity in construction is noticeable.

All four replica instruments were scanned at the Leiden University Medical Center. Accordingly, CT reconstruction images have been made, and compared to those of the original instruments. The sagittal cross section of violin replica BIO04 is displayed in Figure 6.10(a); this image can be compared to Figure 6.10(b), the corresponding cross section of the original violin from 1750. It can be seen that the pegbox in the original violin has been gouged out a little deeper. Also, some minor differences can be noticed when comparing the profiles of the backside of the neck.

⁷¹ Certain differences in appearance, observable in these photographs may partially be the result of the use of different photographical equipment for both pictures.



Figure 6.6. Replica versus original. Left to right: (a) violin replica BIO04 made by the author in 2019, (b) original violin by Boussu (MIM inv. no. 2781; database code BJB5001vn).

Photo Figure 6.6(a): author; photo Figure 6.6(b): Musical Instruments Museum, Brussels, © MIM, Brussels.

Replication



Figure 6.7. Replica versus original. Left to right: (a) scroll on the violin replica BIO04 made by the author in 2019, (b) scroll on an original violin by Boussu (MIM inv. no. 2781; database code BJB5001vn). Photo Figure 6.7(a): author; photo Figure 6.7(b): Musical Instruments Museum, Brussels, © MIM, Brussels.

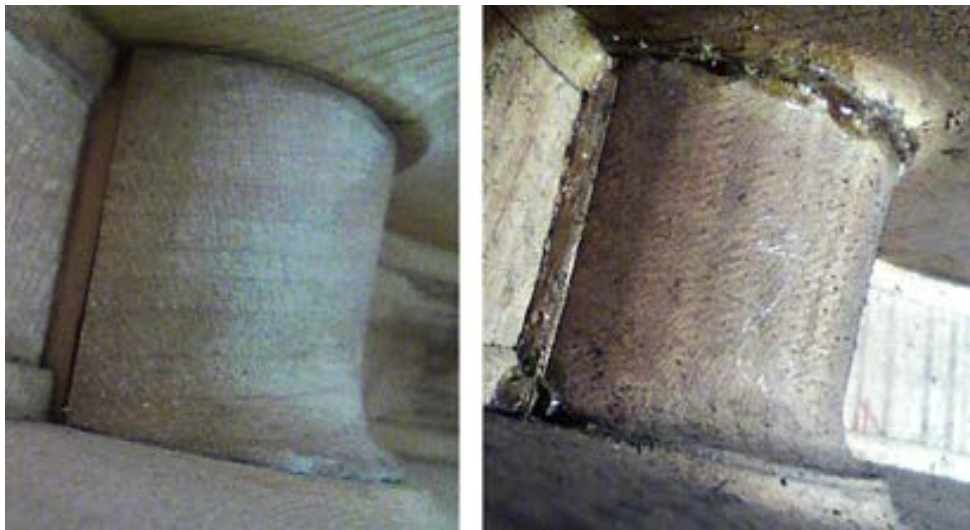


Figure 6.8. Replica versus original. Left to right: (a) endoscopy photo of upper block area of the violin replica BIO04 made by the author in 2019, (b) endoscopy photo of upper block area of an original violin by Boussu (MIM inv. no. 2784; database code BJB5302vn).



Figure 6.9. Replica versus original. Left to right: (a) endoscopy photo of upper block area of the cello replica BIO03 made by the author in 2018, (b) endoscopy photo of upper block area of an original cello by Boussu (MIM inv. no. 1372; database code BJB5701vc).

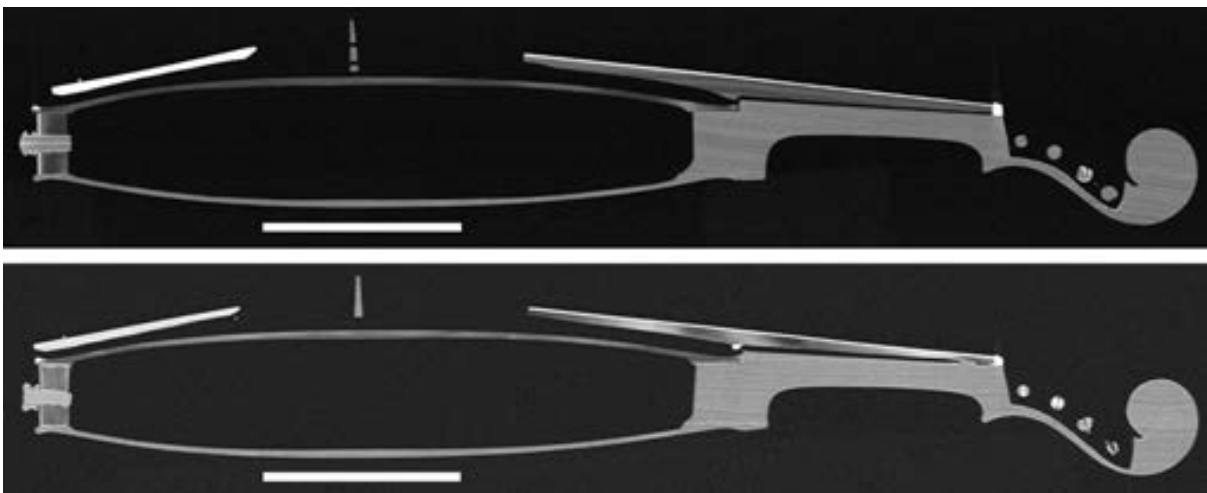


Figure 6.10. Replica versus original, sagittal plane reconstructions of CT data. Top to bottom: (a) sagittal cross section of the violin replica BIO04 made by the author in 2019, (b) sagittal cross section of an original violin by Boussu (MIM inv. no. 2781; database code BJB5001vn).

The coronal cross sections of the neck heel/upper block of replica BIO02 and the instrument from 1750 are compared in Figure 6.11. The upper block for the replica has been deliberately finished to a more rounded shape, as was already explained in Section 6.3. The wedges in the replica extend a little bit outside the slots in the neck root.

Replication

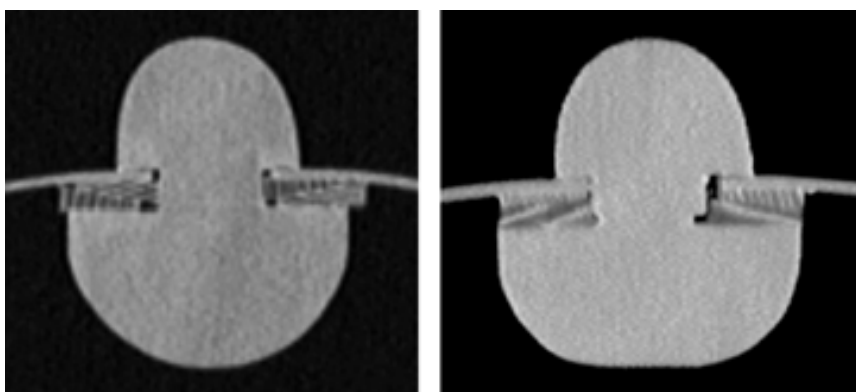


Figure 6.11. Replica versus original, coronal plane reconstructions of CT data. Left to right: (a) coronal cross section of the neck heel/upper block of the violin replica BIO02 made by the author in 2017, (b) coronal cross section of the neck heel/upper block of an original violin by Boussu (MIM inv. no. 2781; database code BJB5001vn).

To understand the mass distribution over the various components in the replicas, the mass of each component was recorded during the making process.⁷² In addition, the mass of the completed instrument, both without and with fittings (pegs, bridge, tailpiece, strings, end button) has been recorded as well, in order to compare these values with those of the original Boussu violin on which the replicas are based. Table 6.3 gives these total and component masses.

	Violin replica BIO01	Violin replica BIO02	Cello replica BIO03	Violin replica BIO04
mass back plate (g)	108	103	542	96
mass neck (g)	±81	±78	±431	±79
mass rib structure (g)	48	49	434	51
mass top plate (g)	65 (plate 2)	71	397	66
mass fingerboard (g)	32	33	156	33
mass varnish (g)	±7	±7	±15	±7
mass instrument without fittings (g)	341 (with top plate 2)	341	1975	332 (327*)
mass instrument including fittings (g)	371 (368*) (with top plate 2)	370 (368*)	2145	362 (357*)

* mass measured after a prolonged storage in an environment with a relative humidity of c50 %

Table 6.3. Total and component masses (in g) for the replica instruments.

In order to get an indication of the structural and material-wise conformity between original and replica(s), the mass of original and replica(s) can be compared. A valid comparison can only be done in case the instruments under comparison have a similar

⁷² A consumer model digital balance was used, with an accuracy of +/- 1 g. This accuracy was checked against a more accurate digital laboratory balance (by weighing the same object and comparing the measurement results).

configuration, i.e. in this case a 'Baroque' state, with a low-mass veneered fingerboard and local hardwood (low-mass) pegs. Of all identified original violins by Boussu, only few meet this condition. The first one is – of course – the violin dated 1750 from the MIM collection with inv. no. 2781, which has a mass without fittings of 323 g, and a mass including fittings of 345 g (see Section 4.21, Table 4.14). Another original violin that can be used for a valid comparison of mass is one from 1759 in private ownership, with the database code BJB5903vn. This instrument, reconverted to 'Baroque' state including a low-mass veneered fingerboard, has a mass, including fittings, of 356 g.

Of the three violin replicas, the mass of replica BIO04 comes closest to that of the original instrument dated 1750 from the MIM collection. The total mass of BIO04 (332 g without fittings, measured immediately after its completion), is only 9 g (or 2.8 %) higher than the mass of the violin from 1750 (323 g without fittings, measured at c50 % relative humidity). Moreover, when shortly after completion, BIO04 had been stored for a prolonged time in a rather dry environment (c50 % relative humidity), its total mass had decreased from 362 to 357 g. At that moment, its measured mass without fittings was 327 g, which is only 4 g (or 1.2 %) higher than the mass of the original violin. When comparing the mass of BIO04, this time with fittings, to the mass of the violin from 1759 in private hands, the masses are very similar (362 (or 357!) g and 356 g respectively). From this, we may conclude that replica BIO04 comes, with regards to instrument mass, convincingly close to the two original violins in 'Baroque' state. The low total mass of BIO04 can mainly be explained by the low wood densities (and associated masses) of the top and back plate. As was explained in Section 6.3, both the maple and spruce wood used for the plates of BIO04 has a density that could be qualified as being in the lower range for both these wood species. The mass of BIO04's top plate (66 g, measured directly after completion of the plate) is highly comparable to the average mass of 64.2 g (standard deviation: 3.3 g) determined by Curtin over eight seventeenth- and eighteenth-century Cremonese violins.⁷³

As can be learned from Table 6.3, the two other violin replicas, BIO01 and BIO02, have a somewhat higher total mass (341 g without fittings, 371/370 g with fittings) in comparison to BIO04 and the two original instruments. In case of BIO01, the higher mass is mainly the result of the heavier back plate. For replica BIO02, on the other hand, both the heavier top plate and somewhat heavier back plate cause its total mass to be higher.

The masses of the fingerboard of the three violin replicas (32, 33 and 33 g respectively) show great conformity to the masses found for detached veneered violin fingerboards

⁷³ Joseph Curtin, 'Tap routine', *The Strad*, vol. 117, no. 1399 (2006), pp.48-54, at p.51.

from the eighteenth and nineteenth century in the collection of the Germanisches Nationalmuseum in Nuremberg.⁷⁴

Thus, none of the three violin replicas turned out to be as light as the original violin from 1750 from the MIM collection. As discussed in Section 6.3, wood densities for the materials selected for the replicas are largely identical to those determined for the violin from 1750 (see Section 4.21). So, the mass differences between replicas and original cannot be fully explained from the density aspect only. Possible additional explanations for the lower mass of the original violin from 1750 could be found in the very small glue linings in this particular instrument, somewhat smaller dimensions of certain parts (e.g. the neck and scroll) and thinner plates in the original violin compared to slightly over-dimensioned parts in the replica instruments, as well as material loss due to wear and possible mass reduction of the wood due to aging processes.

Regarding the cello replica BIO03, direct comparison of its mass with the original instrument MIM inv. no. 1372 is more difficult, since, as was explained above, it was decided to make the plates of the replica somewhat thicker (to avoid deformation). Furthermore, the original cello has a (possible replacement) fingerboard of solid ebony, while the replica has a lighter veneered fingerboard. Bearing in mind these two differences, and possibly other effects such as unknown differences in wood densities, the following masses (without fittings) are observed: 1899 g for the original instrument (see also Section 4.21, Table 4.14) versus 1975 g for the replica cello BIO03. Despite its lighter veneered fingerboard, the replica cello weighs *c*4 % more than the 1757 original. On the other hand, it weighs much less than the other Boussu cello from the MIM collection (inv. no. 2863), the latter having a mass of 2220 g without fittings. Both instruments have plates of comparable thickness graduation. Again, a direct comparison between their masses is invalid, since the cello from 1752 has a solid ebony replacement fingerboard and higher ribs.

Thickness and arching elevation maps can also be employed to compare the replica instruments with the originals. Prof. dr. Berend Stoel constructed thickness and arching elevation maps for the replicas from CT data, just as he had done for the original violin and cello. By comparing the maps of a replica to those of the original, a judgement can be made on the accuracy with which the plate thicknesses and elevation patterns were copied. To illustrate this approach, the plate thickness maps for the replica violins BIO02 and BIO04 and for the original violin from 1750 are displayed in Figure 6.12 (replica BIO01 is omitted, because this instrument received a replacement top plate, and the instrument

⁷⁴ Germanisches Nationalmuseum, Nuremberg, Germany. Unpublished inventory of the violin, viola and cello fingerboards from the former Schreinzer collection.

was not CT scanned after this modification). Figure 6.13 shows the arching elevation maps for the same three instruments.

When the thickness maps for replica BIO02 are compared to the maps of the original violin, it becomes clear the top plate of the replica has a somewhat higher thickness, especially in the upper and lower peripheral areas. For reference, some measurements recorded with a magnetic thickness measuring gauge⁷⁵ are added in Figure 6.12(a). It appears that the top plate of the replica BIO02 is 0.1 to 0.2 mm thicker in comparison to the original (see also Table 4.7 for the thicknesses of the plates of the original violin from 1750). Further, the graduation pattern for the top plate of the replica shows more irregularities, whereas the original instrument is very smoothly graduated. The back plate graduation of replica BIO02 shows more similarity to the back plate graduation of the original violin, although in the replica's back, some thicker areas seem to be present in the areas just inside of the plate's perimeter. The thickness patterns for the top and back plate of replica BIO04 look already more identical to those of the original violin, both in actual thickness values and in smoothness of the graduation pattern. Some deviation is seen in the upper and lower areas of the replica's back plate, where the thickness is less constant compared to the original, and for the thicker central area of the top plate of the replica, which is somewhat more extended compared to the corresponding region in the top plate of the original violin. The overall more convincing thickness patterns for replica BIO04 were achieved by using a thickness scratching tool as depicted in Figure 6.2(e). Even though the replicas were constructed with great attention to exactness and detail, it is apparent that the plate thicknesses in the replicas could not be established to the same degree of regularity as is observed in the original violin. This demonstrates that Boussu worked with an extreme precision, and that he must have employed a very accurate tool to mark or measure the plate thicknesses.

⁷⁵ A Hacklinger magnetic thickness gauge (Hacklinger, Germany) was used to perform these measurements.

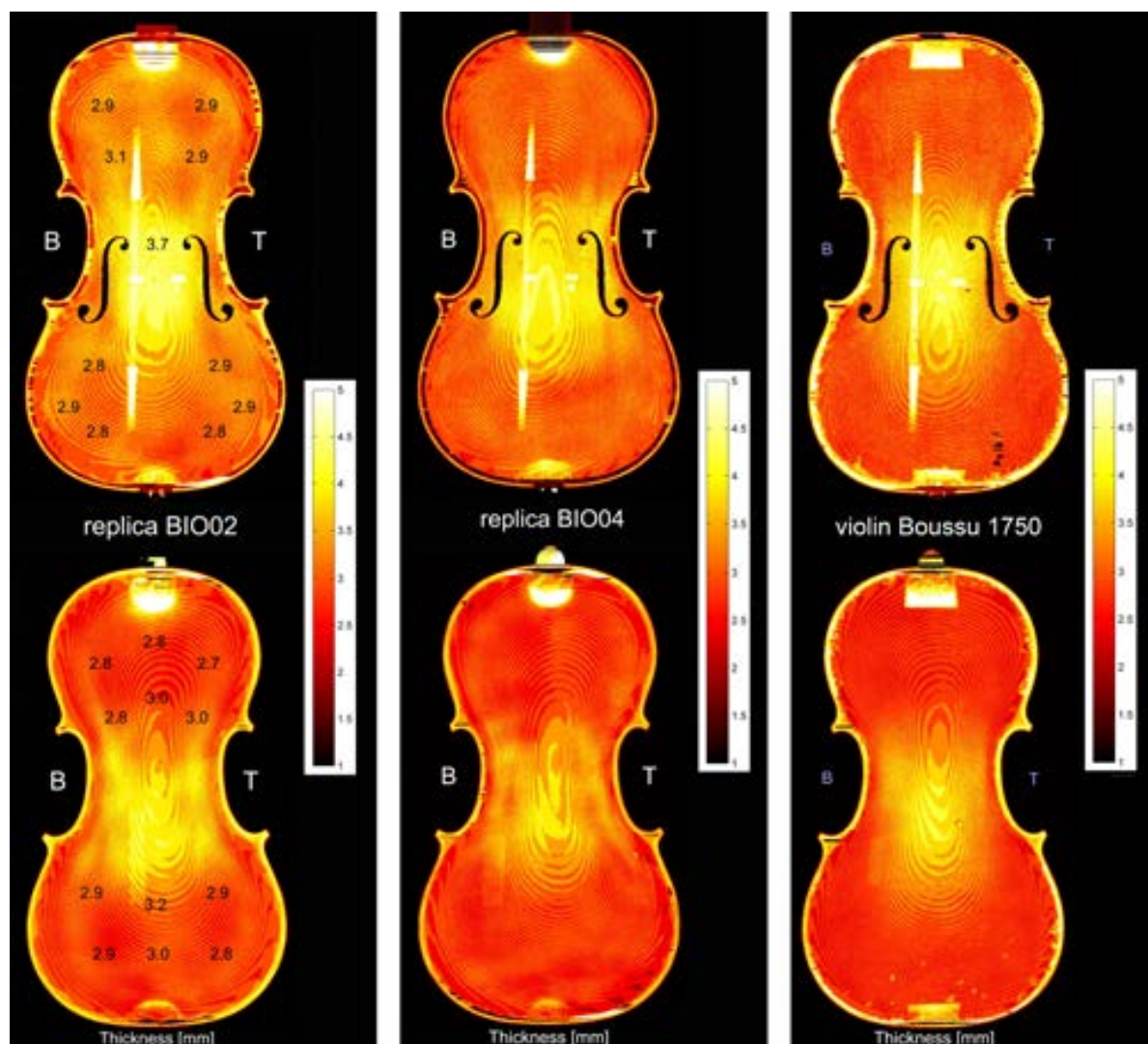


Figure 6.12. Thickness maps for the top and back plate of two replica violins and an original violin, constructed from CT data. Left to right: (a) thickness maps for replica violin BIO02, (b) thickness maps for replica violin BIO04, (c) thickness maps for a violin by Boussu from 1750 (MIM inv. no. 2781; database code BJB5001vn). B: bass side, T: treble side. Scales in mm.

The arching elevation patterns for replica BIO02 are rather similar to those of the original violin, as can be seen in Figure 6.13. The figure-eight contours as seen in the images for the original instrument seem slightly more fluent, indicating a more regular arching, but overall, the arching shapes of BIO02 and the original are corresponding. Similarly, the arching elevation maps for replica BIO04 display convincing analogy to those of the original violin, but even more to the maps of a Boussu violin from 1753 (MIM inv. no. 2784; database code BJB5302vn), see Figure 4.30(b).

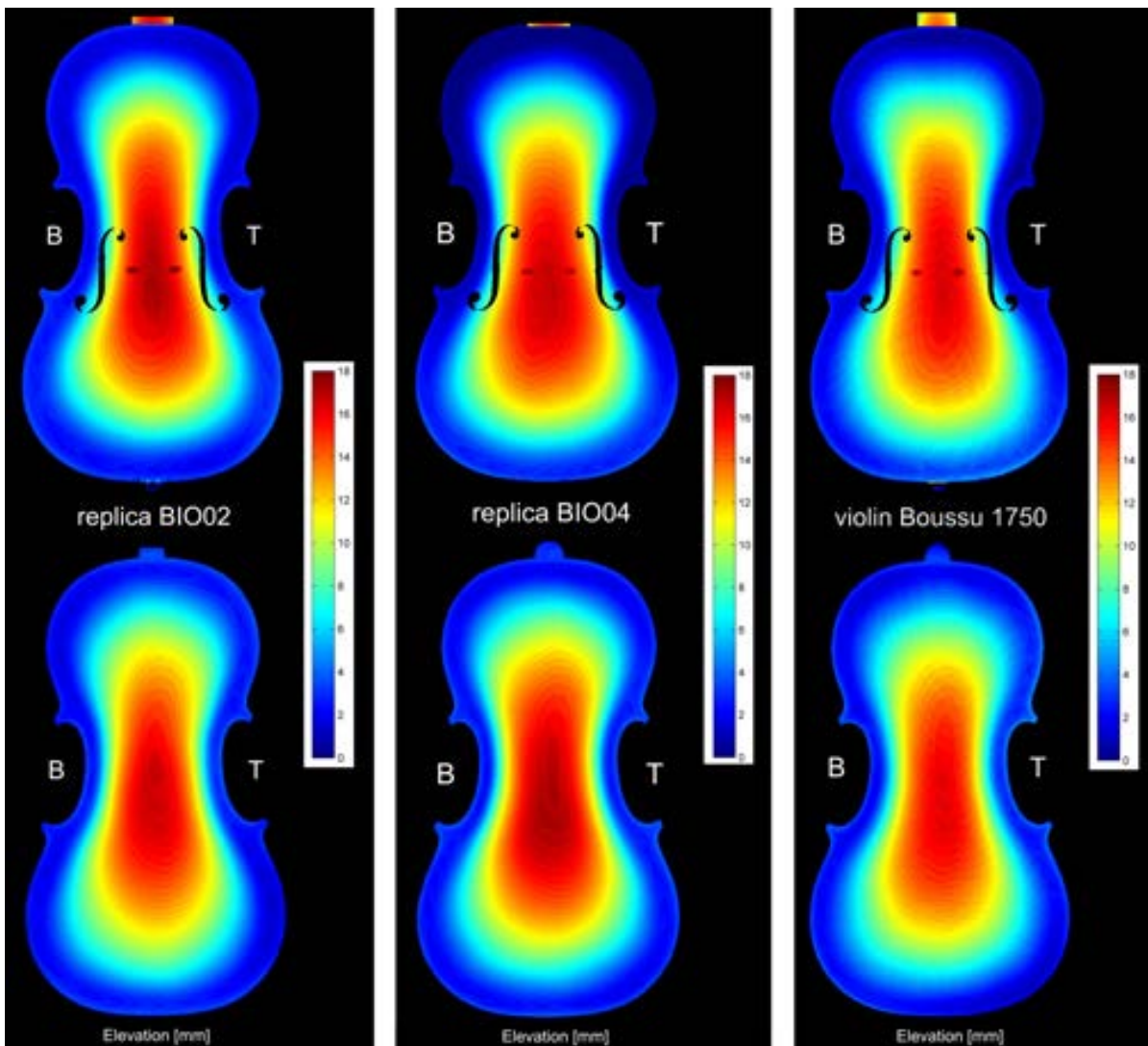


Figure 6.13. Arching elevation maps for the top and back plate of two replica violins and an original violin, constructed from CT data. Left to right: (a) elevation maps for replica violin BIO02, (b) elevation maps for replica violin BIO04, (c) elevation maps for a violin by Boussu from 1750 (MIM inv. no. 2781; database code BJB5001vn). B: bass side, T: treble side. Scales in mm.

The thickness maps for the plates of cello replica BIO03 (not included here) show that, in comparison to the maps of the original cellos from 1752 and 1757 (see Figures 4.26(a) and (b)), the plates of the replica cello are thicker, while the graduation is less smooth in the replica. In comparison to the original cello from 1752, the plates of the replica cello ended up 0.2 to 0.3 mm thicker (as determined using a magnetic thickness gauge). While hollowing the replica's plates, a thickness marking tool as shown in Figure 6.2(e) was not employed. Had such tool been employed, the plates would likely have been more evenly graduated.

Another way to assess the replication process of certain parts of the newly made instruments, is to compare the volume of an individual part in the replica to the volume

of the corresponding part in the original. Assuming that both replica and original underwent a CT scan, volumes of parts can be determined from the CT data, by first performing an isolation (segmentation) of all the pixels representing the part of interest from the pixels not belonging to that part by using the appropriate CT data processing software, followed by readout of the volume of the isolated part. In this study, these segmentation tasks on the data from the CT scans of replica and original were performed with the segmentation software ITK-SNAP.⁷⁶ An example of an isolated part is provided in Figure 6.14. Given the time-consuming nature of the segmentation process, only the individual volume of the top plate (including bass bar), the back plate and the neck/upper block/scroll combination were determined for the original violin (MIM inv. no. 2781; database code BJB5001vn) and the replica BIO04. This way, the potential of this method in replica evaluation could be demonstrated. The values for the segmentation volumes are provided in Table 6.4.

As can be seen, the top plate of replica BIO04 has a higher volume in comparison to the top plate of the original violin. It can thus be concluded that the top plate of the replica was made too thick. The difference in volume (7.0 cm³) between the top plate of the replica and the top plate of the original corresponds with a difference in plate thickness of c0.1 mm. Thus, the top plate of BIO04 was made c0.1 mm thicker than the top plate of the original violin. The back plates are nearly of the same volume, as can be seen in Table 6.4. Furthermore, the neck/upper block/scroll combination of the replica is overdimensioned in volume by 3.4 %.



Figure 6.14. Example of CT data segmentation: a reconstruction of the neck/upper block/scroll combination of a violin by Boussu (MIM inv. no. 2781; database code BJB5001vn).

⁷⁶ Paul A. Yushkevich, Joseph Piven, Heather Cody Hazlett, Rachel Gimpel Smith, Sean Ho, James C. Gee, Guido Gerig, 'User-guided 3D active contour segmentation of anatomical structures: significantly improved efficiency and reliability', *Neuroimage*, vol. 31, issue 3 (2006), pp.1116-1128.

	Violin by Boussu (MIM inv. no. 2781; database code BJB5001vn)	Violin replica BIO04
Volume top plate (including bass bar, cm ³)	173.1	180.1
Volume back plate (cm ³)	166.3	165.6
Volume neck/upper block/scroll combination (cm ³)	116.2	120.2

Table 6.4. Volume (in cm³) of top plate, back plate and neck, for an original violin by Boussu from 1750 and for replica BIO04.

In the field of acoustic characterisation of the violin replicas, firstly the tap tone frequencies of their free plates have been documented during construction. This information may be useful while building future replicas. Table 6.5 gives an overview of these tap tone frequencies, the nomenclature of the modes is according to the system devised by Dr. Carleen Hutchins.⁷⁷ Replicas BIO01 (with top plate 2) and BIO04 have comparable tap tone frequencies for their top plates, which can be explained by their top plate's corresponding mass (see Table 6.3). Replica BIO02's top plate has higher mode frequencies, resulting from its higher density. The trend of decreasing back plate mass from violin replicas BIO01 via BIO02 to BIO04 (see Table 6.3) cannot be recognised in the tap tone frequencies of the back plates, suggesting the influence of other wood properties, such as stiffness.

	Violin replica BIO01	Violin replica BIO02	Violin replica BIO04
Top plate, mode #1	plate 1: 100 (G+)* plate 2: 94 (F#+)* plate 2: 84 (E+)**	100 (G+)* 93 (F#)**	91 (F#-)* 87 (F)**
Top plate, mode #2	plate 1: 181 (f#-)* plate 2: 156 (d#)* plate 2: 152 (d#-)**	182 (f#-)* 174 (f)**	163 (e-)* 157 (d#+)**
Top plate, mode #5	plate 1: 374 (f#+)* plate 2: 359 (f#'-)* plate 2: 341 (f'-)**	395 (g'+)* 361 (f#'-)**	353 (f'+)* 330 (e')**
Back plate, mode #1	102 (G#-)	98 (G)	100 (G+)
Back plate, mode #2	177 (f+)	166 (e+)	173 (f+)
Back plate, mode #5	378 (f#+)	354 (f'+)	370 (f#')

* without f-holes and bass bar ** with f-holes and bass bar

Table 6.5. Tap tone frequencies (in Hz), with corresponding note names, of the three major free plate modes of the top and back plate of the three violin replicas.

⁷⁷ Chris Johnson, Roy Courtnall, *The art of violin making* (London: Robert Hale, 2003), pp.153-159.

Replication

In order to enable an initial acoustical characterisation of the completed violin replicas, their sound radiation⁷⁸ was measured on 3 February 2020 in an anechoic chamber at the UPMC/Institut Jean Le Rond d'Alembert (Sorbonne Université, Paris, France), under the guidance of Dr. Claudia Fritz. The instruments (tuned to $a' = 415$ Hz) were excited at the bridge using a miniature impact hammer,⁷⁹ the acoustic response was captured by a microphone,⁸⁰ placed 31 cm from the central axis of the instrument, pointing horizontally towards the violin at bridge height. The purpose of these measurements is to assess, in the frequency domain, the sound output at a combination of microphone positions, per-unit-force at the bridge, a measure of the instrument's capacity to radiate sound into the surrounding air.

Data was collected through an audio interface,⁸¹ and data processing took place in the ObiApp software⁸² on a PC. The measurement set-up is shown in Figure 6.15. During one complete measurement series, the violin was rotated around its longitudinal axis in steps of 30 degrees, yielding 12 measurement positions per complete series. In each position three valid impact measurements were recorded. The resulting 36 measurements were averaged, providing an overall spectrum for each individual instrument. Per violin, a measurement series was made where the bridge was impacted at the upper end of its bass side ('horizontal direction'), as well as one where the bridge was hit at the centre of its upper edge ('vertical direction'). For each instrument, the spectrum in vertical and in horizontal direction was combined into one 'overall' radiation spectrum. Graph 6.1 displays three radiation spectra (as complex transfer function, including both amplitude and phase information), one for each individual replica. Graph 6.2 shows a part of these spectra, zoomed in at the range of 200 to 1000 Hz, the region of the 'signature modes' of the violin body. The radiation expressed in so-called 'Curtin-bands' (named after violin researcher Joseph Curtin) is displayed in Graph 6.3.

⁷⁸ Joseph Curtin, 'Measuring violin sound radiation using an impact hammer', *J. Violin Soc. Am.: VSA Papers*, vol. 22, no. 1 (2009), pp.186-209.

⁷⁹ Miniature impact hammer: PCB Piezotronics, Depew, United States of America, model 086E80.

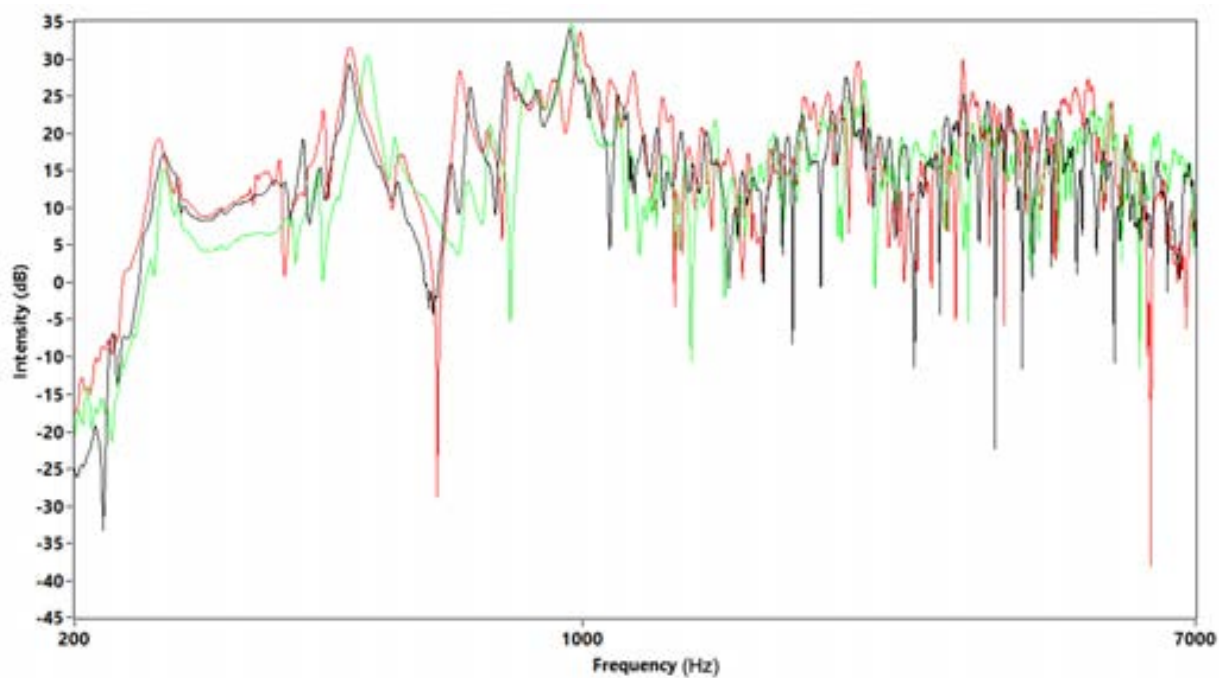
⁸⁰ Microphone: DPA Microphones A/S, Allerød, Denmark, model 2006C.

⁸¹ Audio interface: RME, Haimhausen, Germany, model BabyFace Pro.

⁸² ObiApp website: <https://sites.google.com/view/oberlinacoustics> (accessed March 2020).

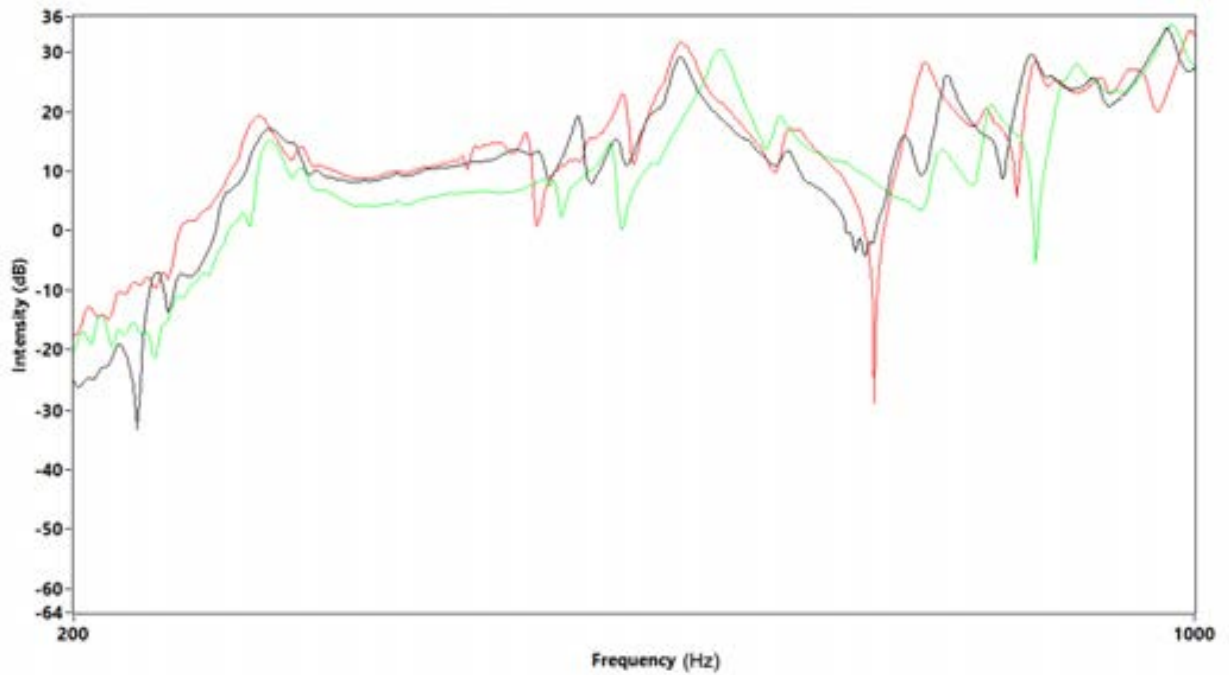


Figure 6.15. Measurement set-up for acoustic radiation measurements on the replica violins, at the anechoic chamber of UPMC/Institut Jean Le Rond d'Alembert.

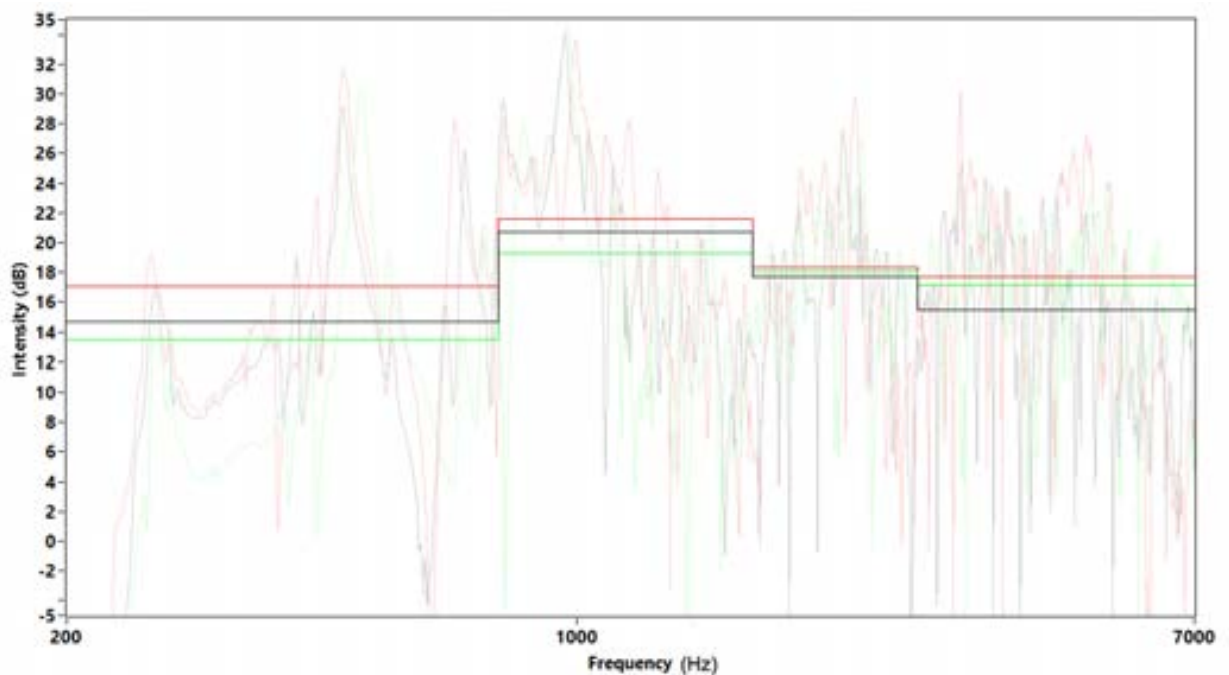


Graph 6.1. Radiation spectra (complex transfer function, horizontal and vertical impact direction combined) for the three violin replicas, for the range 200 to 7000 Hz (logarithmic frequency scale).
Replica BIO01 (with top plate 2): black, replica BIO02: green, replica BIO04: red.

Replication



Graph 6.2. Radiation spectra (complex transfer function, horizontal and vertical impact direction combined) for the three violin replicas, for the range 200 to 1000 Hz (logarithmic frequency scale).
Replica BIO01 (with top plate 2): black, replica BIO02: green, replica BIO04: red.



Graph 6.3. Radiation spectra for the three violin replicas, for the range 200 to 7000 Hz (logarithmic frequency scale), expressed in 'Curtin-bands'. Replica BIO01 (with top plate 2): black, replica BIO02: green, replica BIO04: red.

From the Graphs 6.1 and 6.2, it is apparent that in the range up to 1000 Hz, the spectra of the replicas BIO01 (with top plate 2) and BIO04 follow a fairly comparable pattern, which suggests that their body's vibrational behaviour in that range is similar, both in respect to the frequencies of the resonance modes, as well as their amplitudes. The spectrum for replica BIO02 shows a somewhat different course. It is generally reduced in level at the lower frequencies, while several of the peaks are located at different, mostly somewhat higher, frequencies. Since no modal analysis has been performed yet on either of these three replica violins, during the currently presented study we have not been able to identify the various signature body modes. Future modal analysis would have to be performed to determine these key body resonances.

Given the high density of peaks above 1000 Hz, for that range, it is more useful to study the amplitudes of broad frequency bands. The spectra in four 'Curtin-bands' over the entire measurement range, displayed in Graph 6.3, demonstrate that replica BIO04 has the highest output in all these four bands, making this instrument the most effective sound radiator. Violin BIO01 (with top plate 2) resembles BIO04 in the two middle bands, but it is less effective in the lowest and highest band. Of the three replicas, BIO02 has the lowest radiation in the two lower bands, whereas in the higher range, it closely resembles BIO04. Possibly, the higher density of the top plate wood of BIO02 (see Table 6.2) could partially explain this reduced output of BIO02 at lower frequencies.

These preliminary objective measurements confirm the opinions of the two violinists who extensively played the three replica instruments (see Section 6.6), as well as the author's own impression of the instruments. BIO04 is said to have the most rich and balanced sound of the three instruments, having a timbre that combines a resonant lower range with a brilliant upper range. Replica BIO01 (with its replacement top plate) reportedly has a similar resonant lower range, but lacking the brilliance of BIO04. Replica BIO02 has been said to have a more bright timbre, with less warmth, and a less balanced sound, something which is reflected by a reduced level of the first two bands in Graph 6.3. However, future double-blind listening tests⁸³ (where the instruments are played from behind a curtain for an audience of listeners, who evaluate the sound of the instruments) and player preference tests⁸⁴ will have to be conducted to further collect and objectify the opinions of listeners and players, and to be able to establish a link between the acoustical measurements and the perceptual evaluations.

Also, comparison of the radiation spectra of the replicas with spectra for violins made after a different model, or in a different set-up, would have to be performed in order to

⁸³ Claudia Fritz, Danièle Dubois, 'Perceptual evaluation of musical instruments: state of the art and methodology', *Acta Acustica united with Acustica*, vol. 101 (2015), pp.369-381, at pp.370-372.

⁸⁴ Fritz, Dubois (2015), pp.372-375.

obtain a further insight in the acoustical characteristics of the replicas, both in relation to other instruments, as well as in mutual assessment. Furthermore, future acoustical testing as well as perceptual evaluation of an original violin by Boussu in ‘Baroque’ state should provide understanding of its sonic characteristics. Since the violin dated 1750 from the collection of the Musical Instruments Museum in Brussel (MIM inv. no. 2781; database code BJB5001vn) is no longer allowed to be tuned to pitch (a prerequisite for both acoustical measurements and listening tests), a possible candidate for such testing would be the violin from 1759 with database code BJB5903vn. Once such results will become available, it will be possible to sonically compare the replicas to an original violin in a similar state.

Since the replica violins have a top plate with a somewhat thicker central area (as present in original instruments by Boussu as well, see Section 4.10), we might expect a certain acoustical influence of this structural aspect. The thickness, and thus flexibility, of the region of the top plate between the f-holes, the so-called ‘island area’, is believed to have a significant influence on the violin’s loudness, responsiveness and timbre.⁸⁵ This design feature of Boussu’s instruments might provide them (and the replicas) with a common sonic quality. Future acoustical and perceptual experiments will have to be performed to identify these possible shared characteristics.

6.6. Musical use of the replicas

During 2018 and 2019, the four replica instruments have been set up and adjusted in collaboration with the newly formed ‘Ensemble Boussu’ (see Figure 6.16), consisting of Dr. Ann Cnop (violin), Shiho Ono (violin) and Mathilde Wolfs (cello), all three professional and experienced performers of eighteenth-century music. These musicians have subsequently used the instruments to perform Brussels chamber repertoire from the time of Boussu, in order to explore the playability and musical and sonic possibilities of the replicas. This specific research phase is not a part of the currently presented PhD project, but was performed as the associated research project ‘The sound of Brussels anno 1760’ (School of Arts Ghent, January 2018 - December 2019).⁸⁶ Nevertheless, in this section this musical phase will be introduced briefly, since it involves the use of the replica instruments built during the PhD study.

⁸⁵ George Stoppani, Colin Gough, ‘The acoustics and historic development of string instruments’, in Pérez, Marconi, ed. (2018), pp.249-268, at p.257.

⁸⁶ School of Arts Ghent website, project page ‘The sound of Brussels anno 1760’, [https://expertise.hogent.be/en/projects/the-sound-of-brussels-anno-1760--exploring-the-sonic-and-playing-characteristics-of-a-reconstructed-bowed-string-trio-after-mid18thcentury-examples\(065bca1f-0f85-4c03-8e56-1d0538c0fa4d\).html](https://expertise.hogent.be/en/projects/the-sound-of-brussels-anno-1760--exploring-the-sonic-and-playing-characteristics-of-a-reconstructed-bowed-string-trio-after-mid18thcentury-examples(065bca1f-0f85-4c03-8e56-1d0538c0fa4d).html) (accessed May 2019).

As part of the two-year research project ‘The sound of Brussels anno 1760’, funded by the research fund of the School of Arts Ghent, various concert-lectures have been organised, see the overview presented in Table 6.6. With respect to the music played during these events, little-known and rarely performed Brussels trio sonatas of the mid-eighteenth century were chosen, written by the musicians/composers Henri Jacques De Croes (1705-1786),⁸⁷ Pieter Van Maldere (1729-1768)⁸⁸ and Eugène Charles Jean Godecharle (1742-1798 or 1814).⁸⁹ The music selection arose from the idea that these works would match seamlessly with the explored world of Boussu. The violin maker and the three composers were contemporaries in the same city, even more so, it is not unthinkable that Boussu personally knew one or more of the others. Suitable repertoire – comprising around 60 trio sonatas in total – has been found through research in Belgian and foreign music archives and through consultation of private collections (in particular the personal library of Mr. Willy van Rompaey).

Performances and rehearsals have been captured by both audio and video recordings. Two examples, recorded live at the Royal Library of Belgium (Brussels, Belgium) on 8 November 2019,⁹⁰ can be heard and seen here (Martine Beernaert replaces Shiho Ono):

Video 1: Pieter Van Maldere, Fuga from Sonata VI in d, no opus number:

<https://youtu.be/PfIORWLPU5Y>

Video 2: Eugène Godecharle, Andante from Trio VI in C, opus number 3:

<https://youtu.be/DXA5p4Ug1fg>

In these two performances, Dr. Ann Cnop plays violin replica BIO04, and Martine Beernaert plays violin replica BIO02.

Another concert, held in St. Paul’s church in Antwerp on 18 November 2020, was professionally recorded in its entirety on video⁹¹ (without audience due to COVID-19 pandemic). The full recording can be found here:

<https://youtu.be/qLSWtNTSclK>

In this concert video, Dr. Ann Cnop plays violin replica BIO04, and Shiho Ono plays violin replica BIO02.

⁸⁷ Suzanne Clercx, Henri-Jacques De Croes - Compositeur et maître de musique du Prince Charles De Lorraine 1705-1786, vol. 1 (Brussels: Palais des Académies, 1940); Koen Buyens, Musici aan het hof - De Brusselse hofkapel onder Henry-Jacques De Croes (1749-1786): een sociaalhistorische studie (Brussels: VUBPRESS, 2001).

⁸⁸ Suzanne Clercx, Pierre van Maldere - Virtuose et maître des concerts de Charles de Lorraine (1729-1768) (Brussels: Palais des Académies, 1948); Willy Van Rompaey, P. Van Maldere - Thematische catalogus van de instrumentale werken (Aartselaar: author, 1990).

⁸⁹ Suzanne Clercx, ‘Les Godecharles, musiciens bruxellois au XVIII^e siècle’, in *Mélanges Ernest Closson - Recueil d’articles offert à Ernest Closson* (Brussels: Société belge de musicologie, 1948), pp.69-80, at pp.73-77.

⁹⁰ Audio recordings made by Kris De Baerdemacker, Royal Library of Belgium, Brussels, Belgium. Video recordings made by the author.

⁹¹ Audio and video recordings made by Stoffel de Laat, commissioned by Museum Vleeshuis | Klank van de Stad, Antwerp, Belgium.



Figure 6.16. Ensemble Boussu, holding the replica instruments, and the author (January 2020). Left to right: Dr. Ann Cnop, Shiho Ono, Mathilde Wolfs, the author. Photo: Korneel Bernolet.

One specific musical focus relates to the performance of the Brussels trio sonata repertoire with only three bowed string instruments. Although many present-day performances of similar, more well-known repertoire are, as an unwritten rule, done with the joint accompaniment of both a cello and a typical polyphonic instrument – often a harpsichord – the currently presented project aimed at performance experiments with the cello as sole accompanying instrument. A substantial number of original mid-eighteenth-century trio sonata editions prescribe a *basso continuo* of “harpsichord or violoncello”, as is the case, for example, with the c1752 edition of Van Maldere’s ‘VI. sonatas for two violins with a thorough bass for the harpsichord [sic], or violoncello’⁹² (see Figure 6.17). This implies a forgotten performance practice featuring only the cello as accompanying instrument, as also put forward by Watkin.⁹³ Possibly, the publishers of such printed music hoped to sell more copies by also addressing ensembles that did not have access to a harpsichord. By performing the music with just a bowed string trio, it

⁹² Pieter Van Maldere, VI. sonatas for two violins with a thorough bass for the harpsichord, or violoncello (Dublin: author, c1752); Van Rompaey (1990), p.23.

⁹³ David Watkin, ‘Corelli’s op.5 sonatas: ‘violino e violone o cimbale?’’, *Early Music*, vol. 24, no. 4 (1996), pp.645-663, at pp.645-663.

becomes possible to explore the sonic and harmonic implications of choosing that particular, currently overlooked setting. The musical performance phase provides a sensible, sounding and satisfying way to round off this study on the life and creative output of the maker Boussu.

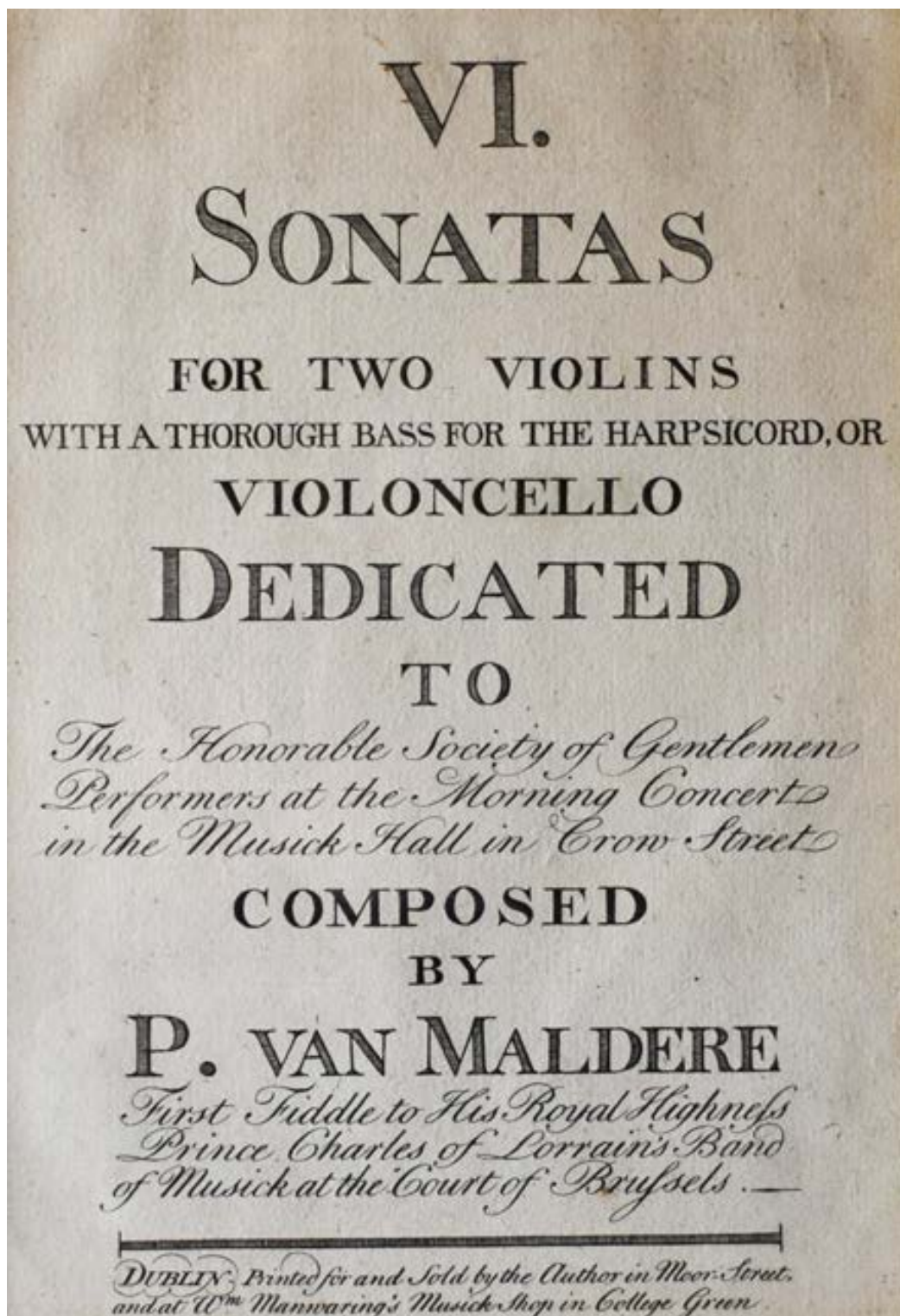


Figure 6.17. Title page of the first edition of Pieter Van Maldere's 'VI. sonatas for two violins with a thorough bass for the harpsicord, or violoncello' (collection W. Van Rompaey). Photo: author.

Replication

Concert 1 Location: Cultuurkapel Sint-Vincent, Ghent, Belgium Date: 26 June 2018 Performers: Ensemble Boussu Repertoire: Trio sonatas by De Croes, Van Maldere, Godecharle and Kennis
Concert 2 Location: Sterckshof Castle, Deurne, Antwerp, Belgium Date: 21 December 2018 Performers: Ensemble Boussu Repertoire: Trio sonatas by De Croes, Van Maldere and Godecharle
Concert 3 Location: KADE Podiumkunsten, Deinze, Belgium Date: 10 February 2019 Performers: Ensemble Boussu Repertoire: Trio sonatas by De Croes, Van Maldere and Godecharle
Concert 4 Location: D'Ursel Castle, Hingene, Belgium Date: 22 June 2019 Performers: Ensemble Boussu Repertoire: Trio sonatas by De Croes, Van Maldere and Godecharle
Concert 5 Location: Markiezenhof, Bergen op Zoom, The Netherlands Date: 15 September 2019 Performers: Ensemble Boussu Repertoire: Trio sonatas by De Croes, Van Maldere and Godecharle
Concert 6 Location: Royal Library of Belgium, Brussels, Belgium Date: 8 November 2019 Performers: Ensemble Boussu (Martine Beernaert replaced Shiho Ono) Repertoire: Trio sonatas by De Croes, Van Maldere and Godecharle
Concert 7/video recording (without audience due to COVID-19 pandemic) Location: St. Paul's Church, Antwerp, Belgium Date: 18 November 2020 Performers: Ensemble Boussu Repertoire: Trio sonatas by De Croes, Van Maldere and Godecharle

Table 6.6. Concerts organised as part of the associated research project 'The sound of Brussels anno 1760'.

Finally, from 16 until 20 January 2020, a professional audio recording was made of the Ensemble Boussu, playing the same Brussels trio sonata repertoire as they had performed during the above-mentioned concerts. The recordings took place in the Academiezaal in Sint-Truiden, Belgium. Korneel Bernolet acted as both recording engineer and musical advisor. The recordings were made with the objective of a CD and streaming audio release. Table 6.7 gives an overview of the recorded material. Dr. Ann Cnop played replica B1004, Shiho Ono played replica B1002 and Mathilde Wolfs played replica B1003. The CD 'Brussels trio sonatas' by 'Project Boussu' was released worldwide in October 2020 on the

Dutch/Belgian label Etcetera Records (catalogue no. KTC 1679),⁹⁴ see Figure 6.18. The CD's booklet contains essays by Dr. Bruno Forment and the author. A short impression of the recording sessions can be found here: <https://youtu.be/G2Ss1o5aI0w>

Composer	Title	Opus
Henri Jacques De Croes	Sonata 3 in g	1
Henri Jacques De Croes	Sonata 3 in a (version Boivin)	3
Pieter Van Maldere	Sonata 1 in D (VR 1)	-
Pieter Van Maldere	Sonata 6 in d (VR 6)	-
Pieter Van Maldere	Sonata in E-flat (VR 15)	-
Eugène Godecharle	Trio 1 in D	3
Eugène Godecharle	Trio 6 in C	3

Table 6.7. Overview of the trio sonatas recorded by Ensemble Boussu during the recording sessions held from 16 to 20 January 2020.



Figure 6.18. Front cover of the CD 'Brussels trio sonatas' by 'Project Boussu', catalogue no. KTC 1679 (Lummen: Etcetera Records, 2020).

⁹⁴ Official webpage for the CD on the website of Etcetera Records: <https://www.etcetera-records.com/album/743/brussels-trio-sonatas> (accessed December 2020).

Chapter 7

Conclusions

7.1. Conclusions regarding the biographical research

Concerning the first main perspective of the currently presented study, the biographical angle, a wealth of new information concerning the life and background of Benoit Joseph Boussu has been unearthed through extensive archival research. We now know that he was born in 1703 in Fourmies, France, and that his father and grandfather were notaries, a profession he himself practised for almost two decades too. During the period 1729-1748, Boussu was living in Avesnes, working as a notary and *procureur*. The discovery of a record from this period for the marriage to his second wife Marie Anne Jugier agrees with the earlier research of Raspé,¹ who mentions “Anne-Marie Jugier” as the violin maker’s wife during the Brussels period, which allows us to confirm that the notary Boussu from Avesnes was indeed the same person as the violin maker Boussu from Brussels. Documents identified in a later stage of the study further affirm this unambiguously. The composition of Boussu’s direct family was unravelled as well, and is presented in summarised form as a family tree in Appendix I.

The new biographical study also provides additional evidence for Boussu’s residence in Liège c1749, prior to moving to the Brussels area, thereby confirming the authenticity of a cello label ‘Boussu, a / Liege, 1749’. Furthermore, a violin from the collection of the Musical Instruments Museum in Brussels, with inv. no. 2781 and carrying a label only reading ‘Boussu, a / 1750’, may have been made in Liège rather than in Brussels (or the Brussels suburb of Etterbeek), as was previously assumed.² The currently presented study has not found definitive answers regarding the question of the woodworking training of Boussu. Nevertheless, the exceptional quality of even the earliest of identified

¹ Paul Raspé, ‘La lutherie’, in Robert Wangermée, Philippe Mercier, ed., *La musique en Wallonie et à Bruxelles*, vol. 1 (Brussels: La renaissance du livre, 1980), pp.275-284, at p.278.

² Karel Moens, ‘Vioolbouw in de Oostenrijkse Nederlanden’, *Arca Lovaniensis*, vol. 10/b, *Jaarboek 1981* (Leuven: Depret, 1983), pp.135-156, at p.148; Mia Awouters, ‘VIOLON - Benoît-Joseph Boussu, Bruxelles, 1750.’, in Malou Haine, Nicolas Meeùs, ed., *Instruments de musique anciens à Bruxelles et en Wallonie - 17^e-20^e siècles* (Liège/Brussels: Mardaga, 1985), p.53, at p.53.

instruments suggests that he might have gained prior experience in fine woodworking while still living in France, and it is not unthinkable that he made his first instrument there.³

From the dating and numbering of his instruments, as well as from information found in archival documents, it can be deduced that he worked professionally as a violin maker in the Brussels area from the early 1750s until the early 1760s. Based on this newly found evidence, it can be concluded that after leaving Liège, the Boussu family moved first to Etterbeek (a Brussels suburb), before relocating again in 1753, this time to within the Brussels city walls. It was furthermore irrefutably demonstrated that Boussu lived, and worked as an instrument maker, in Amsterdam between c1767 and c1772. A cittern, made by Boussu in Amsterdam in 1771 and discovered during the course of the currently presented study, serves as tangible proof for the instrument-making initiatives of our protagonist in the Dutch metropolis. Indirect evidence has been found in support of the assumption of a stay in the Dutch city of Leiden around 1765. The place and date of his death (Avesnes, 15 September 1773) were found as well.

As has become clear, Boussu did not have the typical background for an instrument-making craftsman. Instead, he may be considered a literate, maybe even somewhat respectable citizen, due to his abilities to read and write. This makes one wonder why he made a career-switch in his mid-40s and when and how he learned to build bowed string instruments. The exact answers have not been found during this study. Several scenarios for his violin making formation have been proposed, but none of these could be evidenced with convincing proof. Anyhow, it appears that Boussu managed to attract a local clientele for his instruments in Brussels, consisting of amateurs, professional musicians and even the musical chapel of the St. Gudula church.

His many relocations demonstrate that he was a man of a venturesome disposition, apparently constantly looking for better economic perspectives and taking initiative to realise his personal ambitions and visions, even if this meant abandoning his status of the notarial profession for a more humble position of craftsman. Despite the at times difficult circumstances of his life – growing up without a mother, losing two spouses and nine of his fifteen children, both of infant and adult age – Boussu managed to maintain a forward-looking and enterprising spirit. This learns us something more about his personality,

³ Mia Awouters, 'Les instruments à cordes', in Haine, Meeùs, ed. (1985), pp.13-17, at p.16. Awouters reports that Boussu's earliest known instrument dates from 1747. In this year, Boussu was still living in Avesnes-sur-Helpe, France. No instrument by Boussu dated 1747 (or earlier) has been found during the current study. However, a violin was identified, see Appendix V, database code BJBnd15vn, which may have been made by Boussu prior to his departure from France. According to the last known French owner, he bought this instrument from a family in Boulogne-sur-Mer, France, of which a forefather supposedly had known Boussu well and bought or received the instrument from the maker. This implies that the instrument was made before 1748. Of course, this curious anecdote needs to be investigated further in order to prove the claim.

Conclusions

which must have been resilient and optimistic to a fair degree. His journey through the 'Low Countries' – from the rural area of his French birth village, via the garrison town Avesnes during his years as notary, the hilly surroundings of the principality of Liège, the lively court city Brussels and finally the metropolis and harbour city of Amsterdam – illustrates that he connected with the eighteenth-century *Zeitgeist* of curiosity and discovery, fuelled perhaps by his wish to participate in the contemporary cultural and social life.

Enhancement of Boussu's biography has been pursued through the study of over 200 identified notarial and local council and court acts concerning Boussu's personal transactions, mostly from the region of Avesnes. Based on the analysis of these documents, it has become possible to outline the social and economic conditions under which he worked and lived. The image of a man with a moderate social position arises, who had to work hard to earn a satisfying income, but who was, on the other hand, willing to make the best of life for himself and his family. In the end, he achieved this by accumulation of functions (notary and *procureur*), by participating in the prevailing system of financial transactions, and by ultimately changing course at all in favour of a life as craftsman and entrepreneur. Besides that, he must have had a competitive, well-informed and sharp mind, given the various identified legal cases he got himself engaged in, and from which he emerged unanimously as winner. These legal steps, initiated from his part, further secured and reinforced his professional and economic position.

The identified acts also reveal that during the period 1749-1772, when he worked as a violin maker outside France, Boussu regularly returned to the area of Avesnes. We have identified his presence in that town in November 1749, April 1751, July 1755, February 1758, November 1762, August 1768, July-September 1772 and finally most of 1773 until he died in September of that year. These visits fall within a period of continued economic involvement in the region, after his relocation to the north. In a broader context, this single case may be exemplary for the apparent geographic mobility of individuals in eighteenth-century Western Europe.

The current study has demonstrated the outstanding value of notarial, local authority and court archives in the study of the life of an instrument maker, or any past individual whomsoever. Without examination of these sources, it would not have been possible to provide a broader picture of the social, economic and juridical circumstances of Boussu's existence. Very likely, new information on the lives of other historical makers could become available when studying similar sources. In case of Boussu (due to his atypical background), an unusually large quantity of notarial and local council acts is available. For many of his contemporary instrument making colleagues, this fortunate circumstance does not apply. However, a certain number of such documents should be

present for other craftsmen. Therefore, research in the appropriate archives could certainly be beneficial when studying their biographies.

None of the two extensive publications discussing the history of Avesnes, one from the beginning of the nineteenth century,⁴ another from the second half of the twentieth century,⁵ mention Boussu, whereas some of his contemporaries in the legal and magisterial field are explicitly discussed. This exile to oblivion confirms that Boussu was a man of relatively modest reputation in Avesnes, when he lived there for 20 years during the second quarter of the eighteenth century.

Perhaps, future digitisation and indexation of relevant notarial archives – now ongoing or being initiated in several major European repositories – will help to explore these sources more effectively, allowing us to find additional information and to further ‘colourise’ Boussu’s biography. This may possibly help to better understand the reasoning and motivations behind his remarkable choices in life. These initiatives of digital disclosure of archival information – at locations that we currently cannot yet link to Boussu – may also lead to the identification of documents concerning his ‘lost years’ (1725-1728), conceivably in relation to his formation as either notary or instrument maker (i.e. an apprentice contract or membership of a craft guild). On the other hand, we will have to accept and respect that many aspects regarding our subject’s life will always remain – in the words of Sergier – an “inexplicable mystery”.⁶ How much more additional information we will still be able to collect, these new bits will just stay fragmented and mainly formal reflections of a past reality. We will never be able to know the true thoughts, emotions and motives of our subject, nor his whereabouts from day to day, hour to hour. Acknowledging and explicating these restrictions and avoiding an illusion of completeness will result in a more faithful story, in contrast to an attempt of forced all-knowingness and fictionalisation.

The life course of Boussu exemplifies that during the late *Ancien Régime*, individual destiny was maybe less subjected to rigidity and hierarchy – with only limited approval of social mobility⁷ – than is often presumed. Evidently there were possibilities for individuals to cross the barriers of class, professional regimes and geographical territories. Although likely not a major phenomenon, at least some people took charge of their life to pursue personal interests and to seize emerging opportunities. In the case of Benoit Joseph

⁴ Isidore Lebeau, *Précis de l’histoire d’Avesnes* (Avesnes: Viroux, 1836).

⁵ Jean Mossay, *Histoire de la ville d’Avesnes* (Avesnes-sur-Helpe: Éditions de l’Observateur, 1969), pp. 147, 152, 156, 159.

⁶ Matthieu Sergier, ‘En scène! - De biographie als zichtbaar verlies’, *Nederlandse letterkunde*, vol. 22, no. 3 (2017), pp.187-206, at p.203. Sergier speaks, in Dutch, of “*het overklaarbare mysterie*”.

⁷ Elinor G. Barber, *The bourgeoisie in 18th century France* (Princeton: Princeton University Press, 1967), pp.10-11.

Conclusions

Boussu, his willingness to make unusual and, obviously, personal choices has ultimately resulted in the creation of a rich oeuvre of musical instruments. Thanks to their qualities and beauty, these can be enjoyed to the present day by musicians, concert audiences, makers, museum visitors and researchers.

Along the same lines, by putting forward the atypical life path of Boussu, which took him from a 20-year career as notary to a prolific period as bowed string instrument maker, a 'counter-example' is provided for the commonly accepted and cherished image of the artisan of the old days, who gained his skills through a long and formal route of the master-apprentice system and association with a guild. Boussu's highly individual style and construction methods furthermore challenge the widely held idea of an all-embracing 'Flemish school'. Eventually, it appeared that Boussu was *not* a 'Belgian' maker, contrary to what was presumed for a long time. In this respect, the currently presented 'case study' exhibits exactly the corrective quality as advocated by Hamilton and others (see Section 1.4), by providing an evidence-based antidote against some long-held preconceptions. Especially in the world of antique violins, in which myths, bias and strong commercial interests are prevalent amongst some of the stakeholders, a fact-based approach involving solid research methodology and academic good practice can have a clarifying and purging effect.

Hopefully, future studies will focus on similar lesser-known makers, in order to expand and diversify our understanding of the past craftsmen. Thereby, it has to be recognised that the realm of instrument making extends beyond the Amatis, Stradivaris, Tielkes, Ruckerses and Cristoforis. Still too often, researchers only focus on these famous names, perhaps in the hope to receive themselves a glimpse of lustre and fame from their glorious subjects. By performing and publishing an extensive study on a relatively unknown maker like Boussu – who may be considered a mere footnote in instrument-making history by those who are commonly more attracted to the famous stars of the trade – the current author hopes to stimulate continued research into the life and work of some other lesser gods of lutherie, in order to be able to bring the whole story, not just the glamorous tales.

Although of direct scholarly interest itself and first published in 2013,⁸ Boussu's life account also appealed to owners of an instrument by this maker. As such, the availability of the biography has been an aid to get in contact with this group. These musicians and collectors were often keen on learning and reading Boussu's story, and were in return more willing to make their instrument available for investigation. Certainly, this was

⁸ Geerten Verberkmoes, 'Benoit Joseph Boussu (1703-1773): violin maker and notary', *The Galpin Society Journal*, vol. 66 (2013), pp.117-138, 262-264.

helpful in getting access to as many instruments as possible, and thereby beneficial for the organological aspect of the currently presented study.

7.2. Conclusions regarding the organological research

The second main angle of the presented study, the organological facet, has resulted in the identification and examination of 52 extant instruments made by Boussu, mainly violins, violas and cellos, but also a few double basses, kit violins and a rare cittern. This pool represents roughly one-fourth of the estimated total output of this maker. An inventory was made (see Appendix V), including all basic information and a new identification code for each instrument. The majority of these research objects was studied extensively and documented systematically by conventional organological methods and digital endoscopy, whereas seven instruments were also examined by CT scanning in fruitful cooperation with the Musical Instruments Museum in Brussels and several academic hospitals. Being able to study such a vast amount of instruments with state-of-the-art methods yielded a wealth of information concerning their condition and state, structural features and stylistic aspects. In particular, the possibility to apply the endoscopy and CT techniques to an extremely well-preserved violin (MIM inv. no. 2781; database code BJB5001vn) and cello (MIM inv. no. 1372; database code BJB5701vc) greatly enhanced our knowledge regarding the original architecture of Boussu's instruments. Furthermore, the CT scan data obtained will reduce the need for physical handling of the scanned instruments in the future. Researchers can now also consult the data available for the scanned museum instruments, generate their own 2D and 3D reconstructions and perform 'virtual' measurements. We therefore would like to recommend and encourage a more widespread use of this approach in documentation for other instruments in museum collections.

Our research has identified and documented in much detail several idiosyncratic design and construction features for Boussu, such as the use of identical thickness patterns for the top and back plate (very precisely executed, possibly with the aid of a special thickness marking tool), the mitre joints and filler strip on the rib structure, the glued-in bass bar, the 'through neck', the veneered fingerboard, the channel below the back plate's button and the highly recognisable scroll shape. Regarding their aesthetic aspects, all investigated instruments display a highly consistent style, which suggests that one single person (presumably Benoit Joseph Boussu himself) was responsible for their execution. From a geometric analysis, it has been shown that distinctive dimensions and proportions (such as those for the sound box, f-holes and scroll) of a large number of instruments by Boussu show a significant degree of mutual uniformity. Still, despite the homogeneity within the oeuvre, also a certain development has been observed within some aspects of

Conclusions

his instruments going from c1750 to c1760. The shape of the upper block and linings changed around 1752, the workmanship got a bit rougher around the mid-1750s and towards 1760, the plates were made somewhat thinner and a tendency towards flatter archings appears to arise (although the latter supposition is based only on a limited amount of investigated instruments, so to be confirmed by future study). Interestingly, the few instruments that can be ascribed with reasonable certainty to the later 1760s – his ‘Dutch years’ – appear to display a noticeable change in style of scroll and f-holes, suggesting that Boussu felt the need to update his work to changing fashions and local preference. Our observations also demonstrate Boussu’s personal mixture of traditional and contemporary construction traits, as well as of both regional and foreign influences, combined with his own unique (and probably largely autodidactic) vision, technique and concept. In comparison to the Brussels court makers, who still worked in a more ‘archaic’ tradition, Boussu certainly incorporated contemporary elements in his instruments, such as a separate bass bar, corner blocks and ribs which were glued onto the back plate. This implies that he must have had access, for observation, to instruments that could be considered ‘modern’ in his day. On the other hand, he still adhered to the traditional ‘through neck’ construction.

Furthermore, especially in his earlier instruments, Boussu included an internal inscription containing detailed information such as his name, the date of signature to the day, the place of production and a serial number. Such precise, almost obsessive documentation habits could have resulted from his personality, but also from his background as a notary. These dates and serial numbers give us an idea about his production rate and total output. Throughout the 1750s – his most productive decade – the estimated annual output of around 15 violins (or violas) and three cellos suggests that Boussu was not the only force in the workshop. Instead, he must have had one or two, hitherto however yet unidentified, assistants. After his departure from Brussels around 1762, Boussu apparently made instruments just sporadically. From this later period, only a cittern from 1771 (database code BJB7101ci) and a violin from 1765 (database code BJB6501vn) have been identified with reasonable certainty.

So, the exact numbering and dating on extant instruments from Boussu’s initial years in Brussels provide us with a rather unique set of data with regard to eighteenth-century violin making (since the vast majority of makers did not number their output), and has allowed us to draw informed conclusions regarding his production rate during the Brussels period. The resulting insights will contribute to our understanding of the organisation and scale of mid-eighteenth-century bowed string instrument production.

Several common features of the examined instruments, such as the tiny linings with feathered ends in the earliest examples, the filler strip of variable width between the

lower rib parts and the general uniformity in dimensions, give rise to the assumption of a manufacturing process that was organised in a modular manner (a mode of production that was not uncommon in eighteenth-century Brussels and beyond for all kinds of goods, as we have discussed). All main parts of an instrument could be prepared in advance, and subsequently assembled without the use of a full inner or outer mould. By means of such efficient production procedures, easily dividable across several co-workers (likely in part family members in addition to one or two hired employees) and with considerable artistic contribution and control by Boussu, he could fulfil a demand for high quality instruments. As a result, he could serve a variety of customers from the Brussels area, and maybe even from beyond that region, thus establishing a flourishing business. This proposed business model shows similarities with the ‘pyramidal’ model proposed by Heyde (as discussed in Section 5.4). The entrepreneurial skills and starting capital required to run such a venture could likely have been acquired by Boussu during his prior years as a notary, as well as through continued investment activities in his native region.

Previous scholars have also commented on Boussu’s working methods, and have mentioned that he built without a mould.⁹ However, none of them has proposed a making sequence and workshop operation model with so much detail, as put forward during the currently presented study. Only by examining a large number of instruments, as was accessible during our research, in combination with the expertise of a researcher/maker, it was possible to achieve this degree of refinement in the observations and resulting proposed hypothesis.

Exposure of several of Boussu’s instruments to UVA light resulted in an orange fluorescence, characteristic for non-decolourised shellac. This implies that a varnish with this component as main ingredient was used. Future chemical analyses of Boussu’s varnishes should be performed to verify this preliminary conclusion and to identify possible additional resinous components. For a violin from 1750 (MIM inv. no. 2781; database code BJB5001vn) and a cello from 1757 (MIM inv. no. 1372; database code BJB5701vc), a uniform and likely original varnish coat is still present on a large part of the surface area of these instruments, and very little retouch work was observed.

With respect to a possible follow-up of this instrument-oriented research, various additional scientific investigations, such as a thorough chemical analysis of Boussu’s varnish using gas chromatography, IR spectroscopy or other appropriate techniques, additional wood dating and geographical characterisation through dendrochronology and acoustical characterisation could be performed to further complement the technical knowledge on the instruments of Boussu.

⁹ Moens (1983), p.149; Awouters, ‘Les instruments à cordes’ (1985), p.16.

7.3. Conclusions regarding the workbench research

Three violin replicas and one cello replica were made, following the proposed construction and workflow hypothesis derived from the observations made on the original instruments. Wood for the violin replicas was selected to match the (estimated) densities of the materials that were used in the original example instrument. CT reconstructions, printed on paper to a 1:1 scale size, served as ‘blueprints’ and templates. Moreover, the CT data could be consulted at any time in the violin making workshop, which allowed for observation of geometric details and the collection of additional measurements without the need to re-examine the original instrument in the Musical Instruments Museum in Brussels.

The actual replication process of both the violin and the cello, as carried out by the author, was documented in detail in a series of videos, which are now available on a dedicated YouTube channel.¹⁰ By following the making sequence, as proposed on the basis of studying original instruments, it proved possible to produce replica instruments in a logical and time-effective way (the third violin replica, BIO04, was made in ‘white’ in a period of four weeks, a time span which accords with the assumed production pace of a single worker in Boussu’s workshop). CT scanning proved to be a powerful tool to assess the replica instruments after their completion. The newly made copies showed convincing similarity to the originals in terms of appearance, dimensions, structure and weight. Slight differences between the originals and replicas could be explained by effects of aging and wear of the originals, minor over-dimensioning of the replicas and unavoidable differences in material properties. Based on the observations and experiences gained from the hands-on ‘workbench research’ (i.e. the investigative and questioning replication process), in combination with our analyses regarding construction features in extant instruments, as well as the workshop’s estimated production rate and even Boussu’s biography, we conclude that it is highly plausible that Boussu’s workshop produced instruments according to a modular making system.

The exercise of replication further served as a way to bring back and reconnect the scholarly (biographical and organological) research to the empirical and material world, and establish an iterative interaction between the two approaches. To illustrate this, the idea of a modular making system was partly conceived during the actual parallel construction process of the two violin replicas BIO01 and BIO02, but only after having observed many instruments and having learned about Boussu’s experiences prior to violin making. Closing the research circle by making a physical copy of an examined

¹⁰ YouTube channel ‘Boussu_Inside_Out’, https://www.youtube.com/channel/UCshivkXPogBhUIj3X2I_DFWA (accessed December 2020). At the moment of writing, this channel has had over 64,000 views and over 900 subscribers, counting from its launch in the summer of 2018.

instrument provided the project with an extra dimension. In contrast to this approach stand the contributions of past academics, who have ‘only’ written and spoken about the violin-family instruments from the Southern Netherlands. With the current study, an attempt at ‘experimental organology’ was made, in the hope that this unconventional approach would expand the knowledge that was founded earlier by these past scholars.

The main goal of the instrument replication was not the production of exact ‘tonal copies’, since that is impossible anyway mainly due to certain unknown differences in material properties between the replicas and the originals (the violin with MIM inv. no. 2781 and the cello with inv. no. 1372), as well as due to the current lack of information regarding the acoustical qualities of the originals. Although the wood for the violin replicas was selected to have a relatively low density, in accordance with the original instrument, other wood properties, such as sound velocity, stiffness, internal damping and structure could not be exactly matched due to absence of information about these parameters. Thus, given the only partial availability of required information on the properties of the wood material used in the original instruments, true sonic copies could not be achieved (if this pursuit would be possible at all...). Even more so, each of the three replica violins has its own distinctive sonic nuances, as came forward from their extensive use by the musicians of ‘Ensemble Boussu’. That said, we have to take into account that Boussu’s workshop produced many instruments, from varying selections of wood (as was shown in Section 4.8), without significantly adapting the plate thicknesses to the variability in the properties of his raw material (see Section 4.10). So, the acoustical quality of Boussu’s instruments must also have been somewhat diverse anyway, although the apparent uniformity in their geometry (dimensions, arching shape, plate thickness distribution) should have given them common tonal features as well. By making various replicas respecting the construction principles as presumably followed by Boussu himself – his modular making methods, his approach to material selection and his uniformity of dimensions – I hope to have achieved authenticity within the production process, and consequently a certain degree of similarity in the basic sound quality. At least, the total masses of the violin replicas come convincingly close to the mass of the original violin, which could be an additional indication for a successful replication process. In other words, the currently produced replicas were made in such a manner that they could have originated from Boussu’s workshop, or – expressed in an even more appealing way – instruments that could have gained the approval of the man himself. Ultimately, the four replicas made during this study, and the modifications performed to some of these afterwards, were done from this underlying line of thought.

Keeping the above in mind, it is not surprising that each of the three violin replicas has its own particularities in timbre, just as was inevitable the case with each individual instrument made by Boussu. The combined set of replica instruments played in the

Conclusions

performances that we organised in 2018 and 2019, two violins and a cello, will together never sound exactly identical to the way an arbitrarily compiled trio of instruments by Boussu would have sounded in the 1750s. From a statistical point of view alone, that is not possible. Still, having available thoughtfully manufactured replicas today, these newly made – hence fresh sounding – instruments are believed to constitute a better set of tools for the faithful performance of Brussels eighteenth-century chamber music than any arbitrarily accumulated combination of antique bowed string instruments, often inconsistently reconverted to ‘Baroque’ state, aged and patched up.

At the end of the currently presented research project, initial acoustical characterisation (measurement of sound radiation) has been performed on the three violin replicas in cooperation with Dr. Claudia Fritz (Institut Jean Le Rond d’Alembert, Sorbonne Université, Paris), in order to better understand and objectify their timbre. The results seem to confirm the already observed sonic differences between the three violins. Further acoustical and perceptual investigations (e.g. listening and playing tests) will have to be performed, preferably also on originals by Boussu and additional replica instruments, in order to identify a possible common sonic quality as well as timbre variations within this pool of related instruments.

If, as was stated above, making the ultimate tonal copy of a Boussu instrument was not the main aim of the replication endeavour, what then was its goal? Well, it has to be remembered that the initial awareness of Benoit Joseph Boussu emerged from the aspiration to copy one of his instruments around 2009. As is hopefully demonstrated throughout this thesis, these first replication activities, and those that followed, acted as an initiator, as well as a binding nexus, for the performance of various types of complementary research. From biographical research, through conventional and radiological instrument investigations, to finally musical performance and acoustical measurements. The resulting approach has yielded interlocking knowledge and experiences in all of these fields. In that light, we can regard the replicas as not more than the tangible ‘by-products’ or precipitates of this branched process. The replicas also carry a more symbolic value, in a sense that they are emblems of a revived and re-created past, and they allow us, in a way that is meaningful to us, to explore certain social and cultural phenomena of Boussu’s time, in our case more specifically the music of the eighteenth-century Brussels court composers. In that respect, ‘re-creation’ would be an even more appropriate designation than the term ‘replica’ as used throughout this thesis.

As was discussed at the end of Section 6.2, several authors have commented on the value and sense of making instrument copies (both in a positive and negative way). My proposal – that of instrument replication as a manifestation of organological research – adds a new perspective to these previous points of view. The replication activities discussed in

Chapter 6 illustrate the concept of ‘informed instrument making’ or ‘practice-led organology’, where eventually replicas (or reconstructions) are built based on an extensive and multifaceted research on instruments, methods and biography of a maker, ultimately in function of the musical performance practice. Judging from this presented case, the many established and fruitful collaborations with leading experts in various fields – radiologists, law historians, musicologists, performers, acousticians – confirm that instrument (re-)construction can indeed act as the catalyst as well as the adhesive for an interdisciplinary organological research project. One may even go so far as to state that an exertion delving so deeply and comprehensively into the life and output of a historical maker will not merely produce a replica, but a ‘new original’, as if the present-day copyist had the opportunity to apprentice – seemingly beyond time-barriers – with the original maker. Following this reasoning, the resulting product of such a process should be the most appropriate ‘informed performance tool’ for associated repertoire.

Finally, the replication process was also a way to come ‘closer’ to the reality of Boussu, by performing operations and thinking processes similar to those that undoubtedly had occupied him too. The next and final section will further elaborate on this aspect.

7.4. Final conclusions

One could argue that a case study, of which the work discussed here is an example, could be focusing too much on the particularities of a single instance, thereby neglecting the relevance in a larger scope. During the current study, this was a continuous concern, and therefore, attempts were made to contextualise the subject. The notarial ventures of Boussu have been placed in a wider perspective: his occupation as a notary was compared to the practices of his contemporary French colleagues. The output of his second career as luthier was discussed in the light of violin making in Brussels in the seventeenth and eighteenth century,¹¹ but also in relation to his previous notarial activities. The proposed entrepreneurial approach and production methods of his workshop were discussed within the broader outlook of eighteenth-century manufacturing trends. The only surviving instrument testifying of his making pursuits in Amsterdam, a cittern, was discussed only after an introductory sketch of this type of instrument, and its use and popularity in the social scenery of the late eighteenth century.¹² Finally, by recreating his instruments following a proposed making hypothesis, hands-on knowledge relating to forgotten violin making techniques has become available, while at the same time, replicas

¹¹ Geerten Verberkmoes, Anne-Emmanuelle Ceulemans, Danielle Balériaux, Berend Stoel, ‘An inside look at four historical violins by Brussels makers’, *The Galpin Society Journal*, vol. 69 (2016), pp.109-136, 159-165.

¹² Geerten Verberkmoes, ‘Made in Amsterdam: a 1771 cittern by Benoit Joseph Boussu’, *Early Music*, vol. 44, no. 4 (2016), pp.627-641.

Conclusions

were produced that have been employed to explore forgotten music from Boussu's era. By opting for a multifaceted and contextualising methodology, the limitations of a strict case study have been overcome, although still preserving the advantages of a focused approach, resulting in a detailed and profound understanding of the subject. Preferably, future researchers will display a similar attention to detail, versatility and perseverance to tackle comparable isolated and 'obscure' cases in instrument-making history, thereby contributing to our broader awareness, beyond superficiality and fixation on just the famous 'old masters'.

In further defence of a convergent approach, in-depth and detailed results such as those presented here could never have been achieved if a wider research scope had been aspired. For the case of the notary-turned-luthier, extensive efforts were made to gather as much information as possible in relation to his life and legacy. By gaining insights in his private life, for example, it became possible to explain the short but well-defined period of his instrument-making activities. Indeed, the resulting image is only a small piece in the giant puzzle of modest and nearly forgotten craftsmen, but at least the gathered information is coherent and convincing.

By the time this doctorate reached its final stages, it became clear that it had not been 'just' about Benoit Joseph Boussu and his instruments. It had grown into a journey that encompassed instrument making, radiology, social, cultural and legal history and musical performance. As explained above, the different facets of this project have nourished each other. By combining the insights emerging from the various research angles, it was possible to identify several common threads within Boussu's life. One of these is his precision, which must have emanated from his personality and from his background as notary, and which becomes evident in the meticulous details of his instruments and the elaborate information on his labels. We have also become aware of his systematic, efficient and modular ways of working, likely resulting from his experiences as notary too, and which may arguably have affected his workshop organisation. Finally, his keen entrepreneurial intuition – as evidenced by the many identified profitable financial transactions, won court cases and various relocations to places of increasing economic importance – also benefited him in becoming a productive and successful manufacturer of bowed string instruments. These common themes would not have been identified without the variety of perspectives as employed throughout the presented research.

The practice-led aspects of this project allowed the researcher not just to gather factual data and hands-on knowledge, but also to undergo or carry out certain processes that the subject under study also must have experienced. Visiting the locations where Boussu's life took place, submerging oneself in the French eighteenth-century notarial theory, constructing instruments presumably following Boussu's principles and listening to the

music of his time (played live!) were all attempts to come closer to the reality of the subject. Or, to quote the words of Rembrandt biographer Dr. Onno Blom (translated from Dutch): “Look, Rembrandt is no longer there, we can’t ask him anymore. We can’t visit him. We can look at his paintings, which has always been done throughout the ages. But you can also try to get close to him by experiencing things that also he must have experienced...”¹³

In the past, makers have been firmly involved in examining and copying historical instruments. This tendency only grew stronger with the emergence of the ‘Early music revival’ in the middle of the twentieth century, when the demand for truly faithful instrument replicas increased. Although makers developed many initiatives, written scientific output documenting their efforts remains scanty, a few exceptions aside. This study hopes to serve as an advocate for the emancipation of makers towards full-fledged organological scholars, or at least for bridging the gap between the worlds of academia and craft. The maker’s unique understandings, experiences and practical abilities can be valuable additions to the field of musical instrument research. It is to be hoped that more of them are prepared to strengthen their academic competencies, including the adaptation of scientific methods and practices and the publication of results through the appropriate channels. As argued, a maker’s ‘workbench research’ – the production of actual reconstructions or replicas including the assessment of proposed making techniques and procedures – is especially valuable, since makers form the only group within the instrument-studying community capable of conducting these kinds of performative methodologies. Such activities will always evoke new awareness and questions, and therefore, the making process itself is just as important, or even more so, as the tangible products it creates. Practical experimentation enables the liberation of embedded or silent information contained within the objects studied. Some of this knowledge thus unleashed will present itself to the maker/researcher immediately, and partly will manifest itself gradually in years to follow.

Some of the methods, approaches and research strategies employed during our study and described in this thesis could also be beneficial for the study of other artefacts of cultural heritage. It is thereby hoped that this research has contributed to the field, not only by providing the results obtained, but also by the documentation and presentation of the methodologies followed.

¹³ Onno Blom in the documentary ‘Het raadsel Rembrandt - Verder kijken met Onno Blom’, episode 4 (avrotros broadcasting organisation, 20 October 2019, at 14 minutes 55 seconds): “Kijk, Rembrandt is er niet meer, we kunnen het hem niet meer vragen. We kunnen niet bij hem op bezoek. We kunnen naar zijn schilderijen kijken, dat is ook door de eeuwen altijd gedaan. Maar je kan ook proberen om hem nabij te komen door dingen te ervaren die hij ook moet hebben ervaren...”. Source: <https://www.avrotros.nl/het-raadsel-rembrandt/gemist/detail/item/verder-kijken-met-onno-blom-aflevering-4/> (accessed November 2019).

Conclusions

Opportunities for extended research can be found in chemical analysis of Boussu's varnish and ground materials, additional dendrochronology on original instruments, acoustical characterisation and listener and player evaluations of both original and replica instruments, as well as a continued study of the eighteenth-century set-up of violin-family instruments.

Also, a further exploration of eighteenth-century repertoire for bowed string instruments by composers from Brussels and the broader Southern Netherlands is envisioned, using newly-built instruments after historical examples. As a first step, a viola reconstruction after Boussu – not a replica, since no original viola in native structural state is available – will be made, as an addition to the existing cello and violin replicas. With this expanded ensemble, we will commence the study and performance of string quartet repertoire from the region and era.

Future extension of this Boussu project, or similar projects whichever, could be aimed at an endeavour to further observe the subject from the perspective of his or her period. By taking into account the social, cultural, intellectual and economic currents of the era to an even greater extent, the subject could become valued by the 'standards' of his or her own time. Involving the broader context should in the end lead to a case of what Heyde¹⁴ designates as historical, interpretative organology, not merely aimed at addressing the 'who', 'what', 'where' and 'when' questions, but also those of 'why' and 'how'.

¹⁴ Herbert Heyde, 'Methods of organology and proportions in brass wind instrument making', *Historic Brass Society Journal*, vol. 13 (2001), pp.1-51, at pp.6-7.

Chapter 7

Bibliography

Abbott, Djilda; Segerman, Ephraim, 'Gut strings', *Early Music*, vol. 4, no. 4 (1976), pp.430-437.

Adelmann, Olga; Otterstedt, Annette, *Die Alemannische Schule - Geigenbau des 17. Jahrhunderts im südlichen Schwarzwald und in der Schweiz* (Berlin: Staatliches Institut für Musikforschung, 1997).

AICCM, A summary of ultra-violet fluorescent materials relevant to Conservation, <https://aiccm.org.au/national-news/summary-ultra-violet-fluorescent-materials-relevant-conservation> (accessed January 2019).

Auktionshaus Bongartz auctioneers, 68. Auktion, catalogue for an auction on 10 November 2007 in Cologne, Germany (Aachen: Auktionshaus Bongartz, 2007).

Awouters, Mia, 'Les instruments à cordes', in Malou Haine, Nicolas Meeùs, ed., *Instruments de musique anciens à Bruxelles et en Wallonie - 17^e-20^e siècles* (Liège/Brussels: Mardaga, 1985), pp.13-17.

Awouters, Mia, 'VIOLON - Benoît-Joseph Boussu, Bruxelles, 1750.', in Malou Haine, Nicolas Meeùs, ed., *Instruments de musique anciens à Bruxelles et en Wallonie - 17^e-20^e siècles* (Liège/Brussels: Mardaga, 1985), p.53.

Awouters, Mia, 'VIOLONCELLE - Benoît-Joseph Boussu, Bruxelles, 1755 [sic].', in Malou Haine, Nicolas Meeùs, ed., *Instruments de musique anciens à Bruxelles et en Wallonie - 17^e-20^e siècles* (Liège/Brussels: Mardaga, 1985), p.54.

Awouters, Mia, 'BORBON', in Malou Haine, Nicolas Meeùs, ed., *Dictionnaire des facteurs d'instruments de musique en Wallonie et à Bruxelles du 9^e siècle à nos jours* (Liège/Brussels: Mardaga, 1986), pp.60-61.

Awouters, Mia, 'DE MASENEER (De Maeseneer), Jan', in Malou Haine, Nicolas Meeùs, ed., *Dictionnaire des facteurs d'instruments de musique en Wallonie et à Bruxelles du 9^e siècle à nos jours* (Liège/Brussels: Mardaga, 1986), p.127.

Bibliography

Awouters, Mia, 'FONCEZ (Foncé), Jean-François', in Malou Haine, Nicolas Meeùs, ed., *Dictionnaire des facteurs d'instruments de musique en Wallonie et à Bruxelles du 9^e siècle à nos jours* (Liège/Brussels: Mardaga, 1986), pp.170-171.

Awouters, Mia, 'MICHIELS, Egidius', in Malou Haine, Nicolas Meeùs, ed., *Dictionnaire des facteurs d'instruments de musique en Wallonie et à Bruxelles du 9^e siècle à nos jours* (Liège/Brussels: Mardaga, 1986), pp.300-301.

Awouters, Mia, 'NUMANS (Nuemans, Neumans), Joannes Baptista', in Malou Haine, Nicolas Meeùs, ed., *Dictionnaire des facteurs d'instruments de musique en Wallonie et à Bruxelles du 9^e siècle à nos jours* (Liège/Brussels: Mardaga, 1986), pp.312-313.

Awouters, Mia, 'ROTTENBURGH', in Malou Haine, Nicolas Meeùs, ed., *Dictionnaire des facteurs d'instruments de musique en Wallonie et à Bruxelles du 9^e siècle à nos jours* (Liège/Brussels: Mardaga, 1986), pp.350-352.

Awouters, Mia, 'SNOECK', in Malou Haine, Nicolas Meeùs, ed., *Dictionnaire des facteurs d'instruments de musique en Wallonie et à Bruxelles du 9^e siècle à nos jours* (Liège/Brussels: Mardaga, 1986), pp.385-388.

Awouters, Mia, 'VANDER LINDEN, Laureys', in Malou Haine, Nicolas Meeùs, ed., *Dictionnaire des facteurs d'instruments de musique en Wallonie et à Bruxelles du 9^e siècle à nos jours* (Liège/Brussels: Mardaga, 1986), pp.427-428.

Awouters, Mia, 'De hofkapel en haar instrumentenbouwers ten tijde van Karel van Lotharingen', *Het tijdschrift van de Dexia Bank*, vol. 54, no. 212 (2000), pp.63-70.

Bachmann, Alberto, *An encyclopedia of the violin* (New York: Da Capo Press Inc., 1976).

Badura-Skoda, Eva, *The eighteenth-century fortepiano grand and its patrons - From Scarlatti to Beethoven* (Bloomington: Indiana University Press, 2017).

Baeck-Schilders, Hedwige, 'The bibliotheca Stellfeldiana', *Revue belge de musicologie*, vol. 58 (2004), pp.203-223.

Bagatella, Antonio, *Regole per la costruzione de' violini viole violoncelli e violoni* (Padua: A Spese dell'Accademia, 1786).

Banham, Rob, 'Printing to 1970', in Simon Eliot, Jonathan Rose, ed., *A companion to the history of the book*, vol. 1 (Hoboken: John Wiley & Sons Ltd, 2020), pp.95-109.

Bär, Frank P.; Fuchs, Theobald; Kirsch, Sebastian; Wagner, Rebecca; Scholz, Gabriele; Kretzer, Christian; Schielein, Richard; Brennhäusser, Guido; Böhnel, Michael; Reims, Nils; Eberhorn, Markus; Koppers, Tobias; Raquet, Markus; Wolters-Rosbach, Meike; Fischeidl, Kathrin; Wagner, Sarah; Zepf, Markus, 'Three-dimensional computed tomography scanning of musical instruments', in Marco A. Pérez, Emanuele Marconi, ed., *Wooden musical instruments - Different forms of knowledge - Book of end of WoodMusICK COST Action FP1302* (Paris: COST/Cité de la musique - Philharmonie de Paris, 2018), pp.171-187.

Bibliography

Baratz, Lewis Reece, 'Les œuvres de Joseph Hector Fiocco (1703-1741) dans la bibliothèque du chanoine Vanden Boom (1688-1769)', in Roland Mortier, Hervé Hasquin, ed., *Etudes sur le XVIII^e siècle, vol. 19: Musiques et spectacles à Bruxelles au XVIII^e siècle* (Brussels: Editions de l'Université de Bruxelles, 1992), pp.47-77.

Barber, Elinor G., *The bourgeoisie in 18th century France* (Princeton: Princeton University Press, 1967).

Barclay, Robert, *The preservation and use of historic musical instruments - Display case and concert hall* (London: Earthscan, 2004).

Billen, Claire, 'Brussel, het centrum van een Europees slagveld', in Claire Billen, Jean-Marie Duvosquel, ed., *Brussel* (Antwerp: Mercatorfonds, 2000), pp.82-93.

Blom, Hans; Lamberts, Emiel, ed., *Geschiedenis van de Nederlanden* (Amersfoort: ThiemeMeulenhoff, 2012).

Boas, F. Edward; Fleischmann, Dominik, 'CT artifacts: causes and reduction techniques', *Imaging in Medicine*, vol. 4, no. 2 (2012), pp.229-240.

Bonta, Stephen, 'From violone to violoncello: a question of strings?' (1977), pp.1-31. Online version, available from: <http://earlybass.com/articles-bibliographies/from-violone-to-violoncello-a-question-of-strings-3/> (accessed May 2020).

Borman, Terry; Stoel, Berend, 'Review of the uses of computed tomography for analyzing instruments of the violin family with a focus on the future', *J. Violin Soc. Am.: VSA Papers*, vol. 22, no. 1 (2009), pp.239-250.

Borman, Terry; Stoel, Berend, 'CT and modal analysis of the 'Vieuxtemps' Guarneri 'del Gesù'', *The Strad*, vol. 122, no. 1449 (2011), pp.68-71.

Bosma, A.I., *Repertorium van notarissen residerende in Amsterdam Amstelland, ambachtsheerlijkheden en geannexeerde gemeenten, 1524 - 1810* (Amsterdam: Amsterdam City Archives, 1998). Available from: <https://www.amsterdam.nl/stadsarchief/archief/downloads/repertorium/> (accessed April 2019).

Bovy, Daniel, *Les XXXII bons vieux métiers de Liège* (Liège: Desoer, 1981).

Boyden, David D., *The history of violin playing from its origins to 1761 - and its relationship to the violin and violin music* (Oxford: Clarendon Press/Oxford University Press, 1990).

Bragard, Roger; De Hen, Ferdinand, J., *Musical instruments in art and history* (New York: The Viking Press, 1968).

Bibliography

Braun, William, *The evolution of the cello endpin and its effect on technique and repertoire* (PhD diss., University of Nebraska, 2015).

Bruneel, Claude, 'Een spectrum van carrières', in Claude Bruneel et al., ed., *Het notariaat in België - Van Middeleeuwen tot heden* (Brussel: Gemeentekrediet, 1998), pp.103-117.

Bruneel, Claude, 'De uitoefening van het ambt', in Claude Bruneel et al., ed., *Het notariaat in België - Van Middeleeuwen tot heden* (Brussel: Gemeentekrediet, 1998), pp.118-140.

Bruneel, Claude, 'Notaire à Bruxelles au XVIII^e siècle, une simple compétence ou une profession à part entière?', in Hervé Leuwers, ed., *Juges, avocats et notaires dans l'espace franco-belge - Expériences spécifiques ou partagées (XVIII^e-XIX^e siècle)* (Brussels: Archives Générales du Royaume, 2010), pp.59-83.

Buyens, Koen, *Musici aan het hof - De Brusselse hofkapel onder Henry-Jacques De Croes (1749-1786): een sociaalhistorische studie* (Brussels: VUBPRESS, 2001).

Buyens, Koen, 'Muziek en stedelijkheid in de Nederlanden', *De Achttiende Eeuw*, vol. 37, no. 2 (2005), pp.132-134.

Buyens, Koen, 'Het muziekleven te Brussel, 1740-1780', *De Achttiende Eeuw*, vol. 37, no. 2 (2005), pp.135-155.

Cacheux, Albert, 'Les notaries dans le ressort de la coutume de Mons en Hainaut français aux XVII^e et XVIII^e siècles', *Tijdschrift voor Rechtsgeschiedenis / Revue d'Histoire du Droit / The Legal History Review*, vol. 28, no. 1 (1960), pp.42-58.

Campanella Cleary, Joseph, 'Reed and skin: natural burnishers in violinmaking', *J. Violin Soc. Am.: VSA Papers*, vol. 26, no. 1 (2014), pp.43-52.

Campanella Cleary, Joseph, 'Smooth operator', *The Strad*, vol. 125, no. 1489 (2014), pp.60-63.

Candy, Linda, *Practice based research: a guide* (Sydney: University of Technology, 2006). Available from: https://www.researchgate.net/publication/257944497_Practice_Based_Research_A_Guide (accessed May 2020).

Caruso, Francesco; Saverwyns, Steven; Van Bos, Marina; Martino, Delia Francesca Chillura; Ceulemans, Anne-Emmanuelle; De Valck, Joris; Caponetti, Eugenio, 'Micro-X-ray fluorescence and the old masters', *Applied Physics A*, vol. 107, issue 1 (2012), pp.197-202.

Chartres et privileges des bons métiers de la ville, cité & banlieue de Liege, vol. 2 (Liège, 1730).

Christie's auctioneers, *Fine musical instruments, catalogue for an auction on 21 June 1983 in London, United Kingdom* (London: Christie, Manson & Woods, 1983).

Bibliography

Clercx, Suzanne, Henri-Jacques De Croes - Compositeur et maître de musique du Prince Charles De Lorraine 1705-1786, vol. 1 (Brussels: Palais des Académies, 1940).

Clercx, Suzanne, Pierre van Maldere - Virtuose et maître des concerts de Charles de Lorraine (1729-1768) (Brussels: Palais des Académies, 1948).

Clercx, Suzanne, 'Les Godecharles, musiciens bruxellois au XVIII^e siècle', in *Mélanges Ernest Closson - Recueil d'articles offert à Ernest Closson* (Brussels: Société belge de musicologie, 1948), pp.69-80.

Coekelberghs, Denis; Vanrie, André, 'Brussel en de kunsten', in Jean Stengers et al., ed., *Brussel - Groei van een hoofdstad* (Antwerp: Mercatorfonds, 1979), pp.297-346.

Coggin, Philip, "'This easy and agreeable instrument": a history of the English guittar', *Early Music*, vol. 40, no. 2 (1987), pp.204-218.

Coles, John, *Experimental archaeology* (London: Academic Press, 1979).

Cooper, Albert W., *Benjamin Banks 1727-1795 - The Salisbury violin maker* (Fernhurst: Ashford Publications, 1995).

Cordonnier, Alexis, *Sûrement et depuis longtemps - Tableaux des études notariales du département du Nord (XVI^e-XXI^e siècles)* (Lille: Archives départementales du Nord, 2015).

Cornaz, Marie, 'La vie musicale à Bruxelles entre 1741 et 1780 vue par le biais de la Gazette de Bruxelles et de la Gazette des Pays-Bas', in Roland Mortier, Hervé Hasquin, ed., *Etudes sur le XVIII^e siècle, vol. 19: Musiques et spectacles à Bruxelles au XVIII^e siècle* (Brussels: Editions de l'Université de Bruxelles, 1992), pp.39-45.

Cranmer, Margaret, 'Zumpe, Johannes [Johann Christoph]', in Deane Root et al., ed., *Grove Music Online* (2001). Available from: <https://doi.org/10.1093/gmo/9781561592630.article.31066> (accessed May 2020).

Curtin, Joseph, 'Tap routine', *The Strad*, vol. 117, no. 1399 (2006), pp.48-54.

Curtin, Joseph, 'Measuring violin sound radiation using an impact hammer', *J. Violin Soc. Am.: VSA Papers*, vol. 22, no. 1 (2009), pp.186-209.

Dambruynne, Johan, 'De Gentse immobiliënmarkt en de economische trend, 1590-1640', *Bijdragen en mededelingen betreffende de geschiedenis der Nederlanden*, vol. 104, no. 2 (1989), pp.157-183.

Davidovic, Th.; Vanrie, A., '1000 jaar Brussel, de Brusselaars en hun soldaten', *Waar is de tijd*, no. 11 (1999), pp.250-271.

Dawe, Kevin, 'People, objects, meaning: recent work on the study and collection of musical instruments', *The Galpin Society Journal*, vol. 54 (2001), pp.219-232.

Bibliography

- De Balzac, Honoré, *Le notaire* (Paris: Arvensa Editions, 2019).
- De Croes, Henri Jacques, *Six sonatas en trio pour les violons flutes et basse continüe*, opus 1 (Paris: Leclerc, undated).
- De Croes, Henri Jacques, *Six sonatas en trio pour les violons flutes te [sic] basse continue*, opus 5 (Paris: Le Clerc/Boivin, undated).
- De Ferrière, Claude, *La science parfaite des notaires - Ou le moyen de faire un parfait notaire* (Paris: Osmont, 1682).
- De Ferrière, Claude, *La science parfaite des notaires - Ou le moyen de faire un parfait notaire*, vol. 1 (Paris: Osmont, 1728).
- De Ferrière, Claude Joseph, *Dictionnaire de droit et de pratique*, vol. 2 (Paris: Saugrain fils, 1755).
- De Ferrière, Claude Joseph, *Dictionnaire de droit et de pratique*, vol. 2 (Paris: Brunot, 1769).
- De Peuter, Roger, 'De economische ontwikkeling', in Jean Stengers et al., ed., *Brussel - Groei van een hoofdstad* (Antwerp: Mercatorfonds, 1979), pp.116-129.
- De Peuter, Roger, *Brussel in de achttiende eeuw* (Brussels: VUBPRESS, 1999).
- De Ridder, Paul, *Taferelen uit het Brusselse ambachtsleven* (Brussels: Vereniging voor Brusselse geschiedenis, 1997).
- De Wit, Paul, *Geigenzettel alter Meister vom 16. bis zur Mitte des 19. Jahrhunderts*, vol. 1 (Leipzig: Paul de Wit, 1910).
- De Wit, Paul, *Geigenzettel alter Meister vom 16. bis zur Mitte des 19. Jahrhunderts*, vol. 2 (Leipzig: Paul de Wit, 1922).
- Diderot, Denis; D'Alembert, Jean le Rond, ed., *L'Encyclopédie - Lutherie* (Paris: Inter-livres, undated). Twentieth-century facsimile print.
- Dilworth, John, 'The violin and bow - origins and development', in Robin Stowell, ed., *The Cambridge companion to the violin* (Cambridge: Cambridge University Press, 1992), pp.1-29.
- Dilworth, John, 'The cello: origins and evolution', in Robin Stowell, ed., *The Cambridge companion to the cello* (Cambridge: Cambridge University Press, 1999), pp.1-27.
- Dilworth, John; Milnes, John, *The Brompton's book of violin and bow makers* (London: Usk Publishing, 2012).

Bibliography

Dipper, Andrew, 'A look at Parisian violin makers' approach to varnish', *Strings Magazine* online (7 October 2016). Available from: <http://stringsmagazine.com/a-look-at-parisian-violin-makers-approach-to-varnish/> (accessed January 2019).

D'Osta, Jean, *Les rues disparues de Bruxelles* (Brussels: Rossel, 1979).

Doel, Marcus, *Geographies of violence - Killing space, killing time* (London: Sage, 2017).

Doursther, Horace, *Dictionnaire universel des poids et mesures anciens et modernes* (Brussels: Hayez, 1840).

Drescher, Thomas; Von Lütgendorff, Willibald Leo Freiherr, *Die Geigen- und Lautenmacher vom Mittelalter bis zur Gegenwart*, vol. 3 (Tutzing: Hans Schneider, 1990).

Duerinck, Tim; Verberkmoes, Geerten; Fritz, Claudia; Leman, Marc; Nijs, Luc; Kersemans, Mathias; Van Paepegem, Wim, 'Listener evaluations of violins made from composites', *Journal of the Acoustical Society of America*, vol. 147, no. 4 (2020), pp.2647-2655.

Dupin, M.; Laboulaye, M. Edouard, *Glossaire de l'ancien droit français* (Paris: Durand/Videcoq, 1846).

Fairbairn, Ian, 'X-ray scanning of violins', *The Strad*, vol. 91, no. 1092 (1981), pp.889-891.

Favier, René, 'Formation et établissement d'un jeune notaire dauphinois à la veille de la révolution: Pierre-Philippe Candy', in Lucien Faggion, Anne Mailloux, Laure Verdon, ed., *Le notaire entre métier et espace public en Europe, VIII^e-XVIII^e siècle* (Aix-en-Provence: Presses de l'Université de Provence, 2008), pp.139-152.

Foiret, Faustin, *Une corporation parisienne pendant la Révolution - Les notaires* (Paris: Librairie Ancienne Honoré Champion, 1912).

Fontaine, Laurence, 'The circulation of luxury goods in eighteenth-century Paris: social redistribution and an alternative currency', in Maxine Berg, Elizabeth Eger, ed., *Luxury in the eighteenth century - Debates, desires and delectable goods* (Houndmills/New York: Palgrave Macmillan, 2003), pp.89-102.

Fontana, Eszter; Hellwig, Friedemann; Martius, Klaus, *Historische Lacke und Beize auf Musikinstrumenten in deutschsprachigen Quellen bis 1900* (Nuremberg: Verlag des Germanischen Nationalmuseums, 1999).

Fritz, Claudia; Dubois, Danièle, 'Perceptual evaluation of musical instruments: state of the art and methodology', *Acta Acustica united with Acustica*, vol. 101 (2015), pp.369-381.

Gaivenis, Vytautas, *From the scribe to the notary* (Vilnius: R. Paknio leidykla, 2007).

Gehlen, Antoon Florentijn, 'Le notariat aux Pays-Bas: perspective historique', in Elisabeth M. van der Marck et al., ed., *Ars Notariatus*, vol. 42 - *Atlas du notariat / Atlas van het notariaat* (Deventer: Kluwer, 1989), pp.127-142.

Bibliography

Gehlen, Antoon Florentijn, 'Het notariaat der Lage Landen in historisch perspectief', in Elisabeth M. van der Marck et al., ed., *Ars Notariatus*, vol. 42 - Atlas du notariat / Atlas van het notariaat (Deventer: Kluwer, 1989), pp.477-492.

Gerber, Matthew, 'Illegitimacy, natural law, and legal culture on the eve of the French Revolution', *Proceedings of the Western Society for French History*, vol. 33 (2005), pp.240-257.

Girard, Isabelle, *Minutier des notaires 1462-1899 - Présentation de la sous-série 3 E* (Tours: Archives départementales d'Indre-et-Loire, 2011). Available from: <http://archives.cg37.fr/UploadFile/GED/3E/1301384097.pdf> (accessed January 2020).

Godding, Philippe, *Le droit privé dans les Pays-Bas méridionaux du 12^e au 18^e siècle* (Brussels: Académie Royale de Belgique, 1987).

Godecharle, Eugène, *Six quatuor pour deux violons alto et violoncelle, opus 6* (Paris: Cornouaille / Brussels: Van Ypen/Mechtler, c1775).

Gosden, Chris; Marshall, Yvonne, 'The cultural biography of objects', *World Archaeology*, vol. 31, no. 2 (1999), pp.169-178.

Gosden, Chris, 'What do objects want?', *Journal of Archaeological Method and Theory*, vol. 12, no. 3 (2005), pp.193-211.

Graf, Lanie, 'John Frederick Hintz, eighteenth-century Moravian instrument maker, and the use of the cittern in Moravian worship', *Journal of Moravian History*, no. 5 (2008), pp.7-39.

Haag, Volker; Kirsch, Sebastian; Koch, Gerald; Zemke, Valentina; Richter, Hans-Georg; Kaschuro, Sergej, 'Non-destructive investigation of historical instruments based on 3D-reflected-light microscopy and high-resolution μ -X-ray CT', in Marco A. Pérez, Emanuele Marconi, ed., *Wooden musical instruments - Different forms of knowledge - Book of end of WoodMusICK COST Action FP1302* (Paris: COST/Cité de la musique - Philharmonie de Paris, 2018), pp.143-156.

Haine, Malou, *Les facteurs d'instruments de musique à Paris au 19^e siècle - Des artisans face à l'industrialisation* (Brussels: Editions de l'Université de Bruxelles, 1985).

Haine, Malou; Meeùs, Nicolas, ed., *Instruments de musique anciens à Bruxelles et en Wallonie - 17^e-20^e siècles* (Liège/Brussels: Mardaga, 1985).

Haine, Malou; Meeùs, Nicolas, ed., *Dictionnaire des facteurs d'instruments de musique en Wallonie et à Bruxelles du 9^e siècle à nos jours* (Liège/Brussels: Mardaga, 1986).

Hamilton, Nigal, 'Biography as corrective', in Hans Renders, Binne de Haan, Jonne Harmsma, ed., *The biographical turn - Lives in history* (London/New York: Routledge, 2017), pp.15-30.

Bibliography

Handlin, Oscar, *Truth in history* (Cambridge, Massachusetts: Harvard University Press, 1979).

Harding, Anthony, 'Introduction: biographies of things', *Distant Worlds Journal*, no. 1 (2016), pp.5-10.

Hargrave, Roger Graham, 'The working methods of Guarneri del Gesù and their influence upon his stylistic development - The mould and the rib structure', pp.9-18. Available from: https://www.roger-hargrave.de/PDF/Book/Chap_02_The_Mould_PRN.pdf (accessed January 2020).

Hargrave, Roger, 'Seeking Mrs Guarneri', pp.95-101. Available from: https://www.roger-hargrave.de/PDF/Artikel/Strad/Artikel_2000_09_Seeking_MRS_Guarneri_PDF.pdf (accessed May 2020).

Hargrave, Roger, 'A violin by Jacobus Stainer 1679', pp.146-158. Available from: https://www.roger-hargrave.de/PDF/Artikel/Strad/Artikel_1987_09_Jacobus_Stainer_1697_PDF.pdf (accessed May 2020).

Hartmann, William M., *Principles of musical acoustics* (New York: Springer, 2013).

Haskell, Harry, 'Early music', in Deane Root et al., ed., *Grove Music Online* (2001). Available from: <https://doi.org/10.1093/gmo/9781561592630.article.46003> (accessed May 2020).

Hécart, Gabriel Antoine Joseph, *Dictionnaire rouchi-français* (Valenciennes: Lemaitre, 1834).

Hellwig, Günther, Joachim Tielke - Ein Hamburger Lauten- und Violenmacher der Barockzeit (Frankfurt am Main: Verlag das Musikinstrument, 1980).

Hellwig, Friedemann; Hellwig, Barbara, Joachim Tielke - Kunstvolle Musikinstrumente des Barock (Berlin/Munich: Deutscher Kunstverlag, 2011).

Hemmy, Christine; Bruguière, Philippe; Echard, Jean-Philippe, 'New insights into the life and instruments of Gérard Joseph Deleplanque, maker in eighteenth-century Lille', *The Galpin Society Journal*, vol. 71 (2018), pp.5-34.

Henley, William, *Universal dictionary of violin and bow makers*, vol. 1 (Brighton: Amati Publishing, 1959).

Henne, Alexandre; Wauters, Alphonse, *Histoire de la ville de Bruxelles*, vol. 4 (Brussels: Editions Culture et Civilisation, 1975).

Herment, Raymond, *Sous la poussière des panonceaux* (Nice: Marcel Ciaï éditeur, 1955).

Heyde, Herbert, 'Methods of organology and proportions in brass wind instrument making', *Historic Brass Society Journal*, vol. 13 (2001), pp.1-51.

Bibliography

Heyde, Herbert, 'Entrepreneurship in pre-industrial instrument making', in Boje E. Hans Schmuhl, Monika Lustig, ed., *Musikalische Aufführungspraxis in nationalen Dialogen des 16. Jahrhunderts - Teil 2: Musikinstrumentenbau-Zentren im 16. Jahrhundert* (Michaelsteiner Konferenzberichte, vol. 72, no. 2) (Augsburg: Michaelstein, 2007), pp.25-63.

Hill, W. Henry; Hill, Arthur F.; Hill, Alfred E., *Antonio Stradivari - His life and work (1644-1737)* (New York: Dover Publications Inc., 1963).

Hopfner, Rudolf, ed., *Jacob Stainer - "... kayserlicher diener und geigenmacher zu Absom"* (Milan: Skira Editore, 2003).

Hopfner, Rudolf, 'Hi-res revelations', *The Strad*, vol. 129, no. 1533 (2018), pp.54-59.

Jackson, Ronald, *Performance practice - A dictionary-guide for musicians* (New York: Routledge, 2005).

Johnson, Chris; Courtnall, Roy, *The art of violin making* (London: Robert Hale, 2003).

Jungblut, Daniel; Karl, Stephan; Mara, Hubert; Krömker, Susanne; Wittum, Gabriel, 'Automated GPU-based surface morphology reconstruction of volume data for archaeology', in Hans Georg Bock, Willi Jäger, Michael J. Winckler, ed., *Scientific computing and cultural heritage - Contributions in computational humanities* (Berlin/Heidelberg: Springer, 2013), pp.41-50.

Kaplan, Steven Laurence, *The bakers of Paris and the bread question 1700-1775* (Durban/London: Duke University Press, 1996).

Kass, Philip J., 'Eye, eye', *The Strad*, vol. 113, no. 1350 (2002), pp.1100-1101.

Kass, Philip, 'A few gentlemen of Genoa', *The Strad*, vol. 120, no. 1432 (2009), pp.46-47.

Kirsch, Sebastian; Schellmann, Nanke C.; Huber, Alfons; Baatz, Wolfgang, *(Re)constructed harmony - The replication of a Renaissance viol aided by historical sources* (2014). Available from:

https://www.researchgate.net/publication/322131730_ReConstructed_Harmony_-_The_replication_of_a_Renaissance_viol_aided_by_historical_sources (accessed May 2020).

Klein, Christian, 'Biography as a concept of thought', in Hans Renders, Binne de Haan, Jonne Harmsma, ed., *The biographical turn - Lives in history* (London/New York: Routledge, 2017), pp.79-87.

Kolneder, Walter, *The Amadeus book of the violin*, Reinhard G. Pauly, ed. and trans. (Cambridge: Amadeus Press, 2003).

Bibliography

Kopytoff, Igor, 'The cultural biography of things: commoditization as process', in Arjun Appadurai, ed., *The social life of things - Commodities in cultural perspective* (Cambridge: Cambridge University Press, 1986), pp.64-91.

Korn, Peter, *Why we make things and why it matters - The education of a craftsman* (London: Vintage, 2017).

Koster, John, 'The 'exact copy' as a legitimate goal', *CIMCIM Publications*, no. 3 (1994), pp.7-13.

Labrousse, Camille Ernest, *Esquisse du mouvement des prix et des revenus en France au XVIII^e siècle* (Paris: Librairie Dalloz, 1933).

Lacroix, Karen; Egerton, Chris, *The Berkswell 'cello - Three perspectives on conservation* (DVD) (London: Royal College of Arts, 2008).

Laird, Paul, *The Baroque cello revival - An oral history* (Lanham/Toronto/Oxford: The Scarecrow Press, 2004).

Landes, David S., 'The statistical study of French crises', *The Journal of Economic History*, vol. 10, no. 2 (1950), pp.195-211.

Laskowska, Agnieszka; Kozakiewicz, Paweł; Zbieć, Marcin; Zatoń, Patrycja; Oleńska, Sylwia; Beer, Piotr, 'Surface characteristics of Scots pine veneers produced with a peeling process in industrial conditions', *BioResources*, vol. 13, no. 4 (2018), pp.8342-8357.

Le Roy, Julien David, *Les ruines des plus beaux monuments de la Grèce* (Paris: Guerin & Delatour, 1758).

Lebeau, Isidore, *Précis de l'histoire d'Avesnes* (Avesnes: Viroux, 1836).

Lentz, Caroline, 'Le passage à l'âge adulte - L'émancipation en Roussillon au XVIII^e s. - Typologie des actes d'émancipation en Roussillon au XVIII^e siècle', in Gilbert Larguier, ed., *Mineurs, minorité - Jeunes, jeunesse en Roussillon et en Languedoc, XVI^e-XVIII^e siècle* (Perpignan: Presses universitaires de Perpignan, 2010), pp.75-96.

Libin, Laurence, 'Progress, adaptation and the evolution of musical instruments', *Journal of the American Musical Instrument Society*, vol. 26 (2000), pp.187-213. Online version, available from: <https://search.proquest.com/docview/207668007> (accessed January 2018).

Libin, Laurence, 'Ethics, evidence, and authentication', in Tom Wilder, ed., *The conservation, restoration, and repair of stringed instruments and their bows*, vol. 1 (Montreal: IPCI-Canada, 2010), pp.236-243.

Libin, Laurence; Wood, Jessica, 'Historical instruments', in Deane Root et al., ed., *Grove Music Online* (2013). Available from: <https://doi.org/10.1093/gmo/9781561592630.article.A2241722> (accessed May 2020).

Bibliography

Lindeman, Fred; Stam, Serge, 'Well-known Dutch violin makers', in Jaap Bolink et al., ed., 400 jaar vioolbouwkunst in Nederland (Amsterdam: NGV/Papyrus, 1999), pp.169-225.

Lindeman, Fred, *The rebirth of the Baroque violin* (Amsterdam: Gopher, 2011).

Linsenmeyer, Christina, *Competing with Cremona: violin making innovation and tradition in Paris (1802-1851)* (PhD diss., Washington University in St. Louis, 2011). Available from: <https://openscholarship.wustl.edu/etd/204/> (accessed June 2020).

Linsenmeyer, Christina, 'Sibire's aesthetic sensibility: Stradivarius, the Classical ideal and a new noble purpose', in Marco A. Pérez, Emanuele Marconi, ed., *Wooden musical instruments - Different forms of knowledge - Book of end of WoodMusICK COST Action FP1302* (Paris: COST/Cité de la musique - Philharmonie de Paris, 2018), pp.227-247.

Loen, Jeffrey S., Technical notes for 'Fingerprints under the varnish: comparing thickness graduations of the "Messiah" violin to Golden Age Strads'. Available from: <https://www.catgutacoustical.org/journal/nov02.htm> (accessed May 2020).

Loriga, Sabina, 'The plurality of the past - Historical time and the rediscovery of biography', in Hans Renders, Binne de Haan, Jonne Harmsma, ed., *The biographical turn - Lives in history* (London/New York: Routledge, 2017), pp.31-41.

Magnússon, Sigurður Gylfi, 'The life is never over - Biography as a microhistorical approach', in Hans Renders, Binne de Haan, Jonne Harmsma, ed., *The biographical turn - Lives in history* (London/New York: Routledge, 2017), pp.42-52.

Mahillon, Victor-Charles, *Catalogue descriptif et analytique du musée instrumental (historique et technique) du conservatoire royal de musique de Bruxelles*, vol. 3 (Ghent: Ad. Hoste, 1900).

Mahillon, Victor-Charles, *Catalogue descriptif et analytique du musée instrumental (historique et technique) du Conservatoire royal de musique de Bruxelles*, vol. 4 (Ghent: Ad. Hoste, 1912).

Making and Knowing Project, The, <https://www.makingandknowing.org/about-the-project/> (accessed May 2020).

Marchi, Giovanni Antonio, *Il manoscritto liutario di G.A. Marchi*, Roberto Regazzi, ed., Nicoletta Sbarra, trans., John Guthrie, rev. (Bologna: Forni, 1786/1986).

Martius, Klaus, 'Die Sammlung von Geigenbestandteilen des Wiener Musikers Karl Schreinzer - und die Umstände, warum diese heute nicht mehr geschlossen in Wien aufbewahrt wird', in Beatrix Darmstädter, Rudolf Hopfner, Alfons Huber, ed., *Die Sammlung alter Musikinstrumente - Die ersten 100 Jahre* (Vienna: Praesens Verlag, 2018), pp.145-160.

McLennan, John, *The violin - Music acoustics from Baroque to Romantic* (PhD diss., University of New South Wales, 2008).

Bibliography

McManners, John, *Oxford history of the Christian church - Church and society in eighteenth-century France*, vol. 2: *The Religion of the people and the politics of religion* (Oxford: Oxford University Press, 1998).

Meeùs, Nicolas, 'PALATE, Georges', in Malou Haine, Nicolas Meeùs, ed., *Dictionnaire des facteurs d'instruments de musique en Wallonie et à Bruxelles du 9^e siècle à nos jours* (Liège/Brussels: Mardaga, 1986), p.319.

Meeùs, Nicolas, 'SIMONET, Etienne', in Malou Haine, Nicolas Meeùs, ed., *Dictionnaire des facteurs d'instruments de musique en Wallonie et à Bruxelles du 9^e siècle à nos jours* (Liège/Brussels: Mardaga, 1986), p.380.

Mehauden, Albert; Vanwelkenhuyzen, Michel, *La ville de Bruxelles - Ses habitants, leurs métiers et leurs adresses vers 1767*, 2nd edition (Brussels: Archives de la ville de Bruxelles, 2008).

Meister, Daniel R., 'The biographical turn and the case for historical biography', *History Compass* (2017), e12436. Available from: <https://doi.org/10.1111/hic3.12436> (accessed January 2020), pp.1-10.

Milliot, Sylvette, *Histoire de la lutherie parisienne du XVIII^e siècle à 1960*, vol. 2: *Les luthiers du XVIII^e siècle* (Spa: Les Amis de la Musique, 1997).

Milnes, John; Baker, Tim; Dilworth, John; Fairfax, Andrew, *The British violin - The catalogue of the 1998 exhibition '400 years of violin & bow making in the British Isles'* (Oxford: British Violin Making Association, 2000).

Möckel, Otto, *Geigenbaukunst* (Hamburg: Nikol, 1997).

Moens, Karel, 'Vioolbouw in de Oostenrijkse Nederlanden', *Arca Lovaniensis*, vol. 10/b, *Jaarboek 1981* (Leuven: Depret, 1983), pp.135-156.

Moens, Karel, 'De viool in de 16de en 17de eeuw - Oorsprong en ontwikkeling van haar vorm- en bouwkenmerken - Deel I', *Musica Antiqua*, vol. 2, no. 1 (1985), pp.24-26.

Moens, Karel, 'De viool in de 16de en 17de eeuw - Oorsprong en ontwikkeling van haar vorm- en bouwkenmerken - Deel III: Reminiscenties aan de speelmannen-instrumentenbouw in de 17de-eeuwse vioolbouw', *Musica Antiqua*, vol. 2, no. 3 (1985), pp.85-90.

Moens, Karel, 'De vroege viool in Brussel', *Musica Antiqua*, vol. 11, no. 2 (1994), pp.53-59.

Moens, Lutgart, *De familie Snoeck, vioolbouwers aan het hof te Brussel in de 18^{de} eeuw* (unpublished licentiate thesis, University of Leuven, 1976).

Möller, Max, *The violin-makers of the Low Countries* (Amsterdam: Max Möller N.V., 1955).

Bibliography

Monical, William L., *Shapes of the Baroque - The historical development of bowed string instruments* (New York: Lincoln Center, 1989).

Montagu, Jeremy, *The world of Baroque & Classical musical instruments* (Newton Abbot/London: David & Charles, 1979).

Montagu, Jeremy, 'Can you reproduce an instrument?' (2019), pp.1-5. Available from: <http://www.jeremymontagu.co.uk/CanYouReproduceAnInstrument.pdf> (accessed March 2020).

Moreau, Alain, *Les métamorphoses du scribe - Histoire du notariat français* (Perpignan: Socapress, 1989).

Moreau, Alain, 'Le notariat français', in Elisabeth M. van der Marck et al., ed., *Ars Notariatus*, vol. 42 - Atlas du notariat / Atlas van het notariaat (Deventer: Kluwer, 1989), pp.109-114.

Mossay, Jean, *Histoire de la ville d'Avesnes* (Avesnes-sur-Helpe: Éditions de l'Observateur, 1969).

Mozart, Leopold, *Versuch einer gründlichen Violinschule* (Augsburg: author, 1756).

Nasaw, David, 'Historians and biography - Introduction', *American Historical Review*, vol. 114, no. 3 (2009), pp.573-578.

Neece, Brenda, 'The cello in Britain: a technical and social history', *The Galpin Society Journal*, vol. 56 (2003), pp.77-115, 199-214.

Neumann, George, 'The Redcoats' Brown Bess', *American Rifleman*, vol. 149, no. 4 (2001), pp.48-52.

Neumann, J.; Dettwiller, J., 'Great historical events that were significantly affected by the weather - Part 9, the year leading to the Revolution of 1789 in France (II)', *Bulletin American Meteorological Society*, vol. 71, no. 1 (1990), pp.33-41.

Nève, Paul L.; Verbeek, J. J, ed., *Forma servata - Vijf opstellen over formulieren en formulierboeken in het notariaat van de Middeleeuwen tot vandaag*, *Ars Notariatus*, vol. 85 (Deventer: Kluwer, 1998).

Newman, Richard, 'Tempera and other nondrying-oil media', in Valerie Dorge, F. Carey Howlett, ed., *Painted wood: history and conservation* (Los Angeles: The Getty Conservation Institute, 1998), pp.33-63.

Opsomer, Geert, 'Ja, maar niet zo!' (2012). Available from: <https://www.apache.be/2012/06/04/ja-maar-niet-zo/> (accessed March 2020).

OsiriX quick manual, version 0.3 (Bernex: Pixmeo Sàrl, undated).

Bibliography

Otterstedt, Annette; Reiners, Hans, 'What old fiddles can teach us...', *The Galpin Society Journal*, vol. 52 (1999), pp.219-242.

Padding, Koen, 'The use of ultraviolet light sources in lutherie', in Helen Michetschläger, ed., *Violin varnish* (Sale: Doratura Publications, 2015), pp.90-99.

Peruffo, Mimmo, 'Italian violin strings in the eighteenth and nineteenth centuries: typologies, manufacturing techniques and principles of stringing', *Recercare*, vol. 9 (1997), pp.155-203.

Piérart, G.; Peter, J., 'Notes et Documents sur le chapitre Saint-Nicolas d'Avesnes, XVI^e-XVIII^e siècles', *Mémoires de la Société archéologique & historique de l'arrondissement d'Avesnes (Nord)*, vol. 13 (Avesnes-sur-Helpe: Editions de l'Observateur, 1930), pp.50-61.

Pilipczuk, Alexander; Boerner, Carlos O., 'Joachim Tielke: instrument-maker and merchant of Hamburg - Recent findings about his education and professional life', *The Galpin Society Journal*, vol. 61 (2008), pp.129-146.

Pitlo, Adriaan, *De zeventiende en achttiende eeuwse notarisboeken en wat zij ons omtrent ons oude notariaat leeren* (Haarlem: H.D. Tjeenk Willink & Zoon, 1948).

Poisson, Jean-Paul, *Notaires et société - Travaux d'histoire et de sociologie notariales* (Paris: Economica, 1985).

Polain, M. L., *Recueil des ordonnances de la principauté de Liège - Troisième série - 1684-1794*, vol. 2 (Brussels: Devroye, 1860).

Pollens, Stewart, 'Some misconceptions about the Baroque violin', *Performance Practice Review*, vol. 14, no. 1 (2009), pp.1-13.

Pollens, Stewart, *Stradivari* (Cambridge: Cambridge University Press, 2010).

Poncelet, Edouard, 'Les bons métiers de la cité de Liège', *Bulletin de l'Institut archéologique liégeois*, vol. 28 (1899), pp.1-219.

Pontault de Beaulieu, Sébastien, *Les plans et profils des principales villes et lieux considérables du comté de Hainaut* (Paris: Le chevalier de Beaulieu, c1668). Available from: <http://biblio.umons.ac.be/public/bv/IMP130011/> (accessed November 2018).

Port, Celestin, *Les Souvenirs d'un nonagénaire - Mémoires de François-Yves Besnard*, vol. 1 (Angers: Lachèse et Dolbeau / LeMans: Pellechat, 1880).

Poulopoulos, Panagiotis, *The guittar in the British Isles, 1750-1810* (PhD diss., University of Edinburgh, 2011).

Poulopoulos, Panagiotis; Durkin, Rachel, "'A very mistaken identification": the "sultana" or "cither viol" and its links to the bowed psaltery, viola d'amore and guittar', *Early Music*, vol. 44, no. 2 (2016), pp.307-331.

Bibliography

Poulopoulos, Panagiotis, “‘A guittar to be played with a bow, as well as with the fingers’”: reconsidering a puzzling hybrid by Frederick Hintz’, *Journal of the American Musical Instrument Society*, vol. 44 (2018), pp.88-122.

Project Boussu, Brussels trio sonatas (CD-recording plus booklet), KTC 1679 (Lummen: Etcetera Records, 2020).

Quantz, Johann Joachim, *Versuch einer Anweisung die Flöte traversiere zu spielen* (Breslau: Voß, 1780).

Quitin, José, ‘La musique dans les églises urbaines’, in Robert Wangermée, Philippe Mercier, ed., *La musique en Wallonie et à Bruxelles*, vol. 1 (Brussels: La renaissance du livre, 1980), pp.219-228.

Raspé, Paul, ‘La lutherie’, in Robert Wangermée, Philippe Mercier, ed., *La musique en Wallonie et à Bruxelles*, vol. 1 (Brussels: La renaissance du livre, 1980), pp.275-284.

Raspé, Paul, ‘BOUSSU, Benoît-Joseph’, in Malou Haine, Nicolas Meeùs, ed., *Dictionnaire des facteurs d’instruments de musique en Wallonie et à Bruxelles du 9^e siècle à nos jours* (Liège/Brussels: Mardaga, 1986), p.64.

Raspé, Paul, ‘DE LANNOY (de Lannoy)’, in Malou Haine, Nicolas Meeùs, ed., *Dictionnaire des facteurs d’instruments de musique en Wallone et à Bruxelles du 9^e siècle à nos jours* (Liège/Brussels: Mardaga, 1986), pp.114-115.

Ray, John; Manjón, Antonio; Garcia, Aaron, ‘Adopting a policy of faithful copies of historically important musical instruments as an alternative to restoration’, in Marco A. Pérez, Emanuele Marconi, ed., *Wooden musical instruments - Different forms of knowledge - Book of end of WoodMusICK COST Action FP1302* (Paris: COST/Cité de la musique - Philharmonie de Paris, 2018), pp.53-66.

Re, Alessandro; Albertin, Fauzia; Avataneo, Chiara; Brancaccio, Rosa; Corsi, Jacopo; Cotto, Giorgio; De Blasi, Stefania; Dughera, Giovanni; Durisi, Elisabetta; Ferrarese, Walter; Giovagnoli, Annamaria; Grassi, Novella; Lo Giudice, Alessandro; Mereu, Paolo; Mila, Giorgia; Nervo, Marco; Pastrone, Nadia; Prino, Francesco; Ramello, Luciano; Ravera, Massimo; Ricci, Chiara; Romero, Alessandra; Sacchi, Roberto; Staiano, Amedeo; Visca, Lorenzo; Zamprota, Lorenzo, ‘X-ray tomography of large wooden artworks: the case study of “Doppio corpo” by Pietro Piffetti’, *Heritage Science*, vol. 2, no. 19 (2014), pp.1-9.

Renders, Hans, ‘The biographical method’, in Hans Renders, Binne de Haan, ed., *Theoretical discussions of biography - Approaches from history, microhistory and life writing* (Leiden: Brill, 2014), pp.222-226.

Renders, Hans, ‘Why genealogy and biography are not kin’, in Hans Renders, Binne de Haan, ed., *Theoretical discussions of biography - Approaches from history, microhistory and life writing* (Leiden: Brill, 2014), pp.227-231.

Bibliography

Renders, Hans; De Haan, Binne, 'The challenge of biography studies', in Hans Renders, Binne de Haan, ed., *Theoretical discussions of biography - Approaches from history, microhistory and life writing* (Leiden: Brill, 2014), pp.1-10.

Renders, Hans; De Haan, Binne; Harmsma, Jonne, 'The biographical turn', in Hans Renders, Binne de Haan, Jonne Harmsma, ed., *The biographical turn - Lives in history* (London/New York: Routledge, 2017), pp.3-11.

Ricard, Jean Marie, *Traité des donations entre-vifs et testamentaires* (Paris: Guignard, 1669).

Roberts, Brian, *Biographical research* (Buckingham/Philadelphia: Open University Press, 2002).

Robinson, Franklin A., *Guide to the Jacques Français Rare Violins, Inc. photographic archive and business records* (Washington: Smithsonian, 2006).

Rogge, Corina E.; Lough, Krista, 'Fluorescence fails: analysis of UVA-induced visible fluorescence and false-color reflected UVA images of tintype varnishes do not discriminate between varnish materials', *Journal of the American Institute for Conservation*, vol. 55, no. 2 (2016), pp.138-147.

Rudé, George E., 'Prices, wages and popular movements in Paris during the French Revolution', *The Economic History Review - New series*, vol. 6, no. 3 (1954), pp.246-267.

Ruth, Benjamin, 'New light on old ways', *The Strad*, vol. 113, no. 1345 (2002), pp.530-537.

Sabot, Thierry, *La valeur des biens, niveau de vie et de fortune de nos ancêtres* (Saint-Germain-Lespinnasse: Thisa, 2012).

Sacconi, Simone F., *The "secrets" of Stradivari* (Cremona: Eric Blot Edizioni, 2000).

Sadie, Julie Anne, 'Biographical dictionary - The Low Countries', in Julie Anne Sadie, ed., *Companion to Baroque music* (Berkeley/Los Angeles: University of California Press, 1998), pp.319-325.

Santa Maria Bouquet, Jonathan, *Reconstructing a lute by Sixtus Rauwolf* (PhD diss., University of Edinburgh, 2017).

Schamberger, Karen; Sear, Martha; Wehner, Kirsten; Wilson, Jennifer; Australian Journeys Gallery Development Team; National Museum of Australia, 'Living in a material world: object biography and transnational lives', in Desley Deacon, Penny Russell, Angela Woollacott, ed., *Transnational ties - Australian lives in the world* (Canberra: ANU Press, 2008), pp. 275-298.

Scherzi Musicali, Joseph-Hector Fiocco - *Petits motets* (CD-recording plus booklet), MEW 1054 (Liège: Musique en Wallonie, 2010).

Bibliography

Sée, Henri, *La France économique et sociale au XVIII^e siècle* (Paris: Librairie Armand Colin, 1946), p.138. Digitised version by Jean-Marc Simonet from 2010, based on printed third edition. Available from:

http://classiques.uqac.ca/classiques/see_henri/france_eco_soc_au_XVIIIe/france_eco_soc_au_XVIIIe.html (accessed January 2020).

Sée, Henri, *Economic and social conditions in France during the eighteenth century* (New York: Cooper Square Publishers, 1968).

Segerman, Ephraim, 'A short history of the cittern', *The Galpin Society Journal*, vol. 52 (1999), pp.77-107.

Sennett, Richard, *The craftsman* (New Haven: Yale University Press, 2008).

Sepp, Jan Christiaan; Houttuyn, Martinus, *Houtkunde, behelzende de afbeeldingen van de meest alle bekende, in- en uitlandsche houten* (Amsterdam: Sepp, 1791).

Sergier, Matthieu, 'En scène! - De biografie als zichtbaar verlies', *Nederlandse letterkunde*, vol. 22, no. 3 (2017), pp.187-206.

Servais, Paul, 'De gevestigde rente', in Claude Bruneel et al., ed., *Het notariaat in België - Van Middeleeuwen tot heden* (Brussels: Gemeentekrediet, 1998), pp.138-139.

Sherman, Bernard D., 'Authenticity in music' in M. Kelly, ed., *Encyclopedia of Aesthetics*, vol. 1 (Oxford: Oxford University Press, 1998), p.167.

Shrader, Erin, 'An insider's guide to violin labels', *Strings* (2006). Available from: <https://stringsmagazine.com/an-insiders-guide-to-violin-labels/> (accessed May 2020).

Sibire, Sébastien André, *La chélonomie, ou le parfait luthier* (Paris: author, 1806).

Sinier, Daniel; De Ridder, Françoise, 'Restauration d'une vielle à roue de Nicolas Pierre Tourte dit "Tourte père"'. Available from: <http://www.sinier-de-ridder.com/restaurations/tourte.html> (accessed May 2020).

Sirr, Steven; Waddle, John, 'CT analysis of bowed stringed instruments', *Radiology*, vol. 203, no. 3 (1997), pp.801-805.

Skeaping, Kenneth, 'The Karl Schreinzer collection of violin fittings', in Unity Sherrington, Guy Oldham, ed., *Music, libraries and instruments* (London/New York: Hinrichsen, 1961), pp.251-253.

Skinner Inc. auctioneers, *Fine musical instruments, catalogue for an auction on 9 May 1999 in Boston, United States of America* (Boston: Skinner Inc., 1999).

Smith, Louis M., 'Biographical method', in Norman K. Denzin, Yvonna S. Lincoln, ed., *Handbook of qualitative research* (Thousand Oaks: Sage Publications, 1994), pp.286-305.

Bibliography

Smithers, W.W., 'History of the French Notarial System', *University of Pennsylvania Law Review*, vol. 60, no.19 (1911), pp.19-38.

Snoeck, César Charles, *Catalogue de la collection d'instruments de musique flamands et néerlandais formée par C. C. Snoeck* (Ghent: Vanderpoorten, 1903).

Spencer, Robert; Harwood, Ian, 'English guitar', in Deane Root et al., ed., *Grove Music Online* (2001). Available from: <https://doi.org/10.1093/gmo/9781561592630.article.08823> (accessed May 2020).

Stainer, Cecie, *A dictionary of violin makers* (London: Novello, 1896).

Stoel, Berend C.; Borman, Terry M., 'A comparison of wood density between classical Cremonese and modern violins', *PLOS ONE*, vol. 3, issue 7 (2008), pp.1-7.

Stoel, Berend C.; Borman, Terry M.; De Jongh, Ronald, 'Wood densitometry in 17th and 18th century Dutch, German, Austrian and French violins, compared to classical Cremonese and modern violins', *PLOS ONE*, vol. 7, issue 10 (2012), pp.1-9.

Stoppani, George; Gough, Colin, 'The acoustics and historic development of string instruments', in Marco A. Pérez, Emanuele Marconi, ed., *Wooden musical instruments - Different forms of knowledge - Book of end of WoodMusICK COST Action FP1302* (Paris: COST/Cité de la Musique - Philharmonie de Paris, 2018), pp.249-268.

Strobel, Henry A., *Cello making - Step by step* (Aumsville: H. A. Strobel Publisher, 1995).

Strouken, Ceciel, *Mein Cello erzählt* (CD-recording plus booklet), boz 14001 (Binzen: Bozarte/Toca Records, 2006).

Surmiński, Janusz, 'Wood properties and uses', in Mark G. Tjoelker, Adam Boratyński, Władysław Bugała, ed., *Biology and ecology of Norway spruce* (Dordrecht: Springer, 2007), pp.333-342.

Sworders Fine Art Auctioneers, *The winter country house sale, catalogue for an auction on 8 December 2015 in Stansted Mountfitchet, United Kingdom* (Stansted Mountfitchet: Sworders Fine Art Auctioneers, 2015).

Tajan auctioneers, *Instruments et archets du quatuor, catalogue for an auction on 24 May 2013 in Paris, France* (Paris: Tajan, 2013).

Taruskin, Richard, *Text & act - Essays on music and performance* (New York/Oxford: Oxford University Press, 1995).

Tingry, Pierre François, *Traité théorique et pratique sur l'art de faire et d'appliquer les vernis*, vol. 1 (Genève: Manget, 1803).

Bibliography

Turner, Gerard L'E., 'An inquiry into the imitation of scientific instruments', in Peter R. De Clercq, ed., *Scientific instruments: originals and imitations - The Mensing connection* (Proceedings of a symposium, held at the Museum Boerhaave, Leiden, 15-16 October 1999) (Leiden: Museum Boerhaave, 2000), pp.49-60.

Van Aelbrouck, Jean-Philippe, 'Annonces concernant la musique dans les gazettes et périodiques bruxellois au XVIII^e siècle (1741-1780)', *Tradition wallonne*, vol. 4 (Brussels: Ministère de la communauté française de Belgique, 1987), pp.761-799.

Van Amersfoort, Jelma, 'Miss Sara Burgerhart's English guittar: the "guitarre Angloise" in Enlightenment Holland', *Tijdschrift van de koninklijke vereniging voor Nederlandse muziekgeschiedenis*, vol. 64 (2014), pp.76-102.

Van den Bulcke, Jan; Van Loo, Denis; Dierick, Manuel; Masschaele, Bert; Van Hoorebeke, Luc; Van Acker, Joris, 'Nondestructive research on wooden musical instruments: From macro- to microscale imaging with labbased X-ray CT systems', *Journal of Cultural Heritage*, vol. 27, Supplement (October 2017), pp.S78-S87.

Van der Zwan, R.P.; Van Oosten, A.L., *Hout herkennen* (Deventer/Antwerpen: Kluwer Technische Boeken, 1996).

Van Drie, Rob; Plomp, Nico; Van der Tang, Aad, *Genealogie - Van stamboom tot familiegeschiedenis* (Utrecht: Teleac / Den Haag: Centraal Bureau voor Genealogie, 1988).

Van Maldere, Pieter, *VI. sonatas for two violins with a thorough bass for the harpsicord, or violoncello* (Dublin: author, c1752).

Van Opbroecke, Roland, *Brusselse kant & kunst*, vol. 1 (Brussels: BRT, 1982).

Van Rompaey, Willy, P. Van Maldere - *Thematische catalogus van de instrumentale werken* (Aartselaar: author, 1990).

Vandermotten, Christian, 'Het stedelijk weefsel in de tweede helft van de 19e eeuw', in Claire Billen, Jean-Marie Duvosquel, ed., *Steden in Europa - Brussel* (Antwerp: Mercatorfonds, 2000), pp.156-157.

Vannes, René, *Dictionnaire universel des luthiers* (Paris: Fischbacher, 1932).

Vannes, René, *Dictionnaire universel des luthiers* (Brussels: Les Amis de la Musique, 1979).

Vanscheeuwijck, Marc, 'The Baroque cello and its performance', *Performance Practice Review*, vol. 9, no. 1 (1996), pp.79-96.

Vanscheeuwijck, Marc, *Cello stories - The cello in 17th & 18th centuries* (CD booklet), ALPHA 890 (Paris: Alpha Classics, 2016).

Verberkmoes, Geerten, 'Benoit Joseph Boussu (1703-1773): violin maker and notary', *The Galpin Society Journal*, vol. 66 (2013), pp.117-138, 262-264.

Bibliography

Verberkmoes, Geerten; Ceulemans, Anne-Emmanuelle; Balériaux, Danielle; Stoel, Berend, 'An inside look at four historical violins by Brussels makers', *The Galpin Society Journal*, vol. 69 (2016), pp.109-136, 159-165.

Verberkmoes, Geerten, 'Made in Amsterdam: a 1771 cittern by Benoit Joseph Boussu', *Early Music*, vol. 44, no. 4 (2016), pp.627-641.

Verberkmoes, Geerten, 'Study on the life, instruments and construction methods of the eighteenth century violin maker Benoit Joseph Boussu - A presentation of the project', in Marco A. Pérez, Sandie Le Conte, ed., *Making wooden musical instruments - An integration of different forms of knowledge (Proceedings of the 3rd annual conference COST FP1302 WoodMusICK)* (Barcelona: FPS COST WoodMusICK, 2016), pp.133-138.

Verberkmoes, Geerten, 'Instrument (re-)construction as a catalyst for organological research', in Marco A. Pérez, Emanuele Marconi, ed., *Wooden musical instruments - Different forms of knowledge - Book of end of WoodMusICK COST Action FP1302* (Paris: COST/Cité de la musique - Philharmonie de Paris, 2018), pp.9-33.

Verberkmoes, Geerten, 'Hybrid habits', *The Strad*, vol. 130, no. 1546 (2019), pp.80-81.

Verberkmoes, Geerten, 'Benoît Joseph Boussu: la carrière singulière d'un notaire hainuyer devenu luthier', in Brigitte Van Wymeersch, Fañch Thoraval, ed., *La musique dans l'ancien comté de Hainaut (XVII^e-XVIII^e)* [tentative title] (Turnhout: Brepols Publishers, accepted, in preparation).

Verdegem, Stefaan, *The Brussels Musical Instruments Museum oboe collection* (2011). Available from: <http://brusselsmimoboecollection.kcb.be/> (accessed February 2020).

Vidal, Antoine, *La lutherie et les luthiers* (Paris: Maison Quantin, 1889).

Von Lütgendorff, Willibald Leo Freiherr, *Die Geigen- und Lautenmacher vom Mittelalter bis zur Gegenwart*, vol. 2 (Frankfurt am Main: Frankfurter Verlags-Anstalt, 1922).

Von Lütgendorff, Willibald Leo Freiherr, *Die Geigen- und Lautenmacher vom Mittelalter bis zur Gegenwart*, vol. 2 (Tutzing: Hans Schneider, 1975).

Wali, Kameshwar C., *Cremona violins - A physicist's quest for the secrets of Stradivari* (Singapore: World Scientific Publishing, 2010).

Wangermée, Robert, 'La musique à la chapelle royale des Pays-Bas', in Robert Wangermée, Philippe Mercier, ed., *La musique en Wallonie et à Bruxelles*, vol. 1 (Brussels: La renaissance du livre, 1980), pp.201-210.

Ware, William R., *The American Vignola - A guide to the making of Classical architecture* (New York: Dover Publications Inc., 1994).

Watchorn, Ian, 'Baroque renaissance', *The Strad*, vol. 95, no. 1139 (1985), pp.822-827.

Bibliography

Watin, Jean-Félix, *L'art de faire et d'employer le vernis, ou l'art du vernisseur* (Paris: Quillau/author, 1772).

Watin, Jean-Félix, *L'art du peintre, doreur, vernisseur* (Paris: Grangé/Durand/author, 1773).

Watkin, David, 'Corelli's op.5 sonatas: 'violino e violone o cimbale'?', *Early Music*, vol. 24, no. 4 (1996), pp.645-663.

Wegst, Ulrike G. K., 'Wood for sound', *American Journal of Botany*, vol. 93, no. 10 (2006), pp.1439-1448.

Weytjens, Renate, 'De Fiocco's: een Italiaanse muzikantenfamilie in de Zuidelijke Nederlanden', in Louis Peter Grijp, ed., *Een muziekgeschiedenis der Nederlanden* (Amsterdam: Amsterdam University Press/Salomé, 2001), pp.328-333.

Whiteley, Jon, 'Le Messie Stradivarius?', *The Galpin Society Journal*, vol. 55 (2002), pp.240-243.

Wijnsouw, Jana, *National identity and nineteenth-century Franco-Belgian sculpture* (New York/Abingdon: Routledge, 2017).

Wilson, Nick, *The art of re-enchantment - Making Early music in the modern age* (New York/Oxford: Oxford University Press, 2014).

Yushkevich, Paul A.; Piven, Joseph; Cody Hazlett, Heather; Gimpel Smith, Rachel; Ho, Sean; Gee, James C.; Gerig, Guido, 'User-guided 3D active contour segmentation of anatomical structures: significantly improved efficiency and reliability', *Neuroimage*, vol. 31, no. 3 (2006), pp.1116-1128.

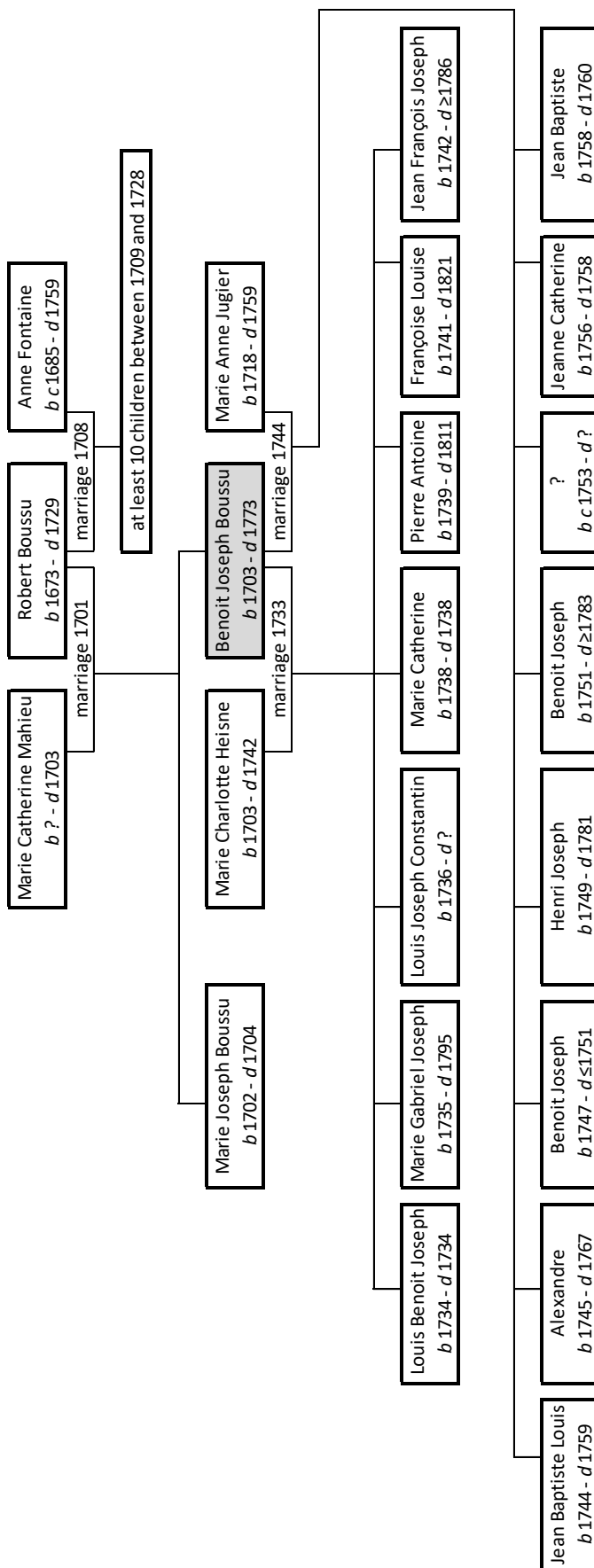
Zanini, Franco, 'Learning the finer points', *The Strad*, vol. 123, no. 1461 (2012), pp.36-41.

Zanrè, Andrea; Hopfner, Rudolf, 'New light on an uncut diamond', *The Strad*, vol. 125, no. 1494 (2014), pp.36-43.

Zaslaw, Neal, 'Music and society in the Classical era', in Neal Zaslaw, ed., *The Classical era - From the 1740s to the end of the 18th century* (Houndmills: The Macmillan Press Ltd, 1989), pp.1-14.

Zoeteman-Van Pelt, Martine, *De studentenpopulatie van de Leidse universiteit 1575-1812* (PhD diss., University of Leiden, 2011).

Appendix I. Family tree for the Boussu family



Appendix II. Overview of identified parish registration and other civil status records

This overview presents the identified parish records of birth, baptism, marriage, death and burial concerning Benoit Joseph Boussu or his direct family members. In addition, several records from other archive types have been included, in case these provide information regarding the composition or activities of Benoit Joseph Boussu's family.

Legend of abbreviations:

ACA	Amsterdam City Archives, Amsterdam, The Netherlands
ACB	Archives of the City of Brussels, Brussels, Belgium
ADA	Archives départementales de l'Aisne, Laon, France
ADN	Archives départementales du Nord, Lille, France
AMA	Archives municipales, Avesnes-sur-Helpe, France
AP	Archives de Paris, Paris, France
LUA	Leiden University Archives, Leiden, The Netherlands
NAN	National Archives of The Netherlands, The Hague, The Netherlands
SAB	State Archives of Belgium
SAB-An	State Archives in Antwerp-Beveren, Beveren, Belgium
SAB-Br	State Archives in Brussels, Forest, Belgium
SAB-Li	State Archives in Liège, Liège, Belgium
SAB-NAB	National Archives of Belgium, Brussels, Belgium

Date	Subject	Issuer	Archive ID
11-09-1673	Baptism record for Robert Boussu, son of Philippe Boussu and Anne Fize	Parish of Fourmies	ADN, Fourmies B [1645-1695], 5 Mi 011 R 010
12-04-1701	Marriage record for Robert Boussu and Marie Catherine Mahieu	Parish of Fourmies	ADN, Fourmies BMS [1696-1719], 5 Mi 011 R 010
24-02-1702	Baptism record for Marie Joseph Boussu, daughter of Robert Boussu and Marie Catherine Mahieu	Parish of Fourmies	ADN, Fourmies BMS [1696-1719], 5 Mi 011 R 010
08-04-1703	Baptism record for Benoit Joseph Boussu, son of Robert Boussu and Marie Catherine Mahieu	Parish of Fourmies	ADN, Fourmies BMS [1696-1719], 5 Mi 011 R 010

09-08-1703	Baptism record for Marie Charlotte Haisne [Heisne], daughter of Louis Alexandre Haisne and Marie Joanne Boulanger	Parish of Avesnes	ADN, Avesnes BMS [1694-1711], 5 Mi 001 R 001
17-12-1703	Death record for Marie Cat[h]erine Mahieu	Parish of Fourmies	ADN, Fourmies BMS [1696-1719], 5 Mi 011 R 010
10-02-1704	Death record for "un enfant a Robert Boussu" [Marie Joseph Boussu]	Parish of Fourmies	ADN, Fourmies BMS [1696-1719], 5 Mi 011 R 010
14-02-1708	Marriage record for Robert Boussu and Anne Fontaine	Parish of Wignehies	ADN, Wignehies BMS [1687-1769], 5 Mi 011 R 027
11-06-1709	Baptism record for Marie Catherine Bosqu[?], daughter of Michel [sic] Bosqu[?] and Anne[?] Fontaine	Parish of Wignehies	ADN, Wignehies BMS [1687-1769], 5 Mi 011 R 027
30-01-1711	Baptism record for Jean Joseph Boussu, son of Robert Boussu and Anne Fontaine	Parish of Wignehies	ADN, Wignehies BMS [1687-1769], 5 Mi 011 R 027
13-12-1712	Baptism record for Michel Joseph Boussu, son of Robert Boussu and Anne Fontaine	Parish of Wignehies	ADN, Wignehies BMS [1687-1769], 5 Mi 011 R 027
03-03-1714	Baptism record for Philippe François Boussu, son of Robert Boussu and Anne Fontaine	Parish of Wignehies	ADN, Wignehies BMS [1687-1769], 5 Mi 011 R 027
20-09-1716	Baptism record for Nicolas Boussu, son of Robert Boussu and Anne Fontaine	Parish of Wignehies	ADN, Wignehies BMS [1687-1769], 5 Mi 011 R 027
05-11-1718	Baptism record for Marie Anne Jugier, daughter of Philippe Jugier and Gillette Audry	Parish of La Capelle (Aisne)	ADA, La Capelle BMS [1711-1747], 5 Mi 0730
02-01-1719	Baptism record for Marie Anne Boussu, daughter of Robert Boussu and Anne Fontaine	Parish of Wignehies	ADN, Wignehies BMS [1687-1769], 5 Mi 011 R 027
20-02-1721	Baptism record for Bruno Boussu, son of Robert Boussu and Anne Fontaine	Parish of Wignehies	ADN, Wignehies BMS [1687-1769], 5 Mi 011 R 027
28-11-1723	Baptism record for Anne Joseph Boussu, daughter of Robert Boussu and Anne Fontaine	Parish of Wignehies	ADN, Wignehies BMS [1687-1769], 5 Mi 011 R 027
21-02-1725	Baptism record for Pierre Joseph Boussu, son of Robert Boussu and Anne Fontaine	Parish of Wignehies	ADN, Wignehies BMS [1687-1769], 5 Mi 011 R 027

22-03-1728	Baptism record for Marie Ernestine Boussu, daughter of Robert Boussu and Anne Fontaine	Parish of Wignehies	ADN, Wignehies BMS [1687-1769], 5 Mi 011 R 027
23-01-1729	Burial record for Robert Boussu	Parish of Wignehies	ADN, Wignehies BMS [1687-1769], 5 Mi 011 R 027
13-04-1733	Marriage record for Benoist Joseph Boussu and Marie Charlotte Heisne	Parish of Avesnes	ADN, Avesnes-sur-Helpe BMS [1710-1736], 5 Mi 001 R 002
27-01-1734	Baptism record for Louis Benoist Joseph Boussu, son of (Louis) Benoist Joseph Boussu and Marie Caroline [sic] Haisne	Parish of Avesnes	ADN, Avesnes-sur-Helpe BMS [1710-1736], 5 Mi 001 R 002
05-02-1734	Burial record for Louis Benoist Joseph Boussu, son of Benoist Joseph Boussu and Marie Charlotte Heines	Parish of Avesnes	ADN, Avesnes-sur-Helpe BMS [1710-1736], 5 Mi 001 R 002
05-06-1735	Baptism record for Marie Gabriel Joseph Boussu, daughter of Benoist Joseph Boussu and Marie Charlotte Haisne	Parish of Avesnes	ADN, Avesnes-sur-Helpe BMS [1710-1736], 5 Mi 001 R 002
22-11-1736	Baptism record for Louis Joseph Constantin Boussu, son of Benoist Joseph Boussu and Charlotte Haine	Parish of Avesnes	ADN, Avesnes-sur-Helpe BMS [1710-1736], 5 Mi 001 R 002
07-03-1738	Baptism record for Marie Catherine Boussu, daughter of Benoit Joseph Boussu and Marie Charlotte Haine	Parish of Avesnes	ADN, Avesnes-sur-Helpe BMS [1737-1745], 5 Mi 001 R 003
10-03-1738	Burial record for Marie Catherine Bossu, daughter of Benoist Joseph Bossu and Marie Charlotte Haine	Parish of Avesnes	ADN, Avesnes-sur-Helpe BMS [1737-1745], 5 Mi 001 R 003
05-03-1739	Baptism record for Pierre Antoine Bossu, son of Benoit Joseph Boussu and Caroline [sic] Haisne	Parish of Avesnes	ADN, Avesnes-sur-Helpe BMS [1737-1745], 5 Mi 001 R 003
18-01-1741	Baptism record for Françoise Louise Bossu, daughter of Benoit Joseph Bossu and Marie Caroline Henne	Parish of Avesnes	ADN, Avesnes-sur-Helpe BMS [1737-1745], 5 Mi 001 R 003
15-08-1742	Baptism record for Jean François Joseph Marie Boussu, son of Benoit Joseph Boussu and Marie Caroline [sic] Haine	Parish of Avesnes	ADN, Avesnes-sur-Helpe BMS [1737-1745], 5 Mi 001 R 003

26-08-1742	Burial record for Marie Caroline [sic] Haine, [first] wife of Benoit [Joseph] Boussu	Parish of Avesnes	ADN, Avesnes-sur-Helpe BMS [1737-1745], 5 Mi 001 R 003
19-06-1744	Baptism record for Jean Baptiste Louis, son of Marie Anne Jugier, who has declared, during giving birth, that Benoit Joseph Bossüe is the father	Parish of Avesnes	ADN, Avesnes-sur-Helpe BMS [1737-1745], 5 Mi 001 R 003
11-07-1744	Marriage record for Benoit Joseph Boussu and Marie Anne Jugier	Parish of Avesnes	ADN, Avesnes-sur-Helpe BMS [1737-1745], 5 Mi 001 R 003
13-07-1745	Baptism record for Alexandre Boussu, son of Benoit [Joseph] Boussu and Marie Anne Jugier	Parish of Avesnes	ADN, Avesnes-sur-Helpe BMS [1737-1745], 5 Mi 001 R 003
30-09-1747	Baptism record for Benoit Joseph Boussu [jr.], son of Benoit Joseph Boussu and Marie Anne Jugier	Parish of Avesnes	ADN, Avesnes-sur-Helpe BMS [1746-1766], 5 Mi 001 R 004
08-05-1749	Baptism record for Henri Joseph Boussu, son of Benoit Joseph Boussu and Marie Anne Jugier	Parish of Notre-Dame-aux-Fonts, Liège	SAB, BE-0523_712045_712433_FRE, 0500_000_01014_000_0_0037
29-12-1749	Burial record for Louis Alexandre Heisne	Parish of Avesnes	ADN, Avesnes-sur-Helpe BMS [1746-1766], 5 Mi 001 R 004
01-02-1751	Baptism record for Benedictus Josephus Bossu, son of Benedicti Josephi Bossu and Maria Anna Jaquez	Parish of St.Gertrude, Etterbeek	SAB, BE-A0541_006325_006218_FRE, 0316_000_00194_000_0_0052_r
xx-xx-1755	Registration of Benoit Joseph Boussu, his wife and their 9 children (between the ages of 2 and 18) as inhabitants of the city of Brussels in a 1755 census	Staten van Brabant	SAB-Br, BE-A0541_005599_004242_DUT Carton 409-410
29-01-1756	Baptism record for Joanna Catharina Bossu, daughter of Benedicti Josephi Bossu and Maria Anna Jugier	Parish of St.Michael and St.Gudula, Brussels	SAB, BE-A0541_006325_006218_FRE, 9998_998_00112_000_0_0220_r
28-02-1758	Burial record for Jeanne Catherinne Boussu, daughter of Benoit Joseph Boussu and Marie Anne Jugier	Parish of St.Michael and St.Gudula, Brussels	SAB, BE-A0541_006325_006218_FRE, 9998_998_00167_000_0_0020_r

10-12-1758	Baptism record for Joannes Baptista Boussu, son of Benedi Josephi Boussu and Maria Anna Jugier [2 different versions of this record available]	Parish of St.Michael and St.Gudula, Brussels	SAB, BE-A0541_006325_006218_FRE, 0316_000_00019_000_A_0017_r 9998_998_00113_000_0_0001_r
29-04-1759	Burial record for Louis Jean Baptiste Boussu, son of Benoit Joseph Boussu and Marie Anne Jugier	Parish of St.Michael and St.Gudula, Brussels	SAB, BE-A0541_006325_006218_FRE, 9998_998_00168_000_0_0001_r
18-09-1759	Burial record for Marie Anne Jugier	Parish of St.Michael and St.Gudula, Brussels	SAB, BE-A0541_006325_006218_FRE, 9998_998_00168_000_0_0001_r
16-05-1760	Burial record for Jean Baptiste Boussu, son of Benoit Joseph Boussu and the late Marie Anne Jugier	Parish of St.Michael and St.Gudula, Brussels	SAB, BE-A0541_006325_006218_FRE, 9998_998_00168_000_0_0001_r
14-01-1764	Marriage record for Petrus Antonius Bossu and Maria Magdalena Josepha Jonniau	Parish of St.Nicolas, Brussels	SAB, BE-A0541_006325_006218_FRE, 9998_998_00479_000_0_0001_r
20-03-1765	Registration of Bennoit Boussu at the University of Leiden ("Bennoit Boussu, Parisiensis natus, ann. 12 famulus studiosi Duer")	University of Leiden	LUA, ASF, inventory number 15, 9 Volumen Inscriptionum 1755-1808, folio 112
20-03-1765	Registration of Bennoit Boussu at the University of Leiden ("Bennoit Boussu, Parisiensis, an. 12, famulus studiosi Duer")	University of Leiden	LUA, ASF, inventory number 507, Album Studiosorum IX 1755-1808, folio 139
24-06-1766	Registration of embarkation (at the harbour of Hoorn, The Netherlands) of Alexander Bossu, from Brussels, as sailor on board of the VOC ship Straalen.	VOC (Dutch East India Company)	NAN, entrance number 1.04.02, inventory number 14483, folio 132
23-12[?]-1766	Registration of embarkation (at the harbour of Cape of Good Hope, Africa) of Alexander Bossu, from Brussels, as sailor on board of the VOC ship Luxemburg.	VOC (Dutch East India Company)	NAN, entrance number 1.04.02, inventory number 6478, folio 359
xx-05-1767	Registration of Pierre Bossu as inhabitant of the city of Brussels in a 1767 census	Magistracy of Brussels	ACB, Archives historiques, Registre 1042, Revue ou dénombrement des habitants de la ville, 1767
27-06-1767	Registration of death of Alexander Bossu, on board of the VOC ship Luxemburg	VOC (Dutch East India Company)	NAN, entrance number: 1.04.02, inventory number 6478, folio 359

19-04-1771	Registration of marriage banns for the intended marriage of Marie Gabriel Boussu and Joannes Roseau	Aldermen of Amsterdam, marriage committee	ACA, 5001, 746, Pui register 03/1771-10/1772, folio 22
19-04-1771	Registration of marriage banns for the intended marriage of Francoise Boussu and Jean Babtist Tetar	Aldermen of Amsterdam, marriage commission	ACA, 5001, 746, Pui register 03/1771-10/1772, folio 22
05-05-1771	Proclamation of the marriage of Maria Gabrielle Bossu and Joannes Roseau	Municipality of Amsterdam	ACA, 5001, 793, Marriage proclamations of the town hall 11/1769-08/1772
05-05-1771	Proclamation of the marriage of Francoise Bossu and Jean Babtist Tetar	Municipality of Amsterdam	ACA, 5001, 793, Marriage proclamations of the town hall 11/1769-08/1772
05-05-1771	Registration of civil marriage of Marie Gabriele Bossu and Johannes Rouseau	Aldermen of Amsterdam	ACA, 5001, 959, Marriage register of the town hall 01/1769-12/1775, folio 83
05-05-1771	Registration of civil marriage of Francoise Boussu and Jean Baptist Tetar	Aldermen of Amsterdam	ACA, 5001, 959, Marriage register of the town hall 01/1769-12/1775, folio 83
05-05-1771	Registration of religious marriage of Marie Gabriele Boussu and Jean Rousseau	Fransche Kapel, Amsterdam	ACA, 5001, 334, Marriage register of the Fransche Kapel, folio (127) 853
05-05-1771	Registration of religious marriage of François Boussu and Jean Batiste Tetar	Fransche Kapel, Amsterdam	ACA, 5001, 334, Marriage register of the Fransche Kapel, folio (127) 853
16-09-1773	Burial record for Benoit Joseph Bousu [sic], who died on 15-09-1773	Parish of Avesnes	ADN, Avesnes-sur-Helpe BMS [1767-1786], 5 Mi 001 R 005
16-09-1773	Burial record for Benoit Joseph Boussu	Parish of Avesnes	AMA, Avesnes-sur-Helpe, Baptêmes, mariages & décès 1771-1779
06-03-1778	Registration of marriage banns for the intended marriage of Joseph Boussu and Maria de Villairs	Aldermen of Amsterdam, marriage commission	ACA, 5001, 750, Pui register 09/1777-04/1779, folio 80
22-03-1778	Proclamation of the marriage of Joseph Boussu and Maria de Villairs	Municipality of Amsterdam	ACA, 5001, 796, Marriage proclamations of the town hall 01/1778-10/1780, folio 13
22-03-1778	Registration of civil marriage of Joseph Boussu and Maria de Villairs	Aldermen of Amsterdam	ACA, 5001, 960, Marriage register of the town hall 01/1776-10/1783, folio 79
22-03-1778	Registration of religious marriage of Joseph Boussu and Marie Villers	Fransche Kapel, Amsterdam	ACA, 5001, 334, Marriage register of the Fransche Kapel, folio (141) 867
15-06-1780	Baptism record for Antoine Boussu	Fransche Kapel, Amsterdam	ACA, 5001, 334, Baptism register of the Fransche Kapel, folio (552) 555

11-04-1781	Burial record for Joseph Boussu	Heiligewegs- and Leidsche cemetery	ACA, 5001, 1244, Burial register of the Heiligewegs- and Leidsche cemetery, folio 10 verso
02-04-1795	Burial record for Marie Joseph Gabriel Broussu [sic]	Nieuwe Kerk and Engelse Kerk cemetery	ACA, 5001, 1060, Burial register of the Nieuwe Kerk and Engelse Kerk cemetery, folio 80
10-05-1811	Death record for Pierre Antoine Boussu	Municipality of Brussels	SAB, 3358 / 0_0004, Burgerlijke stand, overlijdensakten 1811-1812, folio 106 verso
12-03-1821	Death record for Marie Françoise Bousu [sic]	Municipality of Amsterdam	ACA, 5009, 3215, Burgerlijke stand, Register van overlijdensakten 1821 deel 1, folio 191 verso

Appendix III. Overview of identified notarial, local council and court of justice acts

This overview presents notarial, local authority council and court of justice acts, identified so far, which relate to the private interests or financial transactions of Benoit Joseph Boussu, or the settlements of his legacy after his death. Thus, the presented acts are not documents notarised by Boussu as a notary for third-party clients, but they rather describe transactions that in one or another way involve Benoit Joseph Boussu himself, or his heirs.

Act title information is primarily given in French language, to avoid misinterpretations as a result of translation, and thus to preserve the original meaning of the title or subject of the acts as close as possible. Act titles that have been literally copied from the original document title or a notarial *répertoire* entry have been placed between quotation marks, and spelling has been copied as accurately as possible from the original handwritten text. In case title information has been interpreted, but not copied, the text has not been placed between quotation marks, and is given in modern French spelling.

It has to be noted that not all acts have yet been fully transcribed nor has a written interpretation been added to every transcription (see indication in last column).

Legend of symbols and abbreviations:

*	Benoit Joseph Boussu signed the document personally
#:	Benoit Joseph Boussu did not sign the document, but is recorded as appearing personally in front of the issuer of the document
ACA:	Amsterdam City Archives, Amsterdam, The Netherlands
ADN:	Archives départementales du Nord, Lille, France
ANF:	Archives nationales de France, Paris, France
SAB-Br:	State Archives in Brussels, Forest, Belgium
Interpr.:	Document interpretation status (yes: written interpretation added; no: no written interpretation added yet)
Transcr.:	Document transcription status (yes: transcribed; no: not yet transcribed)

Remark: when a row in the table has been filled in grey, this means that the act has already been identified by a registration in a relevant *répertoire* or by mention in another act, but that the act itself was not available in the archive or has not yet been retrieved from the archive.

Date	Title/subject	Issuer	Archive ID	Transcr. /Interpr.
23-01-1708	<i>Vente d'une maison à Wignehies par Martin Hannekart à Robert Boussu</i> [Benoit Joseph Boussu not mentioned]	Notary T. Beviere (Avesnes)	ADN 2E39/65	no/no
26-01-1708	<i>Rétrocession d'une maison par Martin Hannekart à Robert Boussu</i> [Benoit Joseph Boussu mentioned]	Mayeur et éch. de Wignehies	ADN 11B/559	no/no
19-10-1708	<i>Robert Boussu condition</i> [Benoit Joseph Boussu mentioned]	Mayeur et éch. de Wignehies	ADN 11B/559	no/no
11-01-1709	<i>Ravestissement de mariage de Robert Boussu et Anne Fontaine</i> [Benoit Joseph Boussu not mentioned]	Pairie d'Avesnes (Wignehies)	ADN 11B/132	no/no
14-02-1710	<i>Vente de rente par Jean Michel et Pierre Martel à Robert Boussu</i> [Benoit Joseph Boussu mentioned]	Mayeur et éch. de Wignehies	ADN 11B/559	no/no
12-12-1711	<i>Robert Boussu condition</i> [Benoit Joseph Boussu mentioned]	Mayeur et éch. de Wignehies	ADN 11B/559	no/no
06-05-1712	<i>Vente de rente par Jean Boulnois à Robert Boussu</i> [Benoit Joseph Boussu mentioned]	Mayeur et éch. de Wignehies	ADN 11B/559	no/no
17-12-1712	<i>Vente de rente par Guillaume Baÿvie à Robert Boussu</i>	Notary C. Hallet (Avesnes)	ADN 2E39/39	no/no
19-12-1712	<i>Vente de rente par Guillaume Baivie à Robert Boussu</i>	Mayeur et éch. de Fourmies	ADN 11B/414	no/no
24-01-1713	<i>Vente de rente par Jean Payen à Robert Boussu</i>	Mayeur et éch. de Wignehies	ADN 11B/559	no/no
24-01-1713	<i>Vente de rentes par Robert Boussu à Nicolas Le Clercq</i>	Mayeur et éch. de Wignehies	ADN 11B/559	no/no
28-01-1713	<i>Rachat par Martin Darras à Robert Boussu</i>	Mayeur et éch. de Wignehies	ADN 11B/559	no/no
28-05-1713	<i>Vente de rente par Martin Daniel à Robert Boussu</i>	Mayeur et éch. de Wignehies	ADN 11B/559	no/no
15-02-1714	<i>Vente de rente par Jean Locqueneux à Robert Boussu</i>	Notary C. Hallet (Avesnes)	ADN 2E39/40	no/no
15-02-1714	<i>Vente de rente par Jean Locqueneux à Robert Boussu</i>	Mayeur et éch. de Fourmies	ADN 11B/414	no/no
17-02-1714	<i>Arrentement d'une maison (à Fourmies) à Robert Boussu</i>	Notary C. Hallet (Avesnes)	ADN 2E39/40	yes/no
17-02-1714	<i>Arrentement d'une maison et jardin par Phillippes Triquot à Robert Boussu</i>	Mayeur et éch. de Fourmies	ADN 11B/414	no/no
23-05-1714	<i>Arrentement d'héritage à Lambert Bulto</i>	Mayeur et éch. de Fourmies	ADN 11B/414	no/no
11-02-1717	<i>"Robert Boussus condition"</i> [Benoit Joseph Boussu not mentioned]	Mayeur et éch. de Wignehies	ADN 11B/567	yes/no
14-04-1717	<i>"Robert Boussus condition"</i> [Benoit Joseph Boussu not mentioned]	Mayeur et éch. de Wignehies	ADN 11B/567	no/no

14-04-1717	<i>"Robert Boussus condition"</i> ["garson dudit Boussu" mentioned, possibly referring to Benoit Joseph Boussu]	<i>Mayeur et éch. de Wignehies</i>	ADN 11B/567	no/no
23-11-1717	<i>"Lambert Bulto condition"</i>	<i>Mayeur et éch. de Fourmies</i>	ADN 11B/414	yes/yes
22-04-1719	<i>Vente d'une maison à Louis Alexandre Heisne</i>	Notary C. Hallet (Avesnes)	ADN 2E39/43	no/no
22-04-1719	<i>Vente d'une maison à Louis Alexandre Heisne</i> [future father in law of Boussu, buying the house later donated to Boussu and his wife]	<i>Mayeur et éch. de Avesnes</i>	ADN 11B/214	no/no
06-07-1720	<i>Vente de rente par Alexandre Pouillet à Robert Boussu</i>	Notary C. Hallet (Avesnes)	ADN 2E39/43	no/no
06-07-1720	<i>Vente de rente par Alexandre Pouillet à Robert Boussu</i>	<i>Mayeur et éch. de Fourmies</i>	ADN 11B/414	no/no
14-08-1720	<i>Rachat de 450 livres par Robert Boussu à l'église de Wignehies</i>	<i>Mayeur et éch. de Wignehies</i>	ADN 11B/559	no/no
xx-xx-1724	<i>Benoit Joseph Boussu émancipation</i> [act itself not available, only reference in <i>répertoire</i> found]	<i>Répertoire pairie d'Avesnes (Wignehies)</i>	ADN 11B/96	no/no
xx-xx-1724	<i>Robert Boussu condition</i> [act itself not available, only reference in <i>répertoire</i> found]	<i>Répertoire pairie d'Avesnes (Wignehies)</i>	ADN 11B/96	no/no
27-10-1724	<i>Vente d'une maison à Louis Alexandre Heisne</i>	Notary C.L. Gossuin	ADN 2E39/48	no/no
30-06-1729	<i>Lettre de provision d'office de notaire royal de Benoit Joseph Boussu</i>	<i>Grande Chancellerie Paris</i>	ANF V/1/278 pièce 286	yes/yes
14-11-1732*	<i>"Transaction entre M^e. Benoit Jôs. Boussu not^e. á Avesnes [notaire royal aud bailliage et demeurant en cette ville] & D^e. Anne Fontaine, V^e du S^r Robert Boussus de Wignehies, au sujet, de certains biens fonds, et de la charge de no^{tre} dudit M^e. Boussu"</i>	Notary C.L. Gossuin (Avesnes)	ADN 2E39/54	yes/yes
19-01-1734	<i>Louis Alexandre Heyns [Heisne] condition</i>	<i>Mayeur et éch. de Avesnes</i>	ADN 11B/218	no/no
21-01-1734*	<i>Ravestissement de mariage de Benoit Joseph Boussu ["notaire au baillage de cette ville"] et Marie Charlotte Heyns [Heisne]</i>	<i>Mayeur et éch. de Avesnes</i>	ADN 11B/218	yes/no
29-01-1734*	<i>"Benoit Joseph Boussu [notaire roÿal dēm[euran]t á Avesnes] condition" [de mambournie]</i>	<i>Pairie d'Avesnes</i>	ADN 11B/143	yes/no

19-02-1734*	<i>“Arrentement d’héritage, par M^e. Benoit-Jôs. Boussû, notaire à Avesnes [notaire royal audit baillage demeurant en laditte ville], à Jean Boussû, son oncle, de Fourmies”</i>	Notary T. Beviere (Avesnes)	ADN 2E39/77	yes/yes
19-03-1734	<i>“Arrentement d’héritage, par Jean Boussu, de Fourmies, à Valentin Carniaux [or: Carmiaux], du dit lieu”</i>	Notary T. Beviere (Avesnes)	ADN 2E39/77	yes/yes
19-03-1734*	<i>Arrentement d’héritage par Benoit Joseph Boussu [“notaire roÿal au baillage d’Avesnes”] à Jean Boussu</i>	Pairie d’Avesnes	ADN 11B/143	yes/no
01-09-1734*	<i>“Arrentement d’héritage, par M^e. Benoit Jos. Boussû, notaire à Avesnes [notaire roÿal audit baillage demeurant a Avesnes], à Robert Bouret, de Fourmies”</i>	Notary T. Beviere (Avesnes)	ADN 2E39/77	yes/yes
01-09-1734*	<i>Arrentement d’héritage par Benoit Joseph Boussu [“notaire roÿal au baillade d’Avesnes ÿ dêm[euran]t”] à Robert Bouret</i>	Pairie d’Avesnes	ADN 11B/143	yes/no
20-12-1734*	<i>“Constitution de 18^t 5^s 5^d de rente, par M^e. Benoit Jôs. Boussu, no^{te} à Avesnes [notaire roÿal aud. baillage resident audit Avesnes], au profit du chapitre Roÿal d’Avesnes”</i>	Notary C.L. Gossuin (Avesnes)	ADN 2E39/55	yes/yes
23-12-1734*	<i>Constitution de rente par Benoit Joseph Boussu [“nottaire roÿal au baillage roÿal d’Avesnes dêm^t aud. Avesnes”] au profit du Chapitre Roÿal d’Avesnes</i>	Pairie d’Avesnes	ADN 11B/143	yes/no
02-04-1735	<i>Vente de rente par Benoit Joseph Boussu à Jean Baptiste Diemes</i>	Notary L.F. Durteste (Maubeuge)	ADN 2E47/298-299	no/no
01-02-1736*	<i>“Vente par Jean François Briquet, d’Avesnes, à M^e. Benoit Jos. Boussû, notaire en laditte ville [notaire roÿal audit baillage demeurant audit Avesnes], de quinze livres dix sept sols de rente, duë par la veuve de Toussaint Thomas, et neuf livres douze sols, aussi de rente, duë par JBte. Mandron”</i>	Notary T. Beviere (Avesnes)	ADN 2E39/78	yes/yes
29-08-1736*	<i>Vente de rente par Benoit Joseph Boussu [“notaire au bailliage roÿal d’Avesnes ÿ demeurant”] à Jean Baptiste Diesmes</i>	Pairie d’Avesnes	ADN 11B/144	no/no
16-04-1737*	<i>Vente de rente par Jean François Briquet à Benoit Joseph Boussu [“aussÿ notaire audit bailliage de residence en ladite ville”] [NB: same transaction as described in act by notary Beviere of 01-02-1736]</i>	Notary T. Lebeau (Avesnes)	ADN 2E39/101	no/no

02-05-1737*	<i>“Arrentement d’héritage par M^e. Benoit Joseph Boussu, notaire [notaire roÿal resident en cette ville], au profit de Nicolas Joseph Leroy de Fourmies”</i>	Notary T. Lebeau (Avesnes)	ADN 2E39/101	no/no
02-05-1737*	<i>Arrentement d’héritage par Me. Benoit Joseph Boussu, notaire [“notaire dem[eurant]t a Avesnes”], au profit de Nicolas Joseph Leroy de Fourmies</i>	<i>Pairie d’Avesnes</i>	ADN 11B/144	no/no
16-07-1737*	<i>Constitution de rente par François Lemoine à Benoit Joseph Boussu [“aussÿ notaire audit baillage, demeurant en laditte ville”]</i>	Notary T. Lebeau (Avesnes)	ADN 2E39/101	no/no
16-07-1737*	<i>Constitution de rente par François Lemoine à Benoit Joseph Boussu [“aussÿ notaire dēm[eurant]t a Avesnes”]</i>	<i>Pairie d’Avesnes</i>	ADN 11B/144	no/no
07-09-1737*	<i>Bail à titre de rente d’héritage par Benoit Joseph Boussu [“notair roÿal dēm[eurant]t a Avesnes”] à André Antoine</i>	<i>Mayeur et éch. de Fourmies</i>	ADN 11B/416	no/no
27-12-1737*	<i>Bail à titre de rente d’héritage par Benoit Joseph Boussu [“aussi notaire aud baillage dēm[eurant]t a la ville d’Avesnes”] à Jacques Dervillers</i>	Notary L. Pinson (Féron)	ADN 2E39/324	no/no
27-12-1737*	<i>Bail à titre de rente d’héritage par Benoit Joseph Boussu [“aussÿ notaire aud. baillage resident aud. Avesnes”] à Jacques Meurant</i>	Notary L. Pinson (Féron)	ADN 2E39/324	no/no
27-12-1737*	<i>Bail à titre de rente d’héritage par Benoit Joseph Boussu [“notaire roÿal aud. baillage demeurant en laditte ville”] à François Couturier</i>	Notary L. Pinson (Féron)	ADN 2E39/324	no/no
27-12-1737*	<i>Bail à titre de rente d’héritage par Benoit Joseph Boussu [“aussi notaire audit baillage de resident audit Avesnes”] à Louis Le Grand</i>	Notary L. Pinson (Féron)	ADN 2E39/324	no/no
28-12-1737*	<i>Bail à titre de rente d’héritage par Benoit Joseph Boussu [“notaire roÿal au baillage d’Avesnes dēmt en laditte ville”] à François Couturier</i>	<i>Mayeur et éch. de Fourmies</i>	ADN 11B/418	no/no
28-12-1737*	<i>Bail à titre de rente d’héritage par Benoit Joseph Boussu [“notaire roÿal au baillage d’Avesnes ÿ demeurant”] à Jacques Dervillers</i>	<i>Mayeur et éch. de Fourmies</i>	ADN 11B/418	no/no
28-12-1737*	<i>Bail à titre de rente d’héritage par Benoit Joseph Boussu [“notaire roÿal demeurant a Avesnes”] à Louis Le Grand</i>	<i>Mayeur et éch. de Fourmies</i>	ADN 11B/418	no/no

28-12-1737*	<i>Bail à titre de rente d'héritage par Benoit Joseph Boussu ["notaire roÿal demeurant a Avesnes"] à Jacques Meurant</i>	<i>Mayeur et éch. de Fourmies</i>	ADN 11B/418	no/no
16-01-1738*	<i>"Vente, par Thomas Daniel Renuart, d'Avesnes, a M^e. Benoit [Joseph] Boussû, notaire á Avesnes [notaire roÿal audit lieu], de quinze livres de rente, duë par JBte. Marit, de Dompierre, et de treize livres aussi de rente, duë par Nicolas Jos. Manouvrier, dudit Dompierre"</i>	Notary T. Beviere (Avesnes)	ADN 2E39/79	yes/yes
18-01-1738*	<i>Vente de deux rentes par Thomas Daniel Renuart à Benoit Joseph Boussu ["notaire roÿal dēmt audit Avesnes"]</i>	<i>Pairie d'Avesnes</i>	ADN 11B/145	no/no
18-01-1738*	<i>Thomas Daniel Renuart rapport [expropriation of a brewery, as guarantee for the sale of two annuities]</i>	<i>Mayeur et éch. de Avesnes</i>	ADN 11B/220	no/no
03-03-1738*	<i>Bail à titre de rente par Benoit Joseph Boussu ["aussÿ notaire aud. baillage, demeurant aud. Avesnes"] à Andre Antoine</i>	Notary T. Lebeau (Avesnes)	ADN 2E39/101	no/no
25-03-1738*	<i>Accord [settlement] et convention entre Benoit Joseph Boussu ["notaire aud baillage"] et Louis Godimus</i>	Notary T. Lebeau (Avesnes)	ADN 2E39/101	no/no
28-04-1738*	<i>Constitution de rente par Pierre Meunier à Benoit Joseph Boussu ["aussÿ notaire roÿal demeurant en laditte ville"]</i>	Notary T. Lebeau (Avesnes)	ADN 2E39/101	no/no
28-04-1738*	<i>Vente de rentes par Françoise Finet à Benoit Joseph Boussu ["aussÿ notaire audit baillage demeurant en laditte ville"]</i>	Notary T. Lebeau (Avesnes)	ADN 2E39/101	no/no
28-04-1738*	<i>Transport de rentes par Françoise Finet à Benoit Joseph Boussu ["aussÿ notaire resident a Avesnes"]</i>	<i>Pairie d'Avesnes</i>	ADN 11B/145	no/no
18-07-1738	<i>"Anne Fontaine condition" [Benoit Joseph Boussu not mentioned]</i>	<i>Mayeur et éch. de Wignehies</i>	ADN 11B/570	no/no
14-08-1738	<i>Constitution de rente par Thomas Daniel Renuart, d'Avesnes, au profit de Nicolas Delatte [Benoit Joseph Boussu ["aussÿ notaire roÿal audit baillage"] mentioned]</i>	Notary T. Lebeau (Avesnes)	ADN 2E39/101	no/no
16-08-1738	<i>Vente de rente par Thomas Renuart à Nicolas Delatte [Benoit Joseph Boussu ["notaire royal au baillage"] mentioned]</i>	<i>Mayeur et éch. de Avesnes</i>	ADN 11B/220	no/no

xx-xx-1739	Benoit Joseph Boussu - André Antoine	<i>Répertoire pairie d'Avesnes (Fourmies)</i>	ADN 11B/96	no/no
30-05-1739	<i>Louis Alexandre Heyns [Heisne] rapport</i>	<i>Mayeur et éch. de Avesnes</i>	ADN 11B/221	no/no
27-07-1739	<i>Vente de rente par Thomas Renuart [Benoit Joseph Boussu not mentioned]</i>	<i>Mayeur et éch. de Avesnes</i>	ADN 11B/221	no/no
27-07-1739*	<i>Decharge d'une brasserie, jardin et petite maison par Benoit Joseph Boussu ["notaire au bailliage roÿal d'Avesnes y demeurant"]</i>	<i>Mayeur et éch. de Avesnes</i>	ADN 11B/221	no/no
11-07-1740*	<i>Catherine Prissette ["veuve de Pierre Meunier"] rapport</i>	<i>Pairie d'Avesnes</i>	ADN 11B/146	no/no
c17-05-1741	Case of the notaries (<i>tabellion</i>) of Avesnes vs. <i>le greffier eschevinal</i> [document 4/4 = copy of document 2/4] [NB: document 2/4 most likely handwritten by Benoit Joseph Boussu]	<i>Bailliage d'Avesnes</i>	ADN C9313 no. 393	yes/yes
16-06-1741*	<i>Vente d'un estat et office de procureur par Jean Baptiste Lefebvre à Benoit Joseph Boussu ["bourgeois de ladite ville y demeurant"]</i>	Notary T. Lebeau (Avesnes)	ADN 2E39/106	no/no
23-06-1741	Case of the notaries (<i>tabellion</i>) of Avesnes vs. <i>le greffier eschevinal</i> [document 3/4]	<i>Bailliage d'Avesnes</i>	ADN C9313 no. 393	yes/yes
28-06-1741	Case of the notaries (<i>tabellion</i>) of Avesnes vs. <i>le greffier eschevinal</i> [document 1/4]	<i>Bailliage d'Avesnes</i>	ADN C9313 no. 393	yes/yes
30-09-1741*	<i>"Donation d'edifices et rentes, par ledit M^e. [Louis Alexandre] Heisne, en faveur de M^e. Benoit Joseph Boussu, notaire à Avesnes [aussy notaire aud. bailliage son gendre] et de D^e. Caroline Heisne, son epouse"</i>	Notary T. Lebeau (Avesnes)	ADN 2E39/106	no/no
03-10-1741*	<i>Deshéritance [expropriation] des biens par Louis Alexandre Heisne à Benoit Joseph Boussu ["aussy notaire son gendre"] et à Carolinne Heisne sa fille</i>	<i>Mayeur et éch. de Avesnes</i>	ADN 11B/221	no/no
03-10-1741*	<i>Deshéritance [expropriation] d'une maison par Louis Alexandre Heisne à profit de Benoit Joseph Boussu ["aussy notaire son gendre"] et à Caroline Heisne, son epouse</i>	<i>Pairie d'Avesnes</i>	ADN 11B/147	no/no
12-06-1743	<i>Constitution de rente par Estienne Labrique à Benoit Joseph Boussu</i>	Notary T. Lebeau (Avesnes)	ADN 2E39/109	no/no
25-06-1743*	<i>Constitution de rente par Estienne Labrique à Benoit Joseph Boussu ["notaire resident aud. Avesnes"]</i>	<i>Mayeur et éch. de Avesnes</i>	ADN 11B/222	no/no

09-07-1744*	<i>“Traité de Mariage entre M^e Benoit Joseph Boussu, notaire a Avesnes [aussy notaire roÿal et procureur dudit], et D^{elle} Marie Anne Jugier de la Capelle”</i>	Notary T. Lebeau (Avesnes)	ADN 2E39/111	yes/no
14-03-1746(*)	<i>“Vente, par M^e. Benoit Joseph Boussu, not^{re} à Avesnes, au profit de S^r. Querray, chirurgien audit lieu, d’une rente de 36^{lt} dûe par la v^e de François Lemoine”</i> [minute act not found, only reference in the repertory of notary Lebeau]	Notary T. Lebeau (Avesnes)	ADN 2E39/114 ??	no/no
15-03-1746*	<i>Vente de rente par Benoit Joseph Boussu [“notaire roÿal au bailliage d’Avesnes y demeurant”] à Louis Querroy</i>	<i>Pairie d’Avesnes</i>	ADN 11B/150	no/no
07-09-1747*	<i>“Vente par M^e. Benoit Joseph Boussu, not^{re} à Avesnes [aussy notaire audit baillage resident audit Avesnes], au profit de l’enfant(s) mineur de D^e Thèrèse Héleine de Baulés epouse de M. Nicolas Daniel Ôfarel, d’Avesnes, des deux parties de rente qui suivent, 1^{re} 25.^{lt} dûes par Louis Legrand, de Fourmies, et 2^o 16^{lt} 4^s dûs par Nicolas Antoine”</i>	Notary T. Lebeau (Avesnes)	ADN 2E39/115	yes/yes
07-09-1747*	<i>Vente de rente par Benoit Joseph Boussu [“notaire roÿal au bailliage d’Avesnes y demeurant”] aux enfants Debaules</i>	<i>Pairie d’Avesnes</i>	ADN 11B/151	no/no
13-05-1748*	<i>“Vente, par M^e. Benoit Joseph Boussu, not^{re} à Avesnes [aussy notaire audit baillage], au profit de Charles François Gravet de Liessies, des rentes suivants ...”</i>	Notary T. Lebeau (Avesnes)	ADN 2E39/117	no/no
21-05-1748*	<i>Vente des rentes par Benoit Joseph Boussu [“notaire roÿal au bailliage d’Avesnes y demeurant”] à Charles François Gravez</i>	<i>Pairie d’Avesnes</i>	ADN 11B/152	no/no
16-08-1748*	<i>“Arrentement [vente a titre de rente] d’un office de notaire, par M^e. Benoit Jôs. Boussû [aussy notaire aud. bailliage, resident en lad. ville], au S^r. Antoine Demorgny de Wignehies. Cet acte n’a pas eu de suite.”</i>	Notary H.L. de Renly (Avesnes)	ADN 2E39/93	yes/yes
17-08-1748*	<i>Benoit Joseph Boussu [“notaire royal au baillage de cette ville d’Avesnes”] rapport</i>	<i>Mayeur et éch. de Avesnes</i>	ADN 11B/223	yes/no
17-08-1748*	<i>Benoit Joseph Boussu [“notaire roÿal au bailliage d’Avesnes y demeurant”] condition</i>	<i>Pairie d’Avesnes</i>	ADN 11B/152	yes/no

17-08-1748	<i>Jacques Fontaine rapport</i>	<i>Mayeur et éch. de Wignehies</i>	ADN 11B/571	yes/yes
16-10-1748 [unknown whether Boussu was present in person]	<i>“Vente, par M^e. Benoit Joseph Boussu, not^e à Avesnes, au profit de M^e. Jean Joseph Delebeke, et Alexandre François Graux, prêtres à Avesnes, d’une rente de 13 livres dûe par les heritiers de Nicolas Joseph Manouvrier, et d’une autre rente de 15 livres dûe par Etton Meunier”</i> [act itself not found despite search, only reference in <i>répertoire</i> found]	<i>Répertoire of Notary T. Lebeau (Avesnes)</i>	ADN 2E39/502	no/no
30-05-1749	<i>“Vente par Antoine Demorgny, de Wignehies, a Jacques Fontaine, dudit lieu, de tous et tels droits en un office de notaire au Baillage d’Avesnes et que lui avait vendû en arrentement M^e. Benoit Jos. Boussû, par contrat passé devant ledit M^e. De Renly, le 16 aoust 1748”</i>	Notary H.L. de Renly (Avesnes)	ADN 2E39/93	yes/yes
13-10-1749	<i>Vente des deux rentes par Benoit Joseph Boussu [“cÿ devant notaire et procureur au bailliage dudit Avesnes demeurant presentement a Liege”] à Jean Joseph Delbeck et Alexandre François Grau</i>	<i>Pairie d’Avesnes</i>	ADN 11B/152	no/no
18-10-1749	<i>Lettre de provision d’office de notaire royal de Jacques Fontaine [Benoit Joseph Boussu was the former rightful executive/owner]</i>	<i>Grande Chancellerie Paris</i>	ANF V/1/360 pièce 301	yes/yes
12-11-1749*	<i>“Constitution de 50^l 13^s de rente par le sieur Bénéoit Joseph Boussu, de Liège [maitre luthier demeurent presentement en la ville de Liege], au profit de sieur Pierre Joseph Randour, d’Avesnes”</i>	Notary T. Lebeau (Avesnes)	ADN 2E39/121	yes/yes
12-11-1749*	<i>Constitution de rente par Benoit Joseph Boussu [“maitre luthier demeurent presentement en la ville de Liege et actuellement en cette ville d’Avesnes”] au profit de sieur Pierre Joseph Randour, d’Avesnes</i>	<i>Mayeur et éch. de Avesnes</i>	ADN 11B/223	no/no
10-04-1751(*)	<i>“Vente de rentes par le S^r. Benoit Joseph Boussû, cÿ devant notaire au baillage d’Avesnes, à Alexandre Michel, de ladite ville” [minute act not found, only reference in the <i>répertoire</i> of notary Lebeau]</i>	Notary T. Lebeau (and notary T. Leclercq) (Avesnes)	ADN 2E39/123 2E39/124 2E39/125 2E39/90 ??	no/no

10-04-1751*	<i>Vente de rente par Benoit Joseph Boussu ["cÿ devant notaire roÿal au bailliage d'Avesnes demeurant presentement a Bruxelles"] à Alexandre Michel</i>	<i>Pairie d'Avesnes</i>	ADN 11B/155	no/no
06-06-1753	<i>Testament de Louis Joseph Heisne [children of first marriage of Benoit Joseph Boussu, "cÿ devant notaire aud. baillage a present resident a Bruxelles", mentioned]</i>	Notary T. Lebeau (Avesnes)	ADN 2E39/129	no/no
07-12-1753	<i>Lettre de provision d'office de procureur postulant de Jean Baptiste Carton ["Benoit Jacques [sic] Boussu" was the former rightful executive/owner]</i>	<i>Grande Chancellerie Paris</i>	ANF V/1/377 pièce 166	no/no
26-07-1755*	<i>Benoit Joseph Boussu ["demeurant a Bruxelles des present en cette ville d'Avesnes"] rapport</i>	<i>Mayeur et éch. de Avesnes</i>	ADN 11B/224	no/no
20-02-1756	<i>"Vente et resignation d'un office de notaire, par Marguerite Jôs. Dubois, veuve de M^e. Jacques Fontaine, de Wignehies, au S^r. Jacques Jôs. Renaut, de Feron."</i>	Notary H.L. de Renly (Avesnes)	ADN 2E39/96	yes/yes
14-06-1756	<i>"Bail à loÿer d'une maison, édifices et jardin, par le S^r. Benoit Jôs. Boussû [maitre et marchand luthier demeurant presentement en la ville de Bruxelles], à Messire Pierre de Gausse, commandant pour le Roi en cette place d'Avesnes."</i>	Notary H.L. de Renly (Avesnes)	ADN 2E39/96	yes/yes
03-02-1758#	<i>Rachat de 100 livres par Jacques Dervillers à Benoit Joseph Boussu ["maitre lutie demeurant a Bruxel"]</i>	<i>Mayeur et éch. de Fourmies</i>	ADN 11B/419	yes/no
03-02-1758*	<i>"Jeanne Bertaux condition" [Benoit Joseph Boussu mentioned as "maitre lucie [or: lutie] demeurant a Bruxel"]</i>	<i>Mayeur et éch. de Fourmies</i>	ADN 11B/419	yes/no
25-08-1759	<i>"Cession d'un jardin par M^e. JB^{te} Dagneau, notaire Roÿal à Crecÿ, épouse de D^{lle}. Marie Therese Bouret, au profit [des enfants] que le S^r. Benoit Jôs. Boussû [cÿ devant aussÿ notaire audit baillage d'Avesnes, resident presentement en la ville de Bruxelles] s'est retenû de D^{lle}. Heisne, sa premiere femme."</i>	Notary H.L. de Renly (Avesnes)	ADN 2E39/98	yes/no
25-07-1760	Consignation of 2,256 l (capital) and 460 l, 8 s (instalments) by Renaut/Poulet in the hands of Preseau	<i>Mayeur et éch. de Avesnes ??</i>	ADN Act not found yet	no/no
11-04-1761	<i>Constitution de rente par Marie Margueritte Applincourt au profit de Benoit Joseph Boussu</i>	Notary T. Lebeau (Avesnes)	ADN Act not found yet	no/no

11-04-1761	<i>Constitution de rente par Marie Margueritte Applincourt au profit de Benoit Joseph Boussu, ["M^e. luthier demeurant a Bruxelles"], et ses enfants qu'il a retenu de sa premiere femme</i>	<i>Pairie d'Avesnes</i>	ADN 11B/163	no/no
10-07-1761	<i>"Bail à loyer d'une maison et jardin, par le S^r. Benoit Jô^s. Boussu, cÿ devant notaire [demeurant a Bruxelles], au S^r. Jean François Bruneau, visiteur au bureau du fermes du Roi en cette ville"</i>	Notary H.L. de Renly (Avesnes)	ADN 2E39/99	yes/yes
20-11-1762*	<i>Testament de Benoit Joseph Boussu ["cÿ devant notaire audit baillage, [illegible]..nt maitre et marchand luthier demeurant a Bruxelles"]</i>	Notary T. Lebeau (Avesnes)	ADN 2E80/107	yes/no
11-08-1763	<i>"Constitution de 17^l 15^s Hainaut de rente par Antoine Hosselet, de Floÿon et Anne Marie Thèrèse Lemoine, sa femme, et JB^l. Lemoine, dudit lieu, au profit de Benoit Jô^s: Boussus et des enfans qu'il a retenus de sa 1^{ère} conjonction."</i>	Notary T. Lebeau (Avesnes)	ADN 2E39/149	yes/yes
12-08-1763	<i>Constitution de rente par Antoine Hosselet et sa femme au profit de Benoit Joseph Boussu</i>	<i>Pairie d'Avesnes</i>	ADN 11B/164	yes/no
21-01-1764	<i>Constitution de rente par Jean Baptiste Joseph Delannoy au profit de Benoit Joseph Boussu</i>	<i>Mayeur et éch. de Avesnes</i>	ADN 11B/226	yes/yes
03-03-1764	<i>Vente de rente par Christophe Plantin à Benoit Joseph Boussu ["cy devant notaire au baillage"]</i>	<i>Mayeur et éch. de Avesnes</i>	ADN 11B/226	yes/no
25-05-1765	<i>"Constitution de quinze livres quatre sols haÿnaut de rente, par Marie Catherine Jô^s. Michel, v^e. d'Antoine Mairesse, au S^r. Jean Jô^s. Gontier, maÿeur de Wignehies, acceptant au profit des heritiers de Robert Boussû."</i>	Notary J. Renaut (Féron)	ADN 2E39/337	yes/no
11-06-1765	<i>"Partage entre les hoirs du sieur Robert Boussû et d'Anne Fontaine, son épouse" [Benoit Joseph Boussu not mentioned]</i>	Notary J. Renaut (Féron)	ADN 2E39/337	yes/no
05-02-1766	<i>"Constitution de huit livres haÿnaut de rente, par Thomas Walbert, de Wignehies, aux heritiers de Robert Boussû"</i>	Notary J. Renaut (Féron)	ADN 2E39/338	yes/no
21-03-1767	<i>"Bail à loyer d'une maison et jardin, par M^e. Benoit Jô^s. Boussut, [...] not.^{re} [cÿ devant aussi notaire au meme siege demeurant presentement a Amsterdam en Holande] au S^r. Jean François Bruneau, visiteur des fermes du Roi, à Avesnes"</i>	Notary P.L. Lenseigne (Avesnes)	ADN 2E39/162	yes/yes

13-08-1768*	<i>Benoit Joseph Boussu ["demeurant a Amsterdam"] rapport</i>	<i>Mayeur et éch. de Avesnes</i>	ADN 11B/227	yes/yes
16-08-1768*	<i>Benoit Joseph Boussu ["demeurant a Amsterdam"] rapport</i>	<i>Mayeur et éch. de Avesnes</i>	ADN 11B/227	yes/yes
17-08-1768*	<i>Codicile de testament de Benoit Joseph Boussu ["maitre luthier demeurant a Amsterdam de present en cette ville"]</i>	Notary T. Lebeau (Avesnes)	ADN 2E80/107	yes/no
22-07-1769	<i>"Transaction entre M^e Benoît Jôd. Boussu, ancien notaire [cÿ devant aussi notaire audit baillage demeurant presentement a Amsterdam], et les heritiers de Jâcq: Fontaine" [concerning Boussu's former notary office]</i>	Notary J.B. Cornet (Avesnes)	ADN 2E39/165	yes/yes
09-11-1769*	<i>"Procuratie door Benoit Joseph Bousfú [ancien notaire au Bailliage Royal d'Avesnes de present en cette ville]"</i>	Notary T.D. de Marolles (Amsterdam)	ACA 5075/ 11480A	no/no
20-06-1771	<i>Arrêt du Parlement Flandres dans le proces de Benoit Joseph Boussu ["marchand luthier demeurant a Amsterdam"] contre les "mayeur et echevins" de Fourmies</i>	<i>Parlement de Flandre</i>	ADN 8B2/564	yes/yes
06-07-1772*	<i>"Transaction entre M^e Benoît Boussu, ancien not^{re} à Avesnes [ancien notaire et procureur au baillage roÿal d'Avesnes], et les mayeur et echevins de Fourmies"</i>	Notary A. Lebeau (Avesnes)	ADN 2E39/209	yes/yes
15-07-1772	<i>Procuracion de Jean Rousseau et Gabriele Boussu, et Jean Tetart et Françoise Boussu "pour leur procureur general & special la personne du S^r. Benoit Joseph Boussu, leur pere & beaupere, étant presentement à d'Avesnes"</i>	Notary A. Mijlius (Amsterdam)	ACA 5075/15591	yes/yes
xx-07-1772	<i>Arrentement de terre à Etroeung par Benoit Joseph Boussu à Gilles Bruno Cuisset</i> [this act has not been found yet, but reference to this act is found in the <i>partage</i> act of 19-04-1774]	unknown	-	no/no
26-07-1772	<i>Arrentement de terre à Etroeung par Benoit Joseph Boussu à Jean Baptiste Lahannier</i> [this act has not been found yet, but reference to this act is found in the <i>partage</i> act of 19-04-1774]	unknown	-	no/no
04-08-1772	<i>Certificat de l'hauteur du prix de trois petites parties de terres à Etroeng pour le proces de Benoit Joseph Boussu ["demeurant a Amsterdam"] contre Jean François Boussu et Pierre Antoine Boussu [ses fils]</i>	Notary A. Lebeau (Avesnes)	ADN 8B1/19558	yes/yes

c05-08-1772	<i>Requete de Benoit Joseph Boussu ["luthier demeurant en la ville d'Amsterdam"] dans le proces de Benoit Joseph Boussu contre Jean François Boussu et Pierre Antoine Boussu [ses fils]</i>	C. Lebeau [attorney of B.J. Boussu]	ADN 8B1/19558	yes/yes
22-08-1772#	<i>Proces verbal #1 dans le proces de Benoit Joseph Boussu ["maitre luthier demeurant a Amsterdam"] contre Pierre Antoine Boussu et Jean François Boussu [ses fils]</i>	<i>Bailliage de Avesnes</i>	ADN 8B1/19558	yes/yes
07-09-1772#	<i>Proces verbal #2 dans le proces de Benoit Joseph Boussu ["Me luthier demeurant a Amsterdam"] contre Jean François Boussu [son fils]</i>	<i>Bailliage de Avesnes</i>	ADN 8B1/19558	yes/yes
c07-09-1772	<i>Inventaire des pièces et production dans le proces de Benoit Joseph Boussu ["maitre luthier demeurant en la ville d'Amsterdam"] contre Jean François Boussu et Pierre Antoine Boussu [ses fils]</i>	C. Lebeau [attorney of B.J. Boussu]	ADN 8B1/19558	yes/yes
10-09-1772	<i>Décision du tribunal dans le proces de Benoit Joseph Boussu ["marchand luthier demeurant a Amsterdam"] contre Pierre Antoine Boussu et Jean François Boussu [ses fils]</i>	Notary A. Lebeau (Avesnes), <i>Bailliage de Avesnes</i>	ADN 2E39/210, ADN 8B1/19558	yes/yes
11-09-1772	<i>"Constitution de 27^e d^e 2^e hainaut de rente, par Jean Jâcq: Dehu, de Floÿon, à M^e Benoît Jô: Boussus, ancien not^{te} d'Avesnes."</i> [this act has not been found yet, but reference to this act found in the partition act of 19-04-1774 and in the répertoire of notary A. Lebeau]	<i>Répertoire of Notary A. Lebeau (Avesnes)</i>	ADN 2E39/504	no/no
28-01-1773*	<i>Benoit Joseph Boussu ["demeurant cy devant a Amsterdam et presentement en cette ville d'Avesnes gisant en son lit malade"] rapport</i>	<i>Mayeur et éch. de Avesnes</i>	ADN 11B/228	yes/yes
29-01-1773#	<i>Benoit Joseph Boussu ["demeurant ordinairement a Amsterdam des present en cette ville d'Avesnes"] condition ["non connu"]</i>	<i>Pairie d'Avesnes</i>	ADN 11B/173	no/no
29-01-1773*	<i>"Benoit Joseph Boussu [demeurant ordinairement a Amsterdam des present en la ville d'Avesnes] condition"</i>	<i>Pairie d'Avesnes</i>	ADN 11B/173	no/no
20-05-1773*	<i>"Transaction entre les mayeur et eschevins de Fourmies, et le S^r. Benoit Joseph Boussus"</i>	Notary A. Lebeau (Avesnes)	ADN 2E39/210	yes/yes

29-05-1773*	<i>Procuration de Benoit Joseph Boussu ["ancien notaire royal au baillage de cette ville y demeurant actuellement"] [supplement to act by notary A. Lebeau of 01-06-1773]</i>	<i>Mayeur et éch. de Avesnes</i>	ADN 2E39/210	yes/no
01-06-1773	<i>"Arrentement d'heritage par Joseph Eliet, fondé de procuration du Sieur Benoit Joseph Boussûs [ancien notaire royal audit baillage, actuellement demeurant a Avesnes], au profit de Joseph Prince." [Fourmies]</i>	Notary A. Lebeau (Avesnes)	ADN 2E39/210	yes/yes
01-06-1773	<i>"Arrentement d'heritage par ledit Joseph Eliet fondé de procuration dud. S^r. Benoit Joseph Boussus [ancien notaire audit baillage, demeurant actuellement audit Avesnes], au profit de Simon Eliet." [Fourmies]</i>	Notary A. Lebeau (Avesnes)	ADN 2E39/210	yes/no
01-06-1773	<i>"Arrentement d'heritage par ledit Eliet [fondé de procuration du Sieur Benoit Joseph Boussus, ancien notaire royal audit baillage, demeurant actuellement audit Avesnes], au profit de Jean Stincq." [Fourmies]</i>	Notary A. Lebeau (Avesnes)	ADN 2E39/210	yes/no
01-06-1773	<i>"Arrentement d'heritage par le même [Eliet, fondé de procuration du Sieur Benoit Joseph Boussus, ancien notaire audit baillage, demeurant actuellement audit Avesnes], au profit d'Isidore Pieton." [Fourmies]</i>	Notary A. Lebeau (Avesnes)	ADN 2E39/210	yes/no
01-06-1773	<i>"Arrentement d'heritage par le même [Eliet, fondé de procuration du Sieur Benoit Joseph Boussus, ancien notaire audit baillage, demeurant actuellement aud. Avesnes], au profit de Nicolas Meurant, fils de Charles." [Fourmies]</i>	Notary A. Lebeau (Avesnes)	ADN 2E39/210	yes/no
01-06-1773	<i>"Arrentement d'heritage par le même [Eliet, fondé de procuration du Sieur Benoit Joseph Boussus, ancien notaire royal audit baillage, demeurant actuellement audit Avesnes], au profit de Benjamin et Ambroise Meurant." [Fourmies]</i>	Notary A. Lebeau (Avesnes)	ADN 2E39/210	yes/no
01-06-1773	<i>"Arrentement d'heritage par le même [Eliet, fondé de procuration du Sieur Benoit Joseph Boussus, ancien notaire audit baillage, demeurant actuellement audit Avesnes], au profit de Jean François Lermusiau." [Fourmies]</i>	Notary A. Lebeau (Avesnes)	ADN 2E39/210	yes/no

01-06-1773	Arrentement d'héritage par Joseph Eliet fondé de procuration de Benoit Joseph Boussu ["ancien notaire a present resident a Avesnes"], au profit de Jean François Lermigeaux [Fourmies]	Mayeur et éch. de Fourmies	ADN 11B/419	yes/no
01-06-1773	Arrentement d'héritage par Joseph Eliet fondé de procuration de Benoit Joseph Boussu ["ancien notaire presentement resident a Avesnes"], au profit de Simon Eliet [Fourmies]	Mayeur et éch. de Fourmies	ADN 11B/419	yes/no
02-06-1773	"Arrentement d'heritage par led. Joseph Eliet, fondé de procuration du Sr. Benoit Joseph Boussus [ancien notaire roÿal au baillage d'Avesnes, ÿ demeurant actuellement], au profit d'Estienne Lebegue." [Fourmies]	Notary A. Lebeau (Avesnes)	ADN 2E39/210	yes/no
02-06-1773	Arrentement d'héritage par Joseph Eliet fondé de procuration de Benoit Joseph Boussu ["ancien notaire demeurant actuellement a Avesnes"], au profit de Joseph Prince [Fourmies]	Mayeur et éch. de Fourmies	ADN 11B/419	yes/no
02-06-1773	Arrentement d'héritage par Joseph Eliet fondé de procuration de Benoit Joseph Boussu ["ancien notaire demeurant actuellement a Avesnes"], au profit de Benjamin et Ambroise Meurant [Fourmies]	Mayeur et éch. de Fourmies	ADN 11B/419	yes/no
02-06-1773	Arrentement d'héritage par Joseph Eliet fondé de procuration de Benoit Joseph Boussu ["ancien notaire demeurant actuellement a Avesnes"], au profit de Nicolas Meurant [Fourmies]	Mayeur et éch. de Fourmies	ADN 11B/419	yes/no
02-06-1773	Arrentement d'héritage par Joseph Eliet fondé de procuration de Benoit Joseph Boussu ["ancien notaire demeurant actuellement a Avesnes"], au profit de Jean Stincq [Fourmies]	Mayeur et éch. de Fourmies	ADN 11B/419	yes/no
02-06-1773	Arrentement d'héritage par Joseph Eliet fondé de procuration de Benoit Joseph Boussu ["ancien notaire demeurant actuellement a Avesnes"], au profit d'Isidore Pieton [Fourmies]	Mayeur et éch. de Fourmies	ADN 11B/419	yes/no
02-06-1773	Arrentement d'héritage par Joseph Eliet fondé de procuration de Benoit Joseph Boussu ["ancien notaire demeurant actuellement a Avesnes"], au profit d'Etienne Lebegue [Fourmies]	Mayeur et éch. de Fourmies	ADN 11B/419	yes/no

19-06-1773	<i>“Vente de rente par Simon Eliet, au profit du S^r. Benoit Joseph Boussu [cÿ devant aussi notaire audit siege, et ÿ demeurant], acceptant en son nom M^e. Antoine Joseph Lebeau.”</i>	Notary J.B. Cornet (Avesnes)	ADN 2E39/168	yes/no
19-06-1773	<i>Vente de rente par Simon Eliet à Benoit Joseph Boussu [“cÿ devant aussi notaire”]</i>	Pairie d'Avesnes	ADN 11B/173	no/no
19-06-1773	<i>Rachat de 2,071 livres, 6 sols, 8 deniers par Simon Eliet à Benoit Joseph Boussu</i>	Pairie d'Avesnes	ADN 11B/173	no/no
05-07-1773	<i>“Vente de rente par Jean François Lermigeaux, au profit du S^r. Benoit Joseph Boussus [ancien notaire et procureur au susdit baillage], acceptant en son nom M^e. Antoine Joseph Lebeau.”</i>	Notary J.B. Cornet (Avesnes)	ADN 2E39/168	yes/no
05-07-1773	<i>Vente de rente par J.F. Lermigeau à Benoit Joseph Boussu [“cÿ devant notaire et procureur audit baillage”]</i>	Pairie d'Avesnes	ADN 11B/173	no/no
24-08-1773	<i>“Constitution de rente par Nicolas Dequesne, à M^e. Antoine Joseph Lebeau, acceptant au profit du S^r. Benoit Joseph Boussûs”</i>	Notary J.B. Cornet (Avesnes)	ADN 2E39/168	yes/no
24-08-1773	<i>Constitution de rente par Nicolas Dequesne à Benoit Joseph Boussu</i>	Pairie d'Avesnes	ADN 11B/173	no/no
13-09-1773*	<i>“Testament du S^r. Benoit Joseph Boussus [cÿ devant notaire roÿal aud. baillage, bourgeois demeurant aud. Avesnes, gisant en son lict malade de corps]”</i>	Notary J.B. Cornet (Avesnes)	ADN 2E39/168	yes/yes
14-09-1773*	<i>Codicile du testament du Sr. Benoit Joseph Boussu [“gisant en son lict malade de corps”]</i>	Notary J.B. Cornet (Avesnes)	ADN 2E39/168	yes/yes
18-10-1773	<i>Procuration de Jean Rousseau et Gabriele Boussu, et Jean Tetart et Françoise Boussu</i>	Notary A. Mijlius (Amsterdam)	ACA 5075/15593	yes/no
11-11-1773	<i>“Vente d'une maison [en Fourmies, cÿ devant a usage d'ecolle] et jardin par Pierre Antoine [Boussu] et François Boussus, Jean Rousseau à titre de Gabriel Boussus son epouse, et consors, au profit de Jean Louis Legrand.”</i>	Notary A. Lebeau (Avesnes)	ADN 2E39/210	yes/no
26-11-1773	<i>Vente d'une maison par Pierre Antoine Boussu, Jean François Boussu, Gabriele Boussu et Françoise Boussu à Jean Gobled [Fourmies]</i>	Mayeur et éch. de Avesnes	ADN 11B/228	yes/no
xx-xx-1774	<i>François Joseph Boussu émancipation</i>	Pairie d'Avesnes or Mayeur et éch. d'Anor	ADN	no/no

xx-xx-1774	J.F. Giffroy - François Boussu	<i>Pairie d'Avesnes</i>	ADN folio 12 or 102	no/no
xx-xx-1774	R. Le Comte - François Joseph Boussu	<i>Pairie d'Avesnes</i>	ADN folio 158	no/no
24-01-1774	<i>Vente d'une maison en Fourmies ["cÿ devant a usage d'ecolle"] par Pierre Antoine Boussu, François Boussu, Gabrielle Boussu et Françoise Boussu à Jean Louis Legrand</i>	<i>Pairie d'Avesnes</i>	ADN 11B/173	no/no
09-02-1774	Supplement to the act of Notaire Lebeau dated 01-06-1773	J.P. Boussu, <i>greffier, bailliage d'Avesnes</i>	ADN 2E39/210	yes/no
16-02-1774	Supplement to the act of Notaire Lebeau dated 02-06-1773	J.P. Boussu, <i>greffier, bailliage d'Avesnes</i>	ADN 2E39/210	yes/no
11-03-1774	<i>Vente de plusieurs jardins par Pierre Antoine Boussu, François Boussu, Gabrielle Boussu et Françoise Boussu</i>	<i>Mayeur et éch. de Avesnes</i>	ADN 11B/228	yes/no
09-04-1774	<i>Remboursement de 3,433 [not 3,033] livres, 10 sols par Nicolas Dequesne à Pierre Antoine Boussu, François Boussu, Gabrielle Boussu et Françoise Boussu</i>	<i>Pairie d'Avesnes</i>	ADN 11B/174	no/no
12-04-1774	<i>Arrentement de terre par Pierre Antoine Boussu, François Boussu et consors à Nicolas Marcoux</i>	Notary N.J. Prissette (Avesnes)	ADN 2E39/174	no/no
12-04-1774	<i>Vente de terre par Pierre Antoine Boussu, François Boussu et consors à Antoine Joseph Wagnies</i>	Notary N.J. Prissette (Avesnes)	ADN 2E39/174	no/no
12-04-1774	<i>Vente de terre par Pierre Antoine Boussu, François Boussu et consors à François Gorisse</i>	Notary N.J. Prissette (Avesnes)	ADN 2E39/174	no/no
12-04-1774	<i>Vente de terre par Pierre Antoine Boussu, François Boussu et consors à Etienne Joseph Havée</i>	Notary N.J. Prissette (Avesnes)	ADN 2E39/174	no/no
12-04-1774	<i>Vente de terre par Pierre Antoine Boussu, François Boussu et consors à François Gorisse</i>	<i>Pairie d'Avesnes</i>	ADN 11B/174	no/no
12-04-1774	<i>Vente de terre par Pierre Antoine Boussu, François Boussu et consors à Antoine Joseph Wagnies</i>	<i>Pairie d'Avesnes</i>	ADN 11B/174	no/no
12-04-1774	<i>Arrentement de terre par Pierre Antoine Boussu, François Boussu et consors à Nicolas Marcoux</i>	<i>Pairie d'Avesnes</i>	ADN 11B/174	no/no
12-04-1774	<i>Vente de terre par Pierre Antoine Boussu, François Boussu et consors à Etienne Joseph Havée</i>	<i>Pairie d'Avesnes</i>	ADN 11B/174	no/no

13-04-1774	<i>Vente et arrentement de terre par Pierre Antoine Boussu, François Boussu et consors à Jean Bte. Joly</i>	Notary N.J. Prissette (Avesnes)	ADN 2E39/174	no/no
13-04-1774	<i>Vente et arrentement de terre par Pierre Antoine Boussu, François Boussu et consors à Jean Bte. Guillain</i>	Notary N.J. Prissette (Avesnes)	ADN 2E39/174	no/no
13-04-1774	<i>Arrentement de terre par Pierre Antoine Boussu, François Boussu et consors à Jean François Wanhouche</i>	Notary N.J. Prissette (Avesnes)	ADN 2E39/174	no/no
13-04-1774	<i>Vente et arrentement de terre par Pierre Antoine Boussu, François Boussu et consors à Philippe Betry</i>	Notary N.J. Prissette (Avesnes)	ADN 2E39/174	no/no
13-04-1774	<i>Vente et arrentement de terre par Pierre Antoine Boussu, François Boussu et consors à Guillaume Leverd</i>	Notary N.J. Prissette (Avesnes)	ADN 2E39/174	no/no
13-04-1774	<i>Vente et arrentement de terre par Pierre Antoine Boussu, François Boussu et consors à Guillaume Leverd</i>	<i>Pairie d'Avesnes</i>	ADN 11B/174	no/no
13-04-1774	<i>Arrentement de terre par Pierre Antoine Boussu, François Boussu et consors à Jean François Wanhouche</i>	<i>Pairie d'Avesnes</i>	ADN 11B/174	no/no
13-04-1774	<i>Vente et arrentement de terre par Pierre Antoine Boussu, François Boussu et consors à Philippe Betry [or: Bertry]</i>	<i>Pairie d'Avesnes</i>	ADN 11B/174	no/no
13-04-1774	<i>Vente et arrentement de terre par Pierre Antoine Boussu, François Boussu et consors à Jean Bte. Guillain</i>	<i>Pairie d'Avesnes</i>	ADN 11B/174	no/no
13-04-1774	<i>Vente et arrentement de terre par Pierre Antoine Boussu, François Boussu et consors à Jean Bte. Joly</i>	<i>Pairie d'Avesnes</i>	ADN 11B/174	no/no
14-04-1774	<i>Arrentement de terre par Pierre Antoine Boussu, François Boussu, Gabrielle Boussu et Françoise Boussu à André Mercier</i>	Notary N.J. Prissette (Avesnes)	ADN 2E39/174	yes/no
14-04-1774	<i>Arrentement de terre par Pierre Antoine Boussu, François Boussu, Gabrielle Boussu et Françoise Boussu à André Mercier</i> [supplement to act by notary Prissette of 14-04-1774]	C. J. E. Guislin, <i>tabé lion gardenotte</i> (Avesnes)	ADN 2E39/174	yes/no
14-04-1774	<i>Arrentement de terre par Pierre Antoine Boussu, François Boussu, Gabrielle Boussu et Françoise Boussu à Jean Baptiste Levacq</i> [Added is an act of 09-05-1774 where Levacq redeems his annuity]	Notary N.J. Prissette (Avesnes)	ADN 2E39/174	yes/no
14-04-1774	<i>Arrentement de terre par Pierre Antoine Boussu, François Boussu et consors à Jean Baptiste Levacq</i>	<i>Pairie d'Avesnes</i>	ADN 11B/174	no/no

14-04-1774	<i>Arrentement de terre par Pierre Antoine Boussu, François Boussu et consors à André Mercier</i>	<i>Pairie d'Avesnes</i>	ADN 11B/174	no/no
19-04-1774	<i>"Partage des hē[ritie]rs de M^e. Benoit Joseph Boussus [vivant notaire] et de D^{elle}. Heisne son epouse"</i>	Notary N.J. Prissette (Avesnes)	ADN 2E39/174	yes/no
20-04-1774	<i>Vente de rente par Gabrielle Boussu à Jacques Mandeville</i>	Notary N.J. Prissette (Avesnes)	ADN 2E39/174	yes/no
25-04-1774	<i>Pierre Antoine Boussu condition</i>	<i>Pairie d'Avesnes</i>	ADN 11B/174	no/no
03-05-1774	<i>"Vente de rente par Françoise Boussus femme de Jean Baptiste Thetard, au profit de François Joseph Boussus son frere."</i>	Notary N.J. Prissette (Avesnes)	ADN 2E39/174	yes/no
03-05-1774	<i>Vente de rente par Françoise Boussu à François Boussu</i>	<i>Pairie d'Avesnes</i>	ADN 11B/174	no/no
09-05-1774	<i>Rachat du capital de 160 livres hainaut par Jean Baptiste Levacq à Pierre Antoine Boussu cs., pour de l'arrentement de 14-04-1774 [this act is joined with the act of 14-04-1774]</i>	Notary N.J. Prissette (Avesnes)	ADN 2E39/174	yes/no
09-06-1774	<i>Constitution de rente par Pierre Hannequart à François Boussu</i>	Notary N.J. Prissette (Avesnes)	ADN 2E39/174	no/no
09-06-1774	<i>Constitution de rente par Pierre Hannequart à François Boussu</i>	<i>Pairie d'Avesnes</i>	ADN 11B/174	no/no
09-06-1774	<i>Vente de rente par Daniel Louis Ofarel à Pierre Antoine Boussu</i>	Notary A. Lebeau (Avesnes)	ADN 2E39/211	no/no
09-06-1774	<i>Vente de rente par Daniel Louis Ofarel à Pierre Antoine Boussu</i>	<i>Pairie d'Avesnes</i>	ADN 11B/174	no/no
03-10-1774	<i>Vente rente par Giffroy à François Joseph Boussu</i>	Notary N.J. Prissette (Avesnes)	ADN 2E39/175	no/no
31-12-1774	<i>Constitution de rente par Remy Le Compte à François Boussu</i>	Notary N.J. Prissette (Avesnes)	ADN 2E39/175	no/no
31-12-1774	<i>Constitution de rente par Remy Le Compte à François Boussu</i>	<i>Pairie d'Avesnes</i>	ADN 11B/174	no/no
xx-xx-1775	<i>Jean Rousseau (8 acts) ?? (c29-05-1775 & c11-12-1175)</i>	<i>Mayeur et éch. de Wignehies</i>	ADN	no/no
13-02-1775	<i>Vente par Benoit Boussu à Marie Magdelaine Jugier [testament of Benoit Joseph Boussu mentioned]</i>	Notary A. Lebeau (Avesnes)	ADN 2E39/212	no/no
29-05-1775	<i>Jean Rousseau (4 acts) ??</i>	Notary J.J. Renaut (Féron)	ADN 2E39/348	no/no

31-05-1775	<i>Constitution de rente par J.J. Michel à J.B. Thetard</i>	Notary N.J. Prissette (Avesnes)	ADN 2E39/175-176	no/no
31-05-1775	<i>Constitution de rente par J.J. Michel à J.B. Thetard</i>	<i>Pairie d'Avesnes</i>	ADN 11B/175	no/no
11-12-1775	Jean Rousseau (4 acts) ??	Notary J.J. Renaut (Féron)	ADN 2E39/348	no/no
xx-xx-1776	Pierre Antoine Boussu - Nicolas Joseph Prissette	<i>Pairie d'Avesnes (Avesnelles)</i>	ADN folio 10v, 11v	no/no
28-06-1776	<i>Vente de rente par Benoit Boussu [Joseph Boussu mentioned]</i>	<i>Mayeur et éch. de Avesnes</i>	ADN 11B/229	no/no
16-09-1776	<i>Traité de mariage d'Alexandre Malarne et Marie Magdelaine Jugier</i>	Notary A. Lebeau (Avesnes)	ADN 2E39/213	no/no
28-09-1776	<i>Vente de terre par Pierre Antoine Boussu à Jacques Boutez</i>	Notary N.J. Prissette (Avesnes)	ADN 2E39/177-178	no/no
28-09-1776	<i>Vente de terre par Pierre Antoine Boussu à Jacques Boutez</i>	<i>Pairie d'Avesnes</i>	ADN 11B/175	no/no
28-09-1776	<i>Vente de terre par Pierre Antoine Boussu à Simon Triquet</i>	Notary N.J. Prissette (Avesnes)	ADN 2E39/177-178	no/no
28-09-1776	<i>Vente de terre par Pierre Antoine Boussu à Simon Triquet</i>	<i>Pairie d'Avesnes</i>	ADN 11B/175	no/no
17-12-1776	<i>Plussiers ventes par Pierre Antoine Boussu</i>	Notary J.F. Lahanier (Avesnes)	ADN 2E39/186	no/no
xx-xx-1777	François Boussu - Druon Bachy	<i>Pairie d'Avesnes (Avesnelles)</i>	ADN folio 90v	no/no
xx-xx-1777	J.B. Tetar - G.J. Boquet	<i>Pairie d'Avesnes</i>	ADN folio 95v	no/no
xx-xx-1777	J. Rousseau - G.J. Boquet	<i>Pairie d'Avesnes</i>	ADN folio 96	no/no
18-06-1777	<i>Procuration et acte de consentement de François Boussu</i>	Notary M.J. Herdies (Brussels)	SAB-Br box 8772	yes/no
30-06-1777	Payment of 115 <i>ecus</i> and 24 <i>patars</i> by Jean Ph. Boussu and Nicolas Bertruit to Jean Bte. Tetard [<i>"a titre de Françoise Boussu"</i>], for the entire redemption of an annuity [<i>"entiere rechat [...] de rente"</i>]	<i>Mayeur et éch. de Fourmies</i>	ADN 11B/420	no/no
01-07-1777	Payment of 251 <i>ecus</i> and 16 <i>patars</i> from Nicolas Boudard to Gabrielle Boussu [and Jean Rousseaux], for the entire redemption of an annuity [<i>"entiere rechat [...] de rente"</i>]	<i>Mayeur et éch. de Fourmies</i>	ADN 11B/420	no/no

10-07-1777	François Boussu <i>et consors</i>	Notary N.J. Prissette (Avesnes)	ADN 2E39/179	no/no
18-07-1777	Gabrielle Boussu	Notary N.J. Prissette (Avesnes)	ADN 2E39/179	no/no
18-07-1777	J.B. Tetar	Notary N.J. Prissette (Avesnes)	ADN 2E39/179	no/no
xx-xx-1778	Pierre Antone Boussu - B. Lemaire	<i>Mayeur et éch. de Avesnes</i>	ADN 11B/230	no/no
xx-xx-1778	<i>François Boussu - B. Lemaire</i>	<i>Mayeur et éch. de Avesnes</i>	ADN 11B/230	no/no
24-03-1778	<i>Vente de rente par Henry Joseph Boussu à Marie Magdeleine Jugier épouse de Alexandre Malarme</i> [from the heritage of father Benoit Joseph Boussu; son Benoit Boussu has signed in the margin in 1783]	<i>Mayeur et éch. de Avesnes</i>	ADN 11B/229	no/no
09-09-1778	<i>Acte de consentement pour François Boussu</i>	Notary M.J. Herdies (Brussels)	SAB-Br box 8773	yes/no
21-06-1779	<i>“Namptissement de 124^{lt} de rente fait par maitre Gossuin d[']Angreau aux heritiers Bossus”</i>	<i>Bailliage d’Avesnes</i>	ADN 11B/94bis	yes/no
xx-xx- 1781	Françoise Boussu - Hannoye	<i>Mayeur et éch. de Avesnes</i>	ADN 20th 11B/230	no/no
xx-xx-1781	Marie François Boussu - <i>enfants</i> Hannoye	<i>Pairie d’Avesnes</i>	ADN folio 54, 54v	no/no
05-10-1786	<i>Procuration de Jean Baptiste Rousseau, bail de Gabrielle Boussu, et Jean Baptiste Tetard, bail de Françoise Boussu</i> [brothers Pierre Antoine and François mentioned]	Notary P. Fraissinet jr. (Amsterdam)	ACA 5075/16531	no/no
16-10-1786	Receipt of 826 <i>livres</i> , 13 <i>sols</i> , 4 <i>deniers</i> by Jean Rousseau, Gabrielle Boussu, J.B. Tethar, Françoise Boussu, deposited in 1779 by Constant Gossuin d’Angreau [brothers Pierre Antoine and François mentioned]	<i>Mayeur et éch. de Avesnes</i>	ADN 11B/232	no/no

Appendix IV. Overview of financial transactions involving Benoit Joseph Boussu

This overview presents financial transactions involving Benoit Joseph Boussu, based on all documents identified so far. The corresponding acts can be found in the overview of Appendix III. Included in the table are the date and title of the act, the role of Boussu (creditor, debtor, lessor, legator, etc.), the capital or property involved and, if applicable, the yearly revenues.

Abbreviations:

- d: *denier*
- l: *livre*
- lh: *livre Hainaut*
- lf: French *livre (livre tournois)*
- p: *patar*
- s: *sol*

Date	Act title	Role of Boussu	Capital/property	Revenue per year
29-01-1734	<i>Benoit Joseph Boussu condition</i>	owner of immovable property and annuities	3 lots of land & 2 annuities	10 l (Wottin) & 17 l (A. Fontaine)
19-02-1734/ 19-03-1734	<i>Arrentement d'héritage, par Benoit Joseph Boussu, à Jean Boussu</i>	landowner/ lessor	4 rasières	58 lh
01-09-1734	<i>Arrentement d'héritage, par Benoit Joseph Boussu, à Robert Bouret</i>	landowner/ lessor	2 rasières	12 l
20-12-1734/ 23-12-1734	<i>Constitution de rente, par Benoit Joseph Boussu, au profit du chapitre Royal d'Avesnes</i>	debtor	365 lh, 8 s (received by Boussu)	18 lh, 5 s, 5 d
01-02-1736/ 16-04-1737	<i>Vente de deux rentes ["dus par Thomas et Mandron"] par Jean François Briquet à Benoit Joseph Boussu</i>	buyer of annuities	407 lh, 4 s (paid by Boussu)	15 lh, 17s & 9 lh, 12 s
02-04-1735/ 29-08-1736	<i>Vente de rente ["dû par Wotin"] par Benoit Joseph Boussu à Jean Baptiste Diesmes</i>	seller of annuity	180 l (received by Boussu)	10 lh

02-05-1737	<i>Arrentement d'héritage par Benoit Joseph Boussu au profit de Nicolas Joseph Leroy</i> [36 lh yearly & direct one time reimbursement of 150 écus of 48 patars]	landowner/ lessor	3 carées	36 lh (& direct reimbursement)
16-07-1737	<i>Constitution de rente par François Lemoine à Benoit Joseph Boussu</i>	creditor	150 écus of 48 patars (provided by Boussu)	36 lh
07-09-1737/ 03-03-1738	<i>Arrentement d'héritage par Benoit Joseph Boussu à André Antoine</i>	landowner/ lessor	1 carée	16 lh, 2 p
27-12-1737/ 28-12-1737	<i>Arrentement d'héritage par Benoit Joseph Boussu à Jacques Dervillers</i>	landowner/ lessor	1 rasière	5 l
27-12-1737/ 28-12-1737	<i>Arrentement d'héritage par Benoit Joseph Boussu à Jacques Meurant</i>	landowner/ lessor	3 rasières	6 lh
27-12-1737/ 28-12-1737	<i>Arrentement d'héritage par Benoit Joseph Boussu à François Couturier</i>	landowner/ lessor	3 quarts	10 lh, 11 s
27-12-1737/ 28-12-1737	<i>Arrentement d'héritage par Benoit Joseph Boussu à Louis Le Grand</i>	landowner/ lessor	2.5 carées	50 lh
16-01-1738/ 18-01-1738	<i>Vente de deux rentes ["dû par Mary et Manouvrier"] par Thomas Daniel Renuart à Benoit Joseph Boussu</i>	buyer of annuities	504 l (paid by Boussu)	15 l & 13 l
25-03-1738	<i>Accord et convention entre Benoit Joseph Boussu et Louis Godimus [rachat du capital et arrérages par Boussu]</i>	debtor	114 l, 9 s (paid by Boussu)	-
28-04-1738/ 11-07-1740	<i>Constitution de rente par Pierre Meunier [et Catherine Prissette] à Benoit Joseph Boussu</i>	creditor	200 lh (provided by Boussu)	10 lh
28-04-1738	<i>Vente de trois rentes ["dus par Baudé, Caniot et Bureau"] par Françoise Finet à Benoit Joseph Boussu</i>	buyer of annuities	907 lh, 7 p (paid by Boussu).	20 l & 14 l, 13 s & 18 l
16-06-1741	<i>Vente d'un office de procureur par Jean Baptiste Lefebvre à Benoit Joseph Boussu</i>	buyer	500 lf (paid by Boussu)	-
30-09-1741/ 03-10-1741	<i>Donation des biens et rentes par Louis Alexandre Heisne à Benoit Joseph Boussu</i>	receiver of houses and other property	2 houses in Avesnes, other property and annuities	-
12-06-1743/ 25-06-1743	<i>Constitution de rente par Estienne Labrique à Benoit Joseph Boussu</i>	creditor	100 écus of 48 patars (provided by Boussu)	24 lh
14-03-1746/ 15-03-1746	<i>Vente de rente ["dû par Lemoine"] par Benoit Joseph Boussu au profit de Louis Querroy [or: Querray]</i>	seller of annuity	720 lh (received by Boussu)	36 lh

07-09-1747	<i>Vente de deux rentes ["dus par Le Grand et Antoine"] par Benoit Joseph Boussu au profit de l'enfant de Thèrèse Héleine de Baulés</i>	seller of annuities	851 lh, 8 s (received by Boussu)	25 lh & 16 lh, 4 s
13-05-1748/ 21-05-1748	<i>Vente de deux rentes ["dus par Baudet et Bureau"] par Benoit Joseph Boussu à Charles François Gravez</i>	seller of annuities	682 lh (received by Boussu)	20 lh & 18 lh
16-08-1748	<i>Arrentement d'un office de notaire par Benoit Joseph Boussu à Antoine Demorgny</i> [Demorgny pays part of the rent-sum [36 & 24 lh] to two creditors of Boussu: Lhermitte and Daras]	lessor	(rights of) notary office in Avesnes	180 lh minus (36 & 24) lh
16-10-1748	<i>"Vente, par M^e. Benoit Joseph Boussu, not^e à Avesnes, au profit de M^e. Jean Joseph Delebeke, et Alexandre François Graux, prêtres à Avesnes, d'une rente de 13 livres dûe par les heritiers de Nicolas Joseph Manouvrier, et d'une autre rente de 15 livres dûe par Etton Meunier"</i>	seller of annuities	560 lh (received by Boussu)	13 lh & 15 lh
13-10-1749	<i>Vente des deux rentes ["dus par Manouvrier et Meunier"] par Benoit Joseph Boussu à Jean Joseph Delbeck et Alexandre François Graux</i>	seller of annuities	504 lh (received by Boussu)	13 lh & 15 lh
12-11-1749	<i>Constitution de rente par Benoit Joseph Boussu au profit de Pierre Joseph Randour</i>	debtor	1,013 lh (received by Boussu)	50 lh, 13 s
10-04-1751	<i>Vente de rente ["dû par Fontaine/Simon"] par Benoit Joseph Boussu à Alexandre Michel</i>	seller of annuities	306 l (received by Boussu)	17 l
14-06-1756	<i>Bail à loyer d'une maison, édifices et jardin par Benoit Joseph Boussu à Pierre de Gausse</i>	landlord of house	house in Avesnes	90 lf
03-02-1758	<i>Rachat de 100 livres par Jacques Dervillers à Benoit Joseph Boussu</i>	receiver of money	100 lh (received by Boussu)	-
25-08-1759	<i>Cession d'un jardin par Jean Baptiste Dagneau à Benoit Joseph Boussu</i>	receiver of land	small garden close to Avesnes	-
08-04-1761	<i>Rachat de 112 livres, 10 sols par les heritiers de Laurent Bourge à Benoit Joseph Boussu</i> [mentioned in act of 11-04-1761]	receiver of money	112 l, 10 s (received by Boussu)	-
11-04-1761	<i>Constitution de rente par Marie Margueritte Applincourt au profit de Benoit Joseph Boussu</i>	creditor	112 lh, 10 s	5 lh, 12 s, 6 d

10-07-1761	<i>Bail à loyer d'une maison et jardin par Benoit Joseph Boussu au Jean François Bruneau</i>	landlord of house	house in Avesnes	24 écus of 3 livres
18-04-1763	<i>Rachat de 355 livres par M.C. Scamut [veuve de Daniel Louvet] à Benoit Joseph Boussu [mentioned in act of 11-08-1763]</i>	receiver of money	355 lh (received by Boussu)	-
11-08-1763/ 12-08-1763	<i>Constitution de rente par Antoine Hosselet et J.B. Lemoine au profit de Benoit Joseph Boussu</i>	creditor	355 lh	17 lh, 15 s
04-01-1764	<i>Rachat de 90 livres par Preuvet/Guilan à Benoit Joseph Boussu [mentioned in act of 03-03-1764]</i>	receiver of money	90 lh (received by Boussu)	-
21-01-1764	<i>Constitution de rente par Jean Baptiste Joseph Delannoy au profit de Benoit Joseph Boussu</i>	creditor	2,256 lh	112 lh, 16 s
03-03-1764	<i>Vente de rente ["dû par Carion"] par Christophe Plantin/Carton à Benoit Joseph Boussu</i>	buyer of annuities	90 lh (paid by Boussu)	5 lh
21-03-1767	<i>Bail à loyer d'une maison et jardin par Benoit Joseph Boussu au Jean François Bruneau</i>	landlord of house	house in Avesnes	28 écus of 3 livres
22-07-1769	<i>Transaction entre Benoit Joseph Boussu et les heritiers de Jacques Fontaine [Compensation for Benoit Joseph Boussu, for unpaid rental sums for his notary office]</i>	receiver of money	200 l & 460 l, 8 s (received by Boussu)	-
06-07-1772	<i>Transaction entre Benoit Joseph Boussu et le mayeur et échevins de Fourmies</i>	receiver of money	400 l & 140 l (received by Boussu)	-
15-07-1772	<i>Procuration de Jean Rousseau et Gabriele Boussu, et Jean Tetart et Françoise Boussu</i>	owner of immovable property	3 houses & 8 lots of land from the legacy of Bulto	-
xx-07-1772	<i>Arrentement de terre à Etroeung par Benoit Joseph Boussu à Gilles Bruno Cuisset [this act has not been found yet, but reference to this act found in the partage act of 19-04-1774]</i>	landowner/ lessor	1.5 rasière in Etroeung	12 lh
26-07-1772	<i>Arrentement de terre à Etroeung par Benoit Joseph Boussu à Jean Baptiste Lahannier [this act has not been found yet, but reference to this act found in the partage act of 19-04-1774]</i>	landowner/ lessor	5 coupes in Etroeung	7 lh, 4 s

04-08-1772	<i>Certificat de l'hauteur du prix de trois petites parties de terre à Etroeung</i>	owner of immovable property	3 lots of land of 6 rasières in total	14 l, 4 p
11-09-1772	<i>Constitution de rente par Jean Jacques Dehü au profit de Benoit Joseph Boussu</i> [this act has not been found yet, but reference to this act found in the partition act of 19-04-1774]	creditor	557 lh?	27 lh, 17 s
29-01-1773	<i>Benoit Joseph Boussu condition</i>	owner of immovable property and annuities	1 carrée in Cartignies, 3 rentes	24 l, 10 s & (5 l, 12 s, 6 d) & 8 l
01-06-1773/ 02-06-1773	<i>Arrentement d'héritage par Benoit Joseph Boussu à Joseph Prince</i>	landowner/ lessor	2.5 rasières in Fourmies	132 lh, 12 s
01-06-1773	<i>Arrentement d'héritage par Benoit Joseph Boussu à Simon Eliet</i>	landowner/ lessor	3.5 carrées in Fourmies	164 lh, 5 s
01-06-1773/ 02-06-1773	<i>Arrentement d'héritage par Benoit Joseph Boussu à Jean Stincq</i>	landowner/ lessor	1 rasière in Fourmies	8 lh
01-06-1773/ 02-06-1773	<i>Arrentement d'héritage par Benoit Joseph Boussu à Isodore Pieton</i>	landowner/ lessor	2.5 rasières in Fourmies	60 lh, 6 p
01-06-1773/ 02-06-1773	<i>Arrentement d'héritage par Benoit Joseph Boussu à Nicolas Meurant</i>	landowner/ lessor	9 coupes in Fourmies	99 lh
01-06-1773/ 02-06-1773	<i>Arrentement d'héritage par Benoit Joseph Boussu à Benjamin & Ambroise Meurant</i>	landowner/ lessor	3 rasières	56 lh, 4 p
01-06-1773	<i>Arrentement d'héritage par Benoit Joseph Boussu à Jean François Lermusiau</i>	landowner/ lessor	7 coupes in Fourmies	100 lh, 2 p, 2 liards
02-06-1773/ 02-06-1773	<i>Arrentement d'héritage par Benoit Joseph Boussu à Estienne Lebegue</i>	landowner/ lessor	2 rasières in Fourmies	16 lh, 16 s
19-06-1773	<i>Vente de rente ["dû par Hernoux"] par Simon Eliet à Benoit Joseph Boussu</i> [as first redemption for the earlier annuity of 164 lh, 5 s owed by Eliet to Boussu]	buyer of annuity	payment by Boussu in form of reduction of earlier annuity	60 lh, 6 p, 4 liards
19-06-1773	<i>Rachat de 2071 livres, 6 sols, 8 deniers par Simon Eliet à Benoit Joseph Boussu</i> [as second and final redemption for the earlier annuity of 164 lh, 5 s owed by Eliet to Boussu]	receiver of money	2,071 lh, 6 s, 8 d	-
05-07-1773	<i>Vente de rente ["dû par Nicolas Antoine"] par Jean François Lermigeaux à Benoit Joseph Boussu</i> [as first redemption for the earlier annuity of 100 lh, 2 p, 2 liards owed by Lermigeaux to Boussu]	buyer of annuity	payment by Boussu in form of reduction of earlier annuity	27 lh, 11 s, 6 d

c24-08-1773	<i>Rachat de 1980 lh par Nicolas Meurant à Benoit Joseph Boussu</i> [total redemption for the earlier annuity of 99 lh owed by Meurant to Boussu]	receiver of money	1,980 lh (received by Boussu)	-
c24-08-1773	<i>Rachat de 1453 lh, 10 s par J.F. Lermigeaux à Benoit Joseph Boussu</i> [as second and final redemption for the earlier annuity of 100 lh, 2 p, 2 liards owed by Lermigeaux to Boussu]	receiver of money	1,453 lh, 10 s (received by Boussu)	-
24-08-1773	<i>Constitution de rente par Nicolas Dequesne au profit de Benoit Joseph Boussu</i>	creditor	3,433 lh, 10 s	171 lh, 13 s, 6 d
13-09-1773	Testament of Benoit Joseph Boussu	testator (owner of annuities and cash money)	4 annuities, money from the legacy of Bruno Boussu (>280 écus of 48 patars), personal belongings	27 l, 8 p, 2 liards (Dehu) & 12 l (Cuiset) & 7 l, 4 s (Lahanier) & 112 l, 16 s (Delannoy)
14-09-1773	Codicil of testament of Benoit Joseph Boussu	testator (owner of cash money)	money from the legacy of Bruno Boussu (200 écus of 48 patars)	-
11-11-1773/ 24-01-1774	<i>Vente d'une maison et jardin</i> [in Fourmies, former school] <i>par les enfants du premier mariage de Benoit Joseph Boussu à Jean Louis Legrand</i> [the house came from the patrimony of Benoit Joseph Boussu]	deceased legator	250 écus of 3 lf (received by the children of Boussu)	-
26-11-1773	<i>Vente d'une maison</i> [Avesnes, rue des prets] <i>par les enfants du premier mariage de Benoit Joseph Boussu à Jean Gobled</i> [the house came from the patrimony of Benoit Joseph Boussu]	deceased legator	100 écus of 3 lf (received by the children of Boussu)	-

11-03-1774	<i>Vente de 8 jardins en Banlieue Basse de Avesnes par les enfants du premier mariage de Benoit Joseph Boussu à Jerome Dufaux [3x], Andre Toussaint, Claude Caude, Simon Joseph Levert, François Joseph Pierart and Sr. Chalant [all gardens came from the patrimony of Benoit Joseph Boussu and were occupied by renters]</i>	deceased legator	respectively 20 & 36 & 27 & 50 & 33.5 & 51 & 28.5 & 72 écus of 3 lf (received by the children of Boussu)	-
09-04-1774	<i>Rachat de 3433 lh, 10 s par Nicolas Dequesne aux les enfants du premier mariage de Benoit Joseph [total redemption for the earlier annuity of 171 lh, 13 s, 6 d owed by Dequesne to Benoit Joseph Boussu]</i>	deceased legator	3,433 lh, 10 s (received by the children)	-
12-04-1774	<i>Arrentement d'héritage par les enfants du premier mariage de Benoit Joseph Boussu à Nicolas Marcoux</i>	deceased legator	2 rasières & 5 coupes in Avesnelles	66 lh, 5 s
12-04-1774	<i>Vente d'héritage [4 rasières à Avesnelles] par les enfants du premier mariage de Benoit Joseph Boussu à Antoine Joseph Wagnies</i>	deceased legator	600 lf (received by children)	-
12-04-1774	<i>Vente d'héritage [3 rasières à St. Hillaire] par les enfants du premier mariage de Benoit Joseph Boussu à François Gorisse</i>	deceased legator	750 lf (received by children)	-
12-04-1774	<i>Vente d'héritage [1 carrée et 3 rasières à Boulogne] par les enfants du premier mariage de Benoit Joseph Boussu à Etienne Joseph Havée</i>	deceased legator	60 écus de 3 lf (received by children)	-
13-04-1774	<i>Vente et arrentement d'héritage [1 rasière à Cartignies] par les enfants du premier mariage de Benoit Joseph Boussu à Guillaume Leverd</i>	deceased legator	64 lh (received by children)	6 lh, 8 s
13-04-1774	<i>Arrentement d'héritage par les enfants du premier mariage de Benoit Joseph Boussu à François Wanhouche</i>	deceased legator	2 rasières in Banlieue Haute, Avesnes	30 lh
13-04-1774	<i>Vente et arrentement d'héritage [1 rasière et 3 coupes à Cartignies] par les enfants du premier mariage de Benoit Joseph Boussu à Philippe Betrÿ</i>	deceased legator	140 lh (received by children)	12 lh

13-04-1774	<i>Vente et arrentement d'héritage [1 rasière et 1 rasière à Cartignies] par les enfants du premier mariage de Benoit Joseph Boussu à Jean Baptiste Guillain</i>	deceased legator	100 lh (received by children)	17 lh
13-04-1774	<i>Vente et arrentement d'héritage [1.5 coupe à Cartignies] par les enfants du premier mariage de Benoit Joseph Boussu à Jean Baptiste Joly</i>	deceased legator	40 lh (received by children)	40 p (= 4 lh)
14-04-1774	<i>Arrentement d'héritage par les enfants du premier mariage de Benoit Joseph Boussu à Jean Baptiste Levacq</i>	deceased legator	1 & 1.5 rasières in Avesnelles	8 lh
14-04-1774	<i>Arrentement d'héritage par les enfants du premier mariage de Benoit Joseph Boussu à André Mercier</i>	deceased legator	5.5 coupes & 2 rasières in Avesnelles	9 lh
19-04-1774	<i>Partage des hē[ritie]rs de M^e. Benoit Joseph Boussus, vivant notaire, et de D^{elle}. Heisne son epouse</i>	deceased legator	5 lots of land & 31 annuities & 458 lf, 10 s cash money & 1 house	230 l, 17 s, 6 d (Pierre Antoine) & 231 l, 6 s, 6 d (François) & 123 l, 9 s, 6 d (Françoise) & 123 l, 11 s, 4 d (Gabrielle)

Appendix V. Instrument database

This database includes all 52 instruments by Boussu identified during the currently presented study. First, the dated instrument are listed chronologically, followed by the undated instruments.





Categories and items for each instrument entry are:




- Database ID code: a code to identify the instrument (the composition of this code is explained in Section 4.1).
- Type: type of instrument: violin, viola, cello, double bass, kit violin, cittern, etc..
- Year: the year in which the instrument was built (in case the year is unknown, '17??' is stated).
- Study status: the extent to which the instrument was investigated. The following options are assigned:
 - NOT: no investigation by the author was performed;
 - LOW: only a brief investigation by the author was performed (photographs, basic measurements);
 - MED: instrument was investigated fairly thoroughly, and endoscopy was performed;
 - HIGH: the instrument was extensively studied, including CT scanning.
- Basic measurements: sound box dimensions, scroll width and rib heights are given.
- Photograph of the label, with a transcription of the label text.
- Photographs of sound box front and scroll.
- Photographs of relevant details (bridge position markings, other external markings, etc.).
- Endoscopy photographs of constructional features or internal inscriptions. In case of inscriptions, the transcription is given.
- Provenance: the known (but anonymised) provenance is given, most recent first.
- Selected reference(s): in case available, the most relevant references are given.
- Remarks: further comments on the instrument.


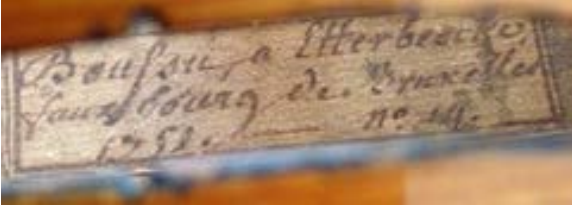



For the measurements, the method of measuring is indicated:

- TAPE: a measuring tape;
- RUL: a ruler;
- CAL: calliper, for small dimensions (< 150 mm): a high quality plastic calliper; for larger dimensions (150 - 900 mm): a self-produced wooden calliper;
- CT: measurement taken from a CT image reconstruction within the DICOM viewer software.


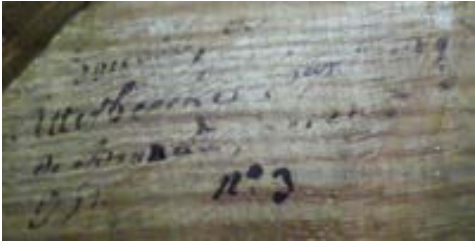

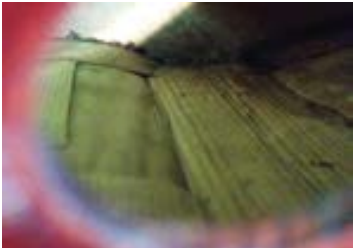
ID: BJB4901vc	Type: cello	Year: 1749	Study status: MED
<p>Basic measurements: back length (mm): 770 (TAPE) back width, upper (mm): 356 (TAPE), 354 (CAL) back width, middle (mm): 237 (TAPE), 229 (CAL) back width, lower (mm): 435 (TAPE), 432 (CAL) scroll width (mm): 52.5 (CAL) rib height at neck (mm): 123 (RUL) rib height at bottom (mm): 123 (RUL)</p>			
 <p>Label text (handwriting in italic font): <i>'Boussu, a / Liege, 1749'</i></p>			
 <p>Endoscopy: small lining and corner block</p>			
 <p>Endoscopy: upper block area, replacement upper block on original platform</p>			
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - musician, Belgium (>2018) - violin maker/dealer, Belgium (c2017) - musician, Netherlands/Germany (c1990-c2017) - violin maker/dealer, Belgium (c1986-c1990) - collection dealer, Belgium (<c1986) 		 <p>Original neck and fittings</p>	
<p>Selected reference(s):</p> <ul style="list-style-type: none"> - Laird, <i>The Baroque cello revival</i> (The Scarecrow Press, 2004), p.179. - Strouken, <i>Mein Cello erzählt</i> (CD-recording plus booklet) (Bozarte/Toca Records, 2006). 			
<p>Remark(s):</p> <p>Original neck removed and replaced by modern neck (original scroll grafted on), c1990. Original neck, including integral upper block, still available at Belgium violin maker/dealer who performed the conversion. Very small original linings (c2x3 mm) still present.</p>			






ID: BJB5001vn	Type: violin	Year: 1750	Study status: HIGH
<p>MIM inv. no.: 2781 Basic measurements: back length (mm): 362 (CT) back width, upper (mm): 168 (CT) back width, middle (mm): 108 (CT) back width, lower (mm): 205 (CT) scroll width (mm): 36.5 (CAL) rib height at neck (mm): 32.0 (RUL) rib height at bottom (mm): 32.5 (RUL) mass, with/without fittings (g): 345/323</p>		 <p>Photo: MIM, Brussels, © MIM, Brussels</p>	
 <p>Label text (handwriting in italic font): '<i>Boussu, a / 1750</i>'</p>			
 <p>Endoscopy: upper block (l), linings (r)</p>		 <p>Photo: MIM, Brussels, © MIM, Brussels</p>	
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - MIM, Brussels (1992-present) - Musée instrumental du Conservatoire royal de musique de Bruxelles, Brussels (1908-1992) - collection César Snoeck, Ghent (<1908) 			
<p>Selected reference(s):</p> <ul style="list-style-type: none"> - Mahillon, Catalogue descriptif et analytique du musée instrumental du conservatoire royal de Bruxelles, vol. 4 (Ad. Hoste, 1912), p.403. - Bragard, De Hen, Musical instruments in art and history (The Viking Press, 1968), p.182, fig. V.-5. - Moens, 'Vioolbouw in de Oostenrijkse Nederlanden', Arca Lovaniensis, vol. 10/b, 1983, pp.135-156. - Haine, Meeùs, Instruments de musique anciens à Bruxelles et en Wallonie - 17^e-20^e siècles (Mardaga, 1985), p.53. - Verberkmoes, Ceulemans, Balériaux, Stoel, 'An inside look at four historical violins by Brussels makers', The Galpin Society Journal, vol. 69, 2016, pp.109-136, 159-165. 			
<p>Remark(s):</p> <p>Instrument in state without major structural modifications, including original 'through neck', bass bar, linings and fingerboard. Three original pegs, and possibly original tailpiece. A CT scan was made on 28 November 2012; the scan data is available at the MIM.</p>			



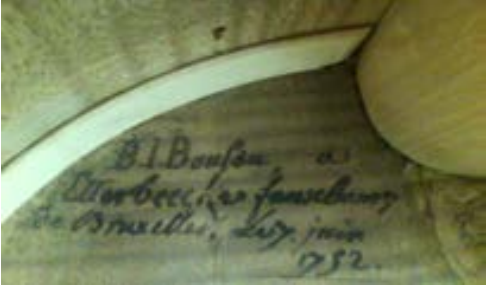
ID: BJB5101vn	Type: violin	Year: 1751	Study status: MED
<p>MIM inv. no.: 2785 Basic measurements: back length (mm): 361 (TAPE), 361 (CAL) back width, upper (mm): 169 (TAPE), 169 (CAL) back width, middle (mm): 108 (CAL) back width, lower (mm): 206 (TAPE), 206 (CAL) scroll width (mm): 36.0 (CAL) rib height at neck (mm): 33.0 (RUL) rib height at bottom (mm): 32.0 (RUL)</p>			
<p>Label text (handwriting in italic font): no label present</p>			
 <p>Endoscopy: handwritten internal inscription on back plate, near upper block: '<i>Boussu, a / Bruxell[...] / 1751.</i>'</p>			
 <p>Endoscopy: upper block, replacement linings</p>			
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - MIM, Brussels (1992-present) - Musée instrumental du Conservatoire royal de musique de Bruxelles, Brussels (1908-1992) - collection César Snoeck, Ghent (<1908) 			
<p>Selected reference(s):</p> <ul style="list-style-type: none"> - Mahillon, Catalogue descriptif et analytique du musée instrumental du conservatoire royal de Bruxelles, vol. 4 (Ad. Hoste, 1912), p.404. - Verberkmoes, 'Benoit Joseph Boussu (1703-1773): violin maker and notary', The Galpin Society Journal, vol. 66, 2013, pp.117-138, 262-264. 			
<p>Remark(s):</p>			


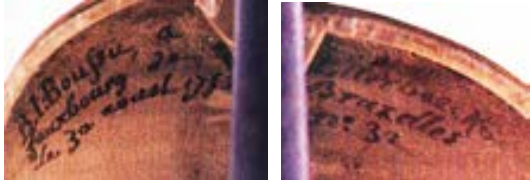

ID: BJB5102vn	Type: violin	Year: 1751	Study status: MED
<p>Basic measurements: back length (mm): 361 (CAL) back width, upper (mm): 169 (CAL) back width, middle (mm): 109 (CAL) back width, lower (mm): 207 (CAL) scroll width (mm): 36.8 (CAL) rib height at neck (mm): 32.0 (RUL) rib height at bottom (mm): 31.5 (RUL)</p>			
 <p>Label text (handwriting in italic font): <i>'Boufsu, a Etterbeecke, / fauxbourg de Bruxelles / 1751. ---- n°. 14.'</i></p>			
 <p>Endoscopy: handwritten internal inscription near to upper block: <i>'Boufsu, / a Etterbeecke / fauxbourg de Bruxelles, 22 may 1751.'</i></p>			
 <p>Endoscopy: corner block and small size linings</p>			
<p>Provenance (most recent first): - musician, Belgium (c2006->2019) - violin maker/dealer, Belgium (c2006)</p>			
<p>Selected reference(s): n/a</p>			
<p>Remark(s): Original, very small linings (c2 × 2 mm) still present, as well as original label and internal inscription. Very few internal repairs to plates and ribs. Replacement upper and lower block, platforms on top and back still present. Back plate button replaced.</p>			






ID: BJB5103vn	Type: violin	Year: 1751	Study status: MED
<p>Basic measurements: back length (mm): 363 (TAPE) back width, upper (mm): 169 (TAPE) back width, middle (mm): 109 (CAL) back width, lower (mm): 206 (TAPE) scroll width (mm): 35.5 (CAL) rib height at neck (mm): 31.0 (RUL) rib height at bottom (mm): 30.0 (RUL)</p>			
 <p>Label text (handwriting in italic font): <i>'Boussu a Etterbeecke, fauxbourg de Bruxelles L[...] 7. juin 1751 n°. 17.'</i></p>			
 <p>Endoscopy: internal handwritten inscription, left and right from upper block: <i>'Bouf[su], a / Etterbee[...]/ fauxbourg / de Bruxel[...] / Le 7. juin 175[...] / n° [...]</i></p>			
 <p>Original small linings, tapered near corner block</p>			
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - musician, Belgium (c2000->2016) - violin maker/dealer, Belgium (c2000) 			
<p>Selected reference(s): n/a</p>			
<p>Remark(s): Original, very small linings (c2 × 2 mm) still present, as well as original label and internal inscription. Very few internal repairs to plates and ribs. Replacement upper block, platform for original upper block removed by gouging.</p>			






ID: BJB5104vc	Type: cello	Year: 1751	Study status: MED
<p>Basic measurements: back length (mm): 762 (CAL) back width, upper (mm): 337 (CAL) back width, middle (mm): 212 (CAL) back width, lower (mm): 431 (CAL) scroll width (mm): 54.5 (CAL) rib height at neck (mm): 120 (RUL) rib height at bottom (mm): 125 (RUL)</p>			
 <p>Label text (handwriting in italic font): <i>'Boussû a Eterbeeck / faubourg de [....]xelles le 21 [possibly: fevrier] 1751 / n° 3'</i></p>			
 <p>Endoscopy: handwritten internal inscription on back plate, near upper block: <i>'Boussu, a / Etterbeecke fauxbourg de Bruxelles, Le [.....] / 1751. n° 3'</i></p>			
 <p>Corner block, and non-original linings</p>			
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - musician, Belgium (c1990->2018) - violin maker, Belgium (c1990) 			
<p>Selected reference(s): n/a</p>			
<p>Remark(s): Restored around 1990 by Belgian violin maker, lower rib part on bass side renewed. Second label present, reading: <i>'Reparé par / N.F. VUILLAUME / á Bruxelles, An 18.39'</i>. In the centre of the back plate, on the inside, a pattern of diagonal knife scratches is visible.</p>			



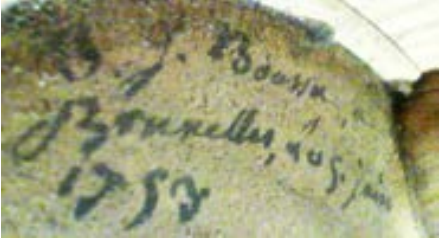



ID: BJB5201vc	Type: cello	Year: 1752	Study status: HIGH
<p>MIM inv. no.: 2863</p> <p>Basic measurements:</p> <p>back length (mm): 764 (CAL), 765 (CT)</p> <p>back width, upper (mm): 338 (CAL), 339 (CT)</p> <p>back width, middle (mm): 215 (CAL), 216 (CT)</p> <p>back width, lower (mm): 434 (CAL), 435 (CT)</p> <p>scroll width (mm): 53.3 (CAL)</p> <p>rib height at neck (mm): 125 (RUL)</p> <p>rib height at bottom (mm): 125 (RUL)</p> <p>mass, without fittings (g): 2220</p>			
 <p>Label text (handwriting in italic font): '<i>Boussu, a Etterbeecke, fauxbourg de Bruxelles Le 27. janvier 1752. n°. 6.</i>'</p>			
 <p>Endoscopy: handwritten internal inscription near upper block: '<i>Boussu, a / Etterbeecke fauxbourg de Bruxelles le 27 janv.' / 1752. n°. 6.</i>'</p>			
 <p>Endoscopy: replacement upper block on original platform</p>			
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - MIM, Brussels (1992-present) - Musée instrumental du Conservatoire royal de musique de Bruxelles, Brussels (1908-1992) - collection César Snoeck, Ghent (<1908) 			
<p>Selected reference(s):</p> <ul style="list-style-type: none"> - Mahillon, Catalogue descriptif et analytique du musée instrumental du conservatoire royal de Bruxelles, vol. 4 (Ad. Hoste, 1912), pp.416-417. 			
<p>Remark(s):</p> <p>A CT scan was made on 27 July 2017; the scan data is available at the MIM.</p>			






ID: BJB5202vc	Type: cello	Year: 1752	Study status: MED
<p>Basic measurements: back length (mm): 752 (TAPE) back width, upper (mm): 339 (TAPE) back width, middle (mm): 219 (TAPE) back width, lower (mm): 430 (TAPE) scroll width (mm): 55.0 (CAL) rib height at neck (mm): 115 (RUL) rib height at bottom (mm): 122 (RUL)</p>			
<p>Label text (handwriting in italic font): no label present</p>			
 <p>Endoscopy: handwritten internal inscription near upper block: <i>'B.I.Boufsu, a / Etterbeecke fauxbourg de Bruxelles, Le 7. juin / 1752.'</i></p>		 <p>Endoscopy: replacement upper block on original platform</p>	
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - musician, Germany (2000->2014) - violin maker/dealer, Belgium (c1999-2000) - Skinner, Inc., (1999) 		<p>Selected reference(s):</p> <ul style="list-style-type: none"> - Skinner Inc. auctioneers, Fine musical instruments, catalogue for an auction on 9 May 1999 in Boston, United States of America (Skinner Inc., 1999), lot no. 83, pp.38-39. 	
<p>Remark(s): Original linings removed and completely replaced by very large new linings. A few reinforcement cleats on the top plate.</p>			






ID: BJB5203vn	Type: violin	Year: 1752	Study status: NOT
<p>Basic measurements: back length (mm): 362* back width, upper (mm): 170* back width, middle (mm): 113* (possibly TAPE) back width, lower (mm): 208* scroll width (mm): - rib height at neck (mm): - rib height at bottom (mm): - * measurements by Kass (The Strad, October 2002)</p>		 <p>Photo: Richard Donovan, Moennig & Son</p>	
<p>Label text: According to Kass (The Strad, October 2002), this violin bears a replica label dated 1774, which is of twentieth-century origin.</p>			
 <p>Photo: Richard Donovan, Moennig & Son</p> <p>Internal inscription, left and right of upper block: '<i>B.I. Boufsu, a / fauxbourg de / Le 30. aoust 1752</i>' / '<i>Etterbeecke / Bruxelles / n°. 32</i>'</p>		 <p>Photo: Richard Donovan, Moennig & Son</p>	
<p>Provenance (most recent first): - violin dealer, USA (2002) - private owner, USA (c1930-c1990) - collection Vatelot-Hekking, France (<1930)</p>			
<p>Selected reference(s): - Kass, 'Eye, eye', The Strad, vol. 113, no. 1350 (2002), pp.1100-1101.</p>			
<p>Remark(s): According to Kass (The Strad, October 2002), "the original button still retains the channel which runs across its base following the perimeter of the body". Kass also states that "the ribs, as was customary in the Low Countries at that time, are inset into the back and reinforced with spruce blocks and tiny narrow linings, cut in quarter-round form from beech and bevelled at each end to a long tapered point that curiously falls far short of the blocks themselves". The top plate is "carved from four panels of pine with mixed grains".</p>			

ID: BJB5204vn	Type: violin	Year: 1752	Study status: MED
<p>MIM inv. no.: 2782</p> <p>Basic measurements:</p> <p>back length (mm): 361 (TAPE), 360 (CAL)</p> <p>back width, upper (mm): 169 (TAPE), 169 (CAL)</p> <p>back width, middle (mm): 109 (CAL)</p> <p>back width, lower (mm): 206 (TAPE), 206 (CAL)</p> <p>scroll width (mm): 38.8 (CAL) (scroll not by Boussu)</p> <p>rib height at neck (mm): 32.0 (RUL)</p> <p>rib height at bottom (mm): 32.0 (RUL)</p>		 <p>Non-original scroll</p>	
 <p>Label text (handwriting in italic font): '<i>Bl Boussu, a Etterbeecke / pres de Bruxelles, Le / 20 8.^{bre.} 1752. n^{o.} 36.</i>'</p>			
 <p>Endoscopy: remains of handwritten internal inscription on back plate, near upper block: '[...]<i>ussu</i> [...] / <i>Le 20. 8^o</i>[...] [.....] n^{o.} 3[.]'</p>			
 <p>Bridge position marked at top plate (only at treble side)</p>			
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - MIM, Brussels (1992-present) - Musée instrumental du Conservatoire royal de musique de Bruxelles, Brussels (1908-1992) - collection César Snoeck, Ghent (<1908) 			
<p>Selected reference(s):</p> <ul style="list-style-type: none"> - Mahillon, Catalogue descriptif et analytique du musée instrumental du conservatoire royal de Bruxelles, vol. 4 (Ad. Hoste, 1912), p.404. - Verberkmoes, 'Benoit Joseph Boussu (1703-1773): violin maker and notary', The Galpin Society Journal, vol. 66, 2013, pp.117-138, 262-264. 			
<p>Remark(s):</p> <p>Non-original scroll.</p>			

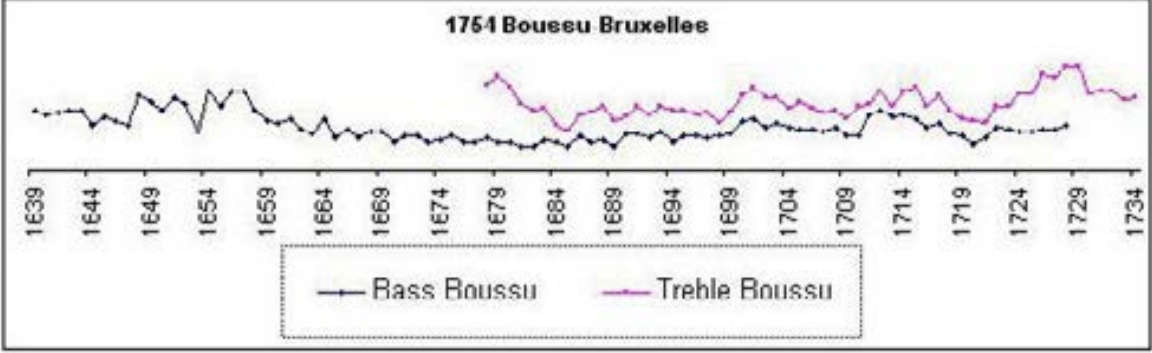
ID: BJB5301vn	Type: violin	Year: 1753	Study status: MED
<p>MIM inv. no.: 2783 Basic measurements: back length (mm): 362 (TAPE), 362 (CAL) back width, upper (mm): 169 (TAPE), 168 (CAL) back width, middle (mm): 110 (CAL) back width, lower (mm): 207 (TAPE), 206 (CAL) scroll width (mm): 36.0 (CAL) rib height at neck (mm): 32.0 (RUL) rib height at bottom (mm): 32.0 (RUL)</p>			
 <p>Label text (handwriting in italic font): <i>'B.J. Boussu, a Etterbeecke contre Bruxelles Le 11 fevrier 1753. n°. 37.'</i></p>			
 <p>Endoscopy: handwritten internal inscription on back plate, left and right from upper block: <i>'B.J. Boufsu a / Etterbeecke pres [...] Bruxelles Le 12. / fevrier 1753.'</i></p>			
 <p>Endoscopy: replacement upper block (with nail) on original, but re-cut platform</p>			
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - MIM, Brussels (1992-present) - Musée instrumental du Conservatoire royal de musique de Bruxelles, Brussels (1908-1992) - collection César Snoeck, Ghent (<1908) 			
<p>Selected reference(s):</p> <ul style="list-style-type: none"> - Mahillon, Catalogue descriptif et analytique du musée instrumental du conservatoire royal de Bruxelles, vol. 4 (Ad. Hoste, 1912), p.404. - Verberkmoes, 'Benoit Joseph Boussu (1703-1773): violin maker and notary', The Galpin Society Journal, vol. 66, 2013, pp.117-138, 262-264. 			
<p>Remark(s):</p>			





ID: BJB5302vn	Type: violin	Year: 1753	Study status: HIGH
<p>MIM inv. no.: 2784 Basic measurements: back length (mm): 362 (CT) back width, upper (mm): 170 (CT) back width, middle (mm): 110 (CT) back width, lower (mm): 207 (CT) scroll width (mm): 36.5 (CAL) rib height at neck (mm): 32.0 (RUL) rib height at bottom (mm): 32.0 (RUL)</p>			
 <p>Label text (handwriting in italic font): 'Benoît Jofeph BOUSSU , / Maître Luthier à Bruxel- les 1753.'</p>			
 <p>Endoscopy: internal inscription at upper block: 'B.J.Boussu , a / Bruxelles , le 5. juin / 1753.'</p>			
 <p>Endoscopy: original maple upper block</p>	 <p>Photo: MIM, Brussels, © MIM, Brussels</p>		
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - MIM, Brussels (1992-present) - Musée instrumental du Conservatoire royal de musique de Bruxelles, Brussels (1908-1992) - collection César Snoeck, Ghent (<1908) 	 <p>Indication for bridge position at top plate</p>		
<p>Selected reference(s):</p> <ul style="list-style-type: none"> - Mahillon, Catalogue descriptif et analytique du musée instrumental du conservatoire royal de Bruxelles, vol. 4 (Ad. Hoste, 1912), p.404. - Verberkmoes, 'Benoit Joseph Boussu (1703-1773): violin maker and notary', The Galpin Society Journal, vol. 66, 2013, pp.117-138, 262-264. 			
<p>Remark(s): Neck modernised, but original upper block remaining. A CT scan was made on 28 November 2012; the scan data is available at the MIM. Indication of bridge position at top plate.</p>			






ID: BJB5401vn	Type: violin	Year: 1754	Study status: MED
<p>Basic measurements:</p> <p>back length (mm): 362 (TAPE)</p> <p>back width, upper (mm): 170 (TAPE)</p> <p>back width, middle (mm): 112 (TAPE?)</p> <p>back width, lower (mm): 207 (TAPE)</p> <p>scroll width (mm): 36.5 (CAL)</p> <p>rib height at neck (mm): 31.0 (RUL)</p> <p>rib height at bottom (mm): 32.0 (RUL)</p>			
 <p>Label text (handwriting in italic font): 'BENOÎT-JOSEPH BOUSSU, Me. Luthier à Bruxelles[,] 1754.'</p>			
 <p>Endoscopy: handwritten inscription '<i>Benoit Joseph [...]</i> / [<i>Me?</i>] <i>Luthier a B[.....]</i> / 175[..]'</p>			
 <p>Endoscopy: replacement top block, original linings</p>			
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - violin maker/dealer, The Netherlands (2017) - musician, The Netherlands (2000->2015) 			
<p>Selected reference(s): n/a</p>			
<p>Remark(s): Inscription '<i>RD</i>' at back of the pegbox. Likely an instrument made in early 1754, since Boussu stopped applying internal inscriptions later that year.</p>			




ID: BJB5402vn	Type: violin	Year: 1754	Study status: MED		
<p>Basic measurements: back length (mm): 363 (TAPE) back width, upper (mm): 170 (TAPE) back width, middle (mm): 110 (CAL) back width, lower (mm): 209 (TAPE) scroll width (mm): - (non-original scroll) rib height at neck (mm): 31.0 (RUL) rib height at bottom (mm): 32.0 (RUL)</p>		 <p>Endoscopy: original linings in C-bout and corner block</p>			
 <p>Label text (handwriting in italic font): ' BENOÎT-JOSEPH BOUSSU Me. Luthier à Bruxelles 1754'</p> <p>NB: notice excess paper at label's borders</p>					
 <p>Indication for bridge position at top plate</p>					
 <p>Stamps on outside of lower ribs</p>					
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - musician, Belgium (>2016) - Hôtel des Ventes du Marais auctioneers (2016) 					
<p>Selected reference(s):</p> <ul style="list-style-type: none"> - Hôtel des Ventes du Marais auctioneers, Vente aux enchères publiques, catalogue for an auction of 28 April 2016 in Saint-Étienne, France (Hôtel des Ventes du Marais, 2016). Available from: http://media.interencheres.com/29/2016/04/25/180557_97e5d5f1b77a41c907a7a0594258a1d9.pdf (accessed October 2018). 					
<p>Remark(s):</p> <p>Violin auctioned on 28 April 2016. Description by Hôtel des Ventes du Marais auctioneers: “[lot nr.] 106 Violon du XVIIIe siècle portant l’étiquette de Benoit Joseph BOUSSU, luthier à Bruxelles 1754-Bon état général ,tête endurée, fond deux pièces -363 mm-Avec un archet en abaeille , école de Bazin [estimate:] 1000-1200”. Internal handwritten inscription: ‘<i>raccommodé / par Peirvoille / luthier du 1 / [...] / 1816</i>’. When sold in April 2016, this violin was covered with dark brown top layer varnish; after the auction, the current owner removed this layer himself. Non-original scroll.</p>					

ID: BJB5403vc	Type: cello	Year: 1754	Study status: LOW
<p>Basic measurements: back length (cm): 75* (TAPE) back width, upper (cm): 33.6* (TAPE) back width, middle (cm): 22* (TAPE) back width, lower (cm): 43* (TAPE) scroll width (cm): c6* (TAPE, estimate) rib height at neck (mm): - rib height at bottom (mm): - * measurement values provided by the owner</p>		 <p>Photo: owner of the cello (2017)</p>	
 <p>Label text (handwriting in italic font): ' BENOÎT-JOSEPH BOUSSU, Me. Luthier à Bruxelles 1754'</p>			
 <p>Internal photograph: corner block and original linings. Linings possibly of walnut wood</p>		 <p>Photo: owner of the cello (2017)</p>	
 <p>Indication for bridge position on top plate</p>			
<p>Provenance (most recent first): - musician, UK (<2016->2017)</p>			
<p>Selected reference(s): n/a</p>			
<p>Remark(s): Photographic report by J&A Beare Ltd available.</p>			







ID: BJB5404vn	Type: violin	Year: 1754	Study status: NOT
Basic measurements: back length (mm): - back width, upper (mm): - back width, middle (mm): - back width, lower (mm): - scroll width (mm): - rib height at neck (mm): - rib height at bottom (mm): -			
Label text (handwriting in italic font): Unknown			
<div style="text-align: center;">  <p>Dendrochronology result by Peter Ratcliff</p> </div>			
Provenance (most recent first): - musician, UK (2009)			
Selected reference(s): - Maestronet online forum, 'Luthier Boussu', https://maestronet.com/forum/index.php?/topic/319239-luthier-boussu/ (accessed October 2018).			
Remark(s): On 16 January 2009, Peter Ratcliff wrote on the Maestronet forum: "I did a dendro analysis on a 1754 Boussu about six months ago. I may have taken a picture of it. If so I'll be back in touch. Unfortunately, it is in Scotland! From my analysis, I can see that the growth pattern of the wood for the front correlates very well with many instruments, and in particular, is very similar to wood used by makers in Mittenwald. That particular 1754 Boussu's front wasn't book matched and the respective dates for the bass and treble sides are 1728 & 1734, so within the parameters most often come across." Later on 16 January 2009, Peter Ratcliff replied on the Maestronet forum: "I have looked in my database, and unfortunately, I don't have the picture. The violin sometimes comes down with the owner and I will make sure I photograph it then. Interestingly, I note from the graph comparison of the growth rings of the treble and bass side, that the 1754 violin is also tighter grain on the bass than that of the treble, which is fairly unusual. Below is the comparative growth ring width chart for bass and treble, demonstrating the above: [dendrochronology graph inserted here]".			


ID: BJB5501kv	Type: kit violin	Year: 1755	Study status: MED
<p>MdlM inv. no.: D.E.Cl.2045</p> <p>Basic measurements:</p> <p>total length (mm): 495 (measured by MdlM)</p> <p>back length (mm): 294 (TAPE)</p> <p>back width, upper (mm): 73.6 (CAL)</p> <p>back width, middle (mm): 50.2 (CAL)</p> <p>back width, lower (mm): 83.6 (CAL)</p> <p>scroll width (mm): 34.4 (CAL)</p> <p>rib height at neck (mm): 21.0 (RUL)</p> <p>rib height at bottom (mm): 18.5 (RUL)</p>			
 <p>Label text (handwriting in italic font): 'BENOÎT-JOSEPH BOUSSU Me. Luthier à Bruxelles 1755.'</p>			
 <p>Endoscopy: view at the upper block</p>			
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - Musée de la musique, Paris (1994-present) - Musée national de la Renaissance, Écouen (<1994) 			
<p>Selected reference(s):</p> <ul style="list-style-type: none"> - website Musée de la musique, 'POCHETTE Benoît Joseph Boussu' <p>http://collectionsdumusee.philharmoniedeparis.fr/doc/MUSEE/0130333?_ga=2.110480581.1302393585.1539521056-976417798.1539381017 (accessed October 2018).</p>			
<p>Remark(s):</p> <p>Fingerboard length is 241 mm, which is nearly the same as the length of the original fingerboard (240 mm) on the violin with database code BJB5001vn (MIM inv. no. 2781).</p>			

ID: BJB5701vc	Type: cello	Year: 1757	Study status: HIGH
<p>MIM inv. no.: 1372</p> <p>Basic measurements:</p> <p>back length (mm): 753 (CT), 754 (TAPE),</p> <p>back width, upper (mm): 336 (CT), 337 (TAPE)</p> <p>back width, middle (mm): 219 (CT), 222 (TAPE)</p> <p>back width, lower (mm): 429 (CT), 429 (TAPE)</p> <p>scroll width (mm): 60.3 (CAL)</p> <p>rib height at neck (mm): 114 (RUL)</p> <p>rib height at bottom (mm): 114 (RUL)</p> <p>mass, without fittings (g): 1899</p>		 <p>Photo: MIM, Brussels, © MIM, Brussels</p>	
 <p>Label text (handwriting in italic font):</p> <p>'BENOÎT-JOSEPH BOUSSU, Me. Luthier à Bruxelles. 1757.'</p> <p>[NB: this original label is glued in close to the upper block]</p>			
 <p>Indication for soundpost position</p>		 <p>Photo: MIM, Brussels, © MIM, Brussels</p>	
 <p>Endoscopy: upper block</p>			
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - MIM, Brussels (1992-present) - Musée instrumental du Conservatoire royal de musique de Bruxelles, Brussels (<1900-1992) 			
<p>Selected reference(s):</p> <ul style="list-style-type: none"> - Mahillon, Catalogue descriptif et analytique du musée instrumental (historique et technique) du conservatoire royal de musique de Bruxelles, vol. 3 (Ad. Hoste, 1900), p.31. - Haine, Meeùs, Instruments de musique anciens à Bruxelles et en Wallonie - 17^e-20^e siècles (Mardaga, 1985), p.53. 			
<p>Remark(s):</p> <p>Instrument in well-preserved constructional state, including original 'through neck'. Solid ebony fingerboard very likely a later replacement. A CT scan was made on 27 July 2017; the scan data is available at the MIM. Indication for bridge position applied on top plate. On the lower back part of the pegbox, the name 'DANOOT' is scratched in. Second, non-original label present.</p>			

ID: BJB5702vn	Type: violin	Year: 1757	Study status: NOT
<p>Basic measurements: back length (mm): - back width, upper (mm): - back width, middle (mm): - back width, lower (mm): - scroll width (mm): - rib height at neck (mm): - rib height at bottom (mm): -</p>	 <p>Photo: owner of the violin (2020)</p>		
 <p>Photo: owner of the violin (2020)</p> <p>Label text (handwriting in italic font):</p> <p>'[...]OÎT-JOSEPH BOUSSU Me.</p> <p>[...]thier à Bruxelles. 1757.'</p>			
	 <p>Photo: owner of the violin (2020)</p>		
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - musician, Belgium (c2001->2020) - violin maker/dealer, Belgium (c2001) 			
<p>Selected reference(s):</p> <p>n/a</p>			
<p>Remark(s):</p>			




ID: BJB5801vn	Type: violin	Year: 1758	Study status: MED
<p>Hamamatsu Museum inv. no.: C-0057</p> <p>Basic measurements:</p> <p>back length (mm): 358* (TAPE)</p> <p>back width, upper (mm): 167* (CAL)</p> <p>back width, middle (mm): 110* (CAL)</p> <p>back width, lower (mm): 207* (TAPE)</p> <p>scroll width (mm): 42* (CAL)</p> <p>rib height at neck (mm): 28*</p> <p>rib height at bottom (mm): 32*</p> <p>* measurement values provided by Kazuhiko Shima (Hamamatsu Museum of Musical Instruments, Japan)</p>		 <p>Photo: Kazuhiko Shima, Hamamatsu Museum of Musical Instruments</p>	
 <p>Label text (handwriting in italic font): 'BENOÎT-JOSEPH BOUSSU, Me. Luthier à Bruxelles. 1758.'</p>			
 <p>Indication for soundpost position at inside of back plate, including the symbol '#'.</p>		 <p>Photo: Kazuhiko Shima, Hamamatsu Museum of Musical Instruments</p>	
 <p>Indication for bridge position at top plate</p>			
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - Hamamatsu Museum of Musical Instruments, Japan (March 1992-present) - private collection, USA (<c1992) 			
<p>Selected reference(s):</p> <p>n/a</p>			
<p>Remark(s):</p> <p>Violin in 'Baroque' set-up. Scroll of unusual width, and made from unusual (figured) maple. From what can be seen from the photographs, neck and scroll are still in one part (no neck graft), with neck in possibly unmodified state.</p>			

ID: BJB5901va	Type: viola	Year: 1759	Study status: MED
<p>Basic measurements: back length (mm): 420 (CAL) back width, upper (mm): 194 (CAL) back width, middle (mm): 128 (CAL) back width, lower (mm): 243 (CAL) scroll width (mm): 40.3 (CAL) rib height at neck (mm): 35.0 (RUL) rib height at bottom (mm): 38.0 (RUL)</p>		 <p>Photo: H. Köstler</p>	
 <p>Label text (handwriting in italic font):</p> <p>'BENOÎT-JOSEPH BOUSSU, Me. Luthier à Bruxelles. 1759'</p>  <p>Indication for bridge position on top plate</p>			
 <p>Endoscopy: replacement upper block on remains of original platform</p>		 <p>Photo: H. Köstler</p>	
 <p>Indication for soundpost position including inscriptions '2' and '12. δ.'</p>			
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - musician, Germany (c2012->2017) - violin maker/dealer, Germany (c2012) - musician, Germany (c2012) - musician, Germany (<c2012) 			
<p>Selected reference(s): n/a</p>			
<p>Remark(s):</p>			






ID: BJB5902kv	Type: kit violin	Year: 1759	Study status: NOT
<p>Basic measurements: total length (mm): 465 (measured by Bongartz) back length (mm): - back width, upper (mm): - back width, middle (mm): - back width, lower (mm): - scroll width (mm): - rib height at neck (mm): - rib height at bottom (mm): -</p>		 <p>Photo: Auktionshaus Bongartz</p>	
<p>Label text (handwriting in italic font): unknown</p>			
<p>Provenance (most recent first): - Auktionshaus Bongartz (2007)</p>			
<p>Selected reference(s): - Auktionshaus Bongartz auctioneers, 68. Auktion, catalogue for an auction on 10 November 2007 in Cologne, Germany (Auktionshaus Bongartz, 2007), lot no. 39, p.7.</p>			
<p>Remark(s): Description according to Bongartz auction catalogue: "Bedeutende und seltene Pochette von Benoit-Joseph Boussu, Brüssel 1759, entsprechendes Originaletikett, braunoranger Lack, Gesamtlänge 465 mm [estimate:] 3000-4000 [euro]".</p>			

ID: BJB5903vn	Type: violin	Year: 1759	Study status: HIGH
<p>Basic measurements: back length (mm): 361 (CT) back width, upper (mm): 169 (CT) back width, middle (mm): 109 (CT) back width, lower (mm): 207 (CT) scroll width (mm): 36.5 (CAL) rib height at neck (mm): 28.0 (RUL) rib height at bottom (mm): 32.0 (RUL) mass (with fittings) (g): 356</p>			
 <p>Label text (handwriting in italic font): 'BEÑOÎT-JOSEPH BOUSSU , Me. Luthier à Bruxelles.1759.'</p>			
 <p>Mark 'BOUSSU' on the back, near button</p>			
 <p>Indication for soundpost position including inscriptions '2' and '10.'</p>			
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - musician, The Netherlands/New Zealand (2000-present) - violin maker/dealer, Belgium (2000) 			
<p>Selected reference(s):</p> <ul style="list-style-type: none"> - Verberkmoes, 'Benoit Joseph Boussu (1703-1773): violin maker and notary', <i>The Galpin Society Journal</i>, vol. 66, 2013, pp.117-138, 262-264. 			
<p>Remark(s):</p> <p>A CT scan was made on 18 December 2010; the scan data is available at the author. Instrument reconstructed to 'Baroque' state around 2000, but retaining its non-original modern size bass bar. Very few internal reinforcement cleats.</p>			





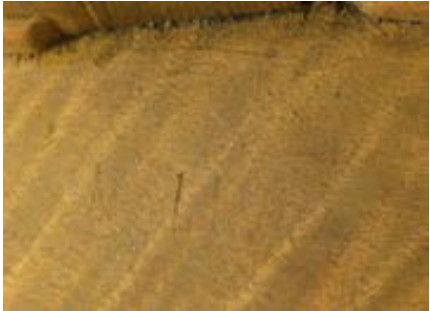
ID: BJB6001vn	Type: violin	Year: 1760	Study status: MED
<p>MIM inv. no.: 1338</p> <p>Basic measurements:</p> <p>back length (mm): 359 (TAPE), 358 (CAL)</p> <p>back width, upper (mm): 166 (TAPE), 166 (CAL)</p> <p>back width, middle (mm): 108 (CAL)</p> <p>back width, lower (mm): 206 (TAPE), 206 (CAL)</p> <p>scroll width (mm): 35.8 (CAL)</p> <p>rib height at neck (mm): 29.0 (RUL)</p> <p>rib height at bottom (mm): 32.0 (RUL)</p>			
 <p>Label text (handwriting in italic font): 'Benôit-Joseph Boussu, Me. Luthier à Bruxelles . 1760'</p> <p>[NB: number 6 written over printed 5]</p>			
 <p>Endoscopy: replacement upper block placed on original remaining platform</p>			
 <p>Indication for soundpost position</p>  <p>Indication for bridge position at top plate</p>			
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - MIM, Brussels (1992-present) - Musée instrumental du Conservatoire royal de musique de Bruxelles, Brussels (<1900-1992) 			
<p>Selected reference(s):</p> <ul style="list-style-type: none"> - Mahillon, Catalogue descriptif et analytique du musée instrumental (historique et technique) du conservatoire royal de musique de Bruxelles, vol. 3 (Ad. Hoste, 1900), p.18. - Verberkmoes, 'Benoit Joseph Boussu (1703-1773): violin maker and notary', The Galpin Society Journal, vol. 66, 2013, pp.117-138, 262-264. 			
<p>Remark(s):</p> <p>Internal inscription 'M' in red ink on the inside of two of the ribs.</p>			







ID: BJB6002db	Type: double bass	Year: 1760	Study status: MED
<p>MIM inv. no.: 2014.324 Basic measurements: back length (mm): 1082 (CAL) back width, upper (mm): 491 (CAL) back width, middle (mm): 329 (CAL) back width, lower (mm): 627 (CAL) scroll width (mm): 87.2 (CAL) rib height at neck (mm): 188 (RUL) rib height at bottom (mm): 188 (RUL)</p>			
 <p>Label text (handwriting in italic font): 'Benôit-Joseph Boussu Me. Luthier à Bruxelles 1760.' [NB: number 6 written over printed 5]</p>			
 <p>Indication for bridge position (14 mm distance between lines)</p>			
 <p>Endoscopy: replacement upper block on original platform</p>			
<p>Provenance (most recent first): - MIM, Brussels (2014-present) - violin maker/dealer, Belgium (c2013-2014)</p>			
<p>Selected reference(s): - website MIM, 'double bass Boussu', http://www.mim.be/double-bass-boussu?from_i_m=1 (accessed October 2018). - website Carmentis, http://carmentis.kmkg-mrah.be/eMP/eMuseumPlus?service=ExternalInterface&module=collection&objectId=193456&viewType=detailView (accessed October 2018).</p>			
<p>Remark(s): Internal handwritten inscriptions '1860' and 'Hersteld door / S. Wagner / Antwerpen / Feb. 1948'. Many internal repairs and reinforcement cleats, especially on top plate, including a large internal doubling of the top plate. Several internal branding marks 'BOUSSU' on inside of back plate. Original tuning pegs replaced by a brass tuning mechanism made by C. Geeraerts (1835). Markings for bridge and soundpost present.</p>			

ID: BJB6101vn	Type: violin	Year: 1761	Study status: MED
<p>Basic measurements: back length (mm): 359 (CAL)* back width, upper (mm): 167 (CAL)* back width, middle (mm): 109 (CAL)* back width, lower (mm): 207 (CAL)* scroll width (mm): 35.7 (CAL)* rib height at neck (mm): 29.2 (RUL)* rib height at bottom (mm): 32.3 (RUL)* * measurement values provided by Dai-Ting Chung (Chimei Museum, Taiwan)</p>		 <p>Photo: Chimei Museum</p>	
 <p>Label text (handwriting in italic font): 'Benôit-Joseph Boussu Me. Luthier à Bruxelles . 1761.' [NB: number 6 written over printed 5]</p>			
 <p>Indication for soundpost position, including '12:' and '4:'; one of the at least four internal branding marks 'BOUSSU'</p>		 <p>Photo: Chimei Museum</p>	
 <p>Endoscopy: replacement upper block, possibly original linings</p>			
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - Chimei Museum collection, Taiwan (2010-present) - violin maker/dealer, Belgium (2010) 			
<p>Selected reference(s):</p> <ul style="list-style-type: none"> - website Chimei Museum, 'Joseph Benoit Boussu, 1765 [sic]', http://db.dacm.ntnu.edu.tw/chimei/tw/entry.aspx?id=Bel0006 (accessed October 2018). 			
<p>Remark(s):</p> <p>At least four internal branding marks 'BOUSSU'. In the Chimei Museum online catalogue, this instrument is erroneously dated as being from the year 1765. Internal inscription 'Rep. A. Stauber, / 1888'. Inscription 'IR' on back plate button. These initials may refer to Joseph (Claude) Rousselet, a Brussels dance master who also owned a 'basse de Bossu'.</p>			




ID: BJB6501vn	Type: violin	Year: 1765	Study status: MED
<p>Basic measurements: back length (mm): 351 (CAL)* back width, upper (mm): 160 (CAL)* back width, middle (mm): 104 (CAL)* back width, lower (mm): 199 (CAL)* scroll width (mm): 36.6 (CAL)* rib height at neck (mm): 29.9 (RUL)* rib height at bottom (mm): 32.5 (RUL)* * measurement values provided by Dai-Ting Chung (Chimei Museum, Taiwan)</p>		 <p>Photo: Chimei Museum</p>	
 <p>Branding mark 'BOUSSU' at back plate bellow button</p>			
 <p>Handwritten internal inscription '1765.'; indication for soundpost position; possible remains of other inscriptions (illegible)</p>		 <p>Photo: Chimei Museum</p>	
 <p>Endoscopy: upper block; unknown whether this block is original, or not</p>			
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - Chimei Museum collection, Taiwan (2010-present) - violin maker/dealer, Belgium (2010) - possibly: musician, France (<2010) 			
<p>Selected reference(s):</p> <ul style="list-style-type: none"> - website Chimei Museum, 'Joseph Benoit Boussu, 1750 [sic]', http://db.dacm.ntnu.edu.tw/chimei/tw/entry.aspx?id=Bel0005 (accessed October 2018) 			
<p>Remark(s):</p> <p>Violin of unusually smaller sound box dimensions, in 'Baroque' set-up. This may very well be the instrument that has been reported previously as the Boussu violin labelled [or with the inscription] 'Leiden 176..'. If indeed this is true, that would imply that the word 'Leiden' disappeared prior the sale of the instrument to the Chimei Museum collection in 2010. Given the small sound box size, the somewhat atypical, Italian-influenced style of scroll and f-holes, and the branding mark 'BOUSSU' (used by Boussu post-c1759), this may indeed be an instrument made in Boussu's later (Dutch) period, thus from the mid-1760s to early 1770s.</p>			





ID: BJB7101ci	Type: cittern	Year: 1771	Study status: HIGH
<p>Basic measurements: total length (mm): 719 (CT) back length (mm): 363 (TAPE) back width, maximum (mm): 300 (TAPE) sound box depth at neck (mm): 67 (RUL) sound box depth at bottom (mm): 77 (RUL)</p>	 <p>Photo: Jan Stragier</p>		
 <p>Internal inscription (handwriting in italic font): 'BOUSSU, à / Amsterdam 1771.'</p>			
 <p>External inscription (handwriting in italic font): 'BOUSSU, à / Amsterdam / 1771.'</p>	 <p>Photo: Jan Stragier</p>		
 <p>Endoscopy: upper block, with screw to secure the neck</p>			
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - private collection, The Netherlands (2015-present) - Sworders Fine Art Auctioneers (2015) - possibly: Christie's auctioneers (1983) - possibly: Galerie Georges Giroux auctioneers, Brussels (1955) - possibly: collection Jean Auguste Stellfeld, Belgium (<=1955) 			
<p>Selected reference(s):</p> <ul style="list-style-type: none"> - Christie's auctioneers, Fine musical instruments, catalogue for an auction on 21 June 1983 in London, United Kingdom (Christie, Manson & Woods, 1983), lot no. 16, p.6. - Sworders Fine Art Auctioneers, The winter country house sale, catalogue for an auction on 8 December 2015 in Stansted Mountfitchet, United Kingdom (Sworders Fine Art Auctioneers, 2015), lot no. 101, p.35. - Verberkmoes, 'Made in Amsterdam; a 1771 cittern by Benoit Joseph Boussu', Early Music, vol. 44, nr. 4, 2016, pp.627-641. 			
<p>Remark(s): A CT scan was made on 27 January 2016; the scan data is available at the author.</p>			

ID: BJBnd01vn	Type: violin	Year: 17??	Study status: MED
<p>Basic measurements: back length (mm): 363 (TAPE) back width, upper (mm): 168 (TAPE) back width, middle (mm): 108 (CAL), 112 (TAPE) back width, lower (mm): 205 (TAPE) scroll width (mm): 36.5 (CAL) rib height at neck (mm): 30.0 (RUL) rib height at bottom (mm): 31.0 (RUL)</p>			
 <p>Label text (handwriting in italic font): 'Heyndrick Willems tot Ghendt 1729'</p>			
 <p>Original linings and corner block</p>			
 <p>Scratched-in inscription: 'N. LUPOT'</p>			
<p>Provenance (most recent first): - private collection, Belgium (2016->2017) - Vichy Enchères auctioneers (2016)</p>			
<p>Selected reference(s): - Vichy Enchères auctioneers, Instruments du quatuor, catalogue for an auction on 1 December 2016 in Vichy, France (Vichy Enchères, 2016), lot no. 365. Available from: https://vichyencheres.files.wordpress.com/2016/11/2016-12-lutherie-liste-lots.pdf (accessed October 2018).</p>			
<p>Remark(s): Violin auctioned on 1 December 2016. Description in Vichy Enchères catalogue: "[lot nr.] 365 Violon de Benoît Joseph BOUSSU fait à Bruxelles vers 1760, portant étiquette apocryphe de Willems. Quelques restaurations sur la table et la tête. 362mm. [estimation:] 6000/7000". Inscription 'N. Lupot' scratched in back plate. Modern size bass bar stamped 'R. & M. MILLANT PARIS'.</p>			






ID: BJBnd02vn	Type: violin	Year: 17???	Study status: MED
<p>Basic measurements: back length (mm): 360 (CAL) back width, upper (mm): 169 (CAL) back width, middle (mm): 109 (CAL) back width, lower (mm): 207 (CAL) scroll width (mm): 36.0 (CAL) rib height at neck (mm): 29.0 (RUL) rib height at bottom (mm): 31.0 (RUL)</p>		 <p>Photo: H. Köstler</p>	
 <p>Label text (handwriting in italic font): 'Giuovanni Crancino in Contrada / Largha di Milano al fegno / della Corona 1726' [non-original label]</p>  <p>Indication for bridge position on top plate</p>			
 <p>Endoscopy: replacement upper block</p>		 <p>Photo: H. Köstler</p>	
 <p>Endoscopy: corner block, original linings</p>			
<p>Provenance (most recent first): - violin maker/dealer, Germany (2017)</p>			
<p>Selected reference(s): n/a</p>			
<p>Remark(s): High arched instrument. Maximum central back plate thickness: 3.8 mm. Indication of bridge position at top plate.</p>			



ID: BJBnd03vn	Type: violin	Year: 17??	Study status: MED
<p>Basic measurements: back length (mm): 357 (TAPE) back width, upper (mm): 167 (TAPE) back width, middle (mm): 107 (CAL) back width, lower (mm): 203 (TAPE) scroll width (mm): 37.4 (CAL) rib height at neck (mm): 30.0 (RUL) rib height at bottom (mm): 31.0 (RUL)</p>			
<p>Label text (handwriting in italic font): no label present, no internal inscription present</p>			
 <p>Endoscopy: replacement upper block</p>			
 <p>Endoscopy: lower block</p>			
<p>Provenance (most recent first): - musician, Belgium (2013-present) - violin maker/dealer, Belgium (2013)</p>			
<p>Selected reference(s): n/a</p>			
<p>Remark(s): Atypical back length and scroll width.</p>			

ID: BJBnd04vn	Type: violin	Year: 17??	Study status: MED
<p>Basic measurements: back length (mm): 359 (TAPE) back width, upper (mm): 168 (TAPE) back width, middle (mm): 108 (CAL) back width, lower (mm): 207 (TAPE) scroll width (mm): 33.5 (CAL) rib height at neck (mm): - rib height at bottom (mm): -</p>			
 <p>Label text (handwriting in italic font): 'BEÑOÎT-JOSEPH BOUSSU, Me. Luthier à Bruxelles 175[..]'</p>  <p>Indication for bridge position on top plate</p>			
 <p>Indication for soundpost position</p>			
 <p>Endoscopy: original linings and corner block</p>			
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - musician, Belgium (>2015) - Vichy Enchères (2015) 			
<p>Selected reference(s):</p> <ul style="list-style-type: none"> - website Vichy Enchères, '205-1-violon-benoit-boussu', https://vichyencheres.wordpress.com/205-1-violon-benoit-boussu/ (accessed October 2018). 			
<p>Remark(s):</p> <p>Violin auctioned on 1-3 December 2015. Description on Vichy Enchères auction website: "Violon de Benoît BOUSSU fait à Bruxelles vers 1750/1760. Quelques restaurations sur la table et les éclisses. 358 mm. Estimation : 5000 / 7000 €". Possible dating around 1760. Original scroll, but atypical narrow scroll width (33.5 mm).</p>			

ID: BJBnd05vn	Type: violin	Year: 17??	Study status: NOT
<p>Basic measurements: back length (mm): - back width, upper (mm): - back width, middle (mm): - back width, lower (mm): - scroll width (mm): - rib height at neck (mm): - rib height at bottom (mm): -</p>		 <p>Photo: H. Köstler</p>	
 <p>Label text (handwriting in italic font): label likely of the small printed type used between c1754 and c1761: ‘BENOÎT[/t]-JOSEPH BOUSSU Me. Luthier à Bruxelles 175[.]’</p>			
 <p>Photo: H. Köstler</p>		 <p>Photo: H. Köstler</p>	
<p>Provenance (most recent first): - violin maker/dealer, Germany (<2017)</p>			
<p>Selected reference(s): n/a</p>			
<p>Remark(s): Information regarding this instrument was provided by the violin dealer H. Köstler (Stuttgart).</p>			






ID: BJBnd06vn	Type: violin	Year: 175?	Study status: MED
<p>Basic measurements: back length (mm): 363 (TAPE) back width, upper (mm): 170 (TAPE) back width, middle (mm): 109 (TAPE) back width, lower (mm): 206 (TAPE) scroll width (mm): 40.8 (CAL) rib height at neck (mm): 31.0 (RUL) rib height at bottom (mm): 31.5 (RUL)</p>			
 <p>Label text (handwriting in italic font): ' BENOÎT-JOSEPH BOUSSU, Me. Luthier à Bruxelles. 175[.]' NB: last digit not filled in, or faded</p>			
 <p>Middle bout lining</p>			
<p>Provenance (most recent first): - musician, Belgium (>2019) - violin maker/dealer, Belgium (2012-2019) - Bonhams auctioneers (2012)</p>			
<p>Selected reference(s): - website Bonhams auctioneers, 'A violin of the Flemish school ascribed to Josef Boussu, Brussels circa 1760', https://www.bonhams.com/auctions/20019/lot/309/?category=list (accessed July 2019).</p>			
<p>Remark(s): Instrument treated with a dark brown stain, likely not original. Atypical scroll width (40.8 mm instead of c36.5 mm). Instrument auctioned at Bonhams auctioneers, fine musical instruments auction, 31 October 2012, lot no. 309.</p>			





ID: BJBnd07vn	Type: violin	Year: 17???	Study status: MED
<p>Basic measurements: back length (mm): 363 (TAPE) back width, upper (mm): 170 (TAPE) back width, middle (mm): 109 (CAL) back width, lower (mm): 208 (TAPE) scroll width (mm): 41.0 (CAL) rib height at neck (mm): 29-30 (RUL) rib height at bottom (mm): 31.0 (RUL)</p>			
<p>Label text: 'Hendrik Jacobs, Amsterdam'</p>  <p>Indication for bridge position on top plate</p>			
 <p>Endoscopy: possible remains of internal inscription in ink</p>			
 <p>Endoscopy: linings and corner block</p>			
<p>Provenance (most recent first): - violin maker/dealer, Belgium (2013)</p>			
<p>Selected reference(s): n/a</p>			
<p>Remark(s): Atypical scroll width (41.0 mm instead of c36.5 mm). Typical back plate dimensions.</p>			





ID: BJBnd08vn	Type: violin	Year: 17??	Study status: LOW
<p>Basic measurements: back length (mm): 362 (TAPE) back width, upper (mm): 170 (TAPE) back width, middle (mm): 108 (CAL) back width, lower (mm): 206 (TAPE) scroll width (mm): - (non-original scroll) rib height at neck (mm): 29.5 (RUL) rib height at C-bouts (mm): 31.0 (RUL) rib height at bottom (mm): 30.0 (RUL)</p>		 <p>Non-original scroll</p> <p>Photo: NMF, Cathy Levesque, © NMF</p>	
<p>Label text (handwriting in italic font): 'Evangelisti fecit in Firenze 1757' [non-original substitute label]</p>			
		 <p>Photo: NMF, Cathy Levesque, © NMF</p>	
<p>Selected reference(s): - website Dutch Musical Instruments Foundation (NMF), 'Een viool, gebouwd door Joseph Benoit Boussu in Brussel ca. 1750 met latere anonieme krul.', https://www.muziekinstrumentenfonds.nl/collectie/287.1 (accessed November 2020).</p>			
<p>Remark(s): Non-original scroll, non-original label. Back plate dimensions agree with typical values for Boussu's violins.</p>			



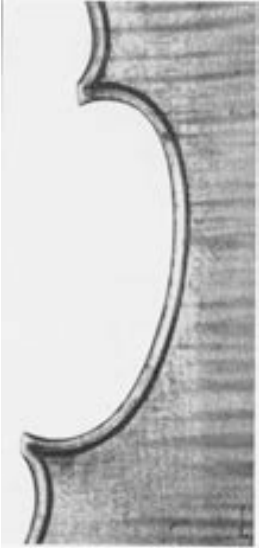

ID: BJBnd09vn	Type: violin	Year: 17??	Study status: LOW
<p>Basic measurements: back length (mm): 362 (TAPE) back width, upper (mm): 168 (TAPE) back width, middle (mm): 108 (CAL) back width, lower (mm): 208 (TAPE) scroll width (mm): - (non-original scroll) rib height at neck (mm): 28.0 (RUL) rib height at bottom (mm): 31.0 (RUL)</p>			
 <p>Label text (handwriting in italic font): 'JOSEPH GALAGLIO / FECIT IN MANTUA Anno 1823'</p>			
 <p>Dark wood filler strip at the bottom of the rib garland</p>			
<p>Provenance (most recent first): - musician, Belgium (c1997->2017)</p>			
<p>Selected reference(s): - website André Theunis, 'Restauration', http://www.violons.eu/boussutheut.htm (accessed October 2018).</p>			
<p>Remark(s): Instrument reconstructed to 'Baroque' state. Scroll and neck not original, but replicated after Boussu by violin maker André Theunis.</p>			



ID: BJBnd10vn	Type: violin	Year: 17???	Study status: MED
<p>Basic measurements: back length (mm): 360 (TAPE) back width, upper (mm): 168 (TAPE) back width, middle (mm): 109 (CAL) back width, lower (mm): 208 (TAPE) scroll width (mm): - (non-original scroll) rib height at neck (mm): 29.0 (RUL) rib height at bottom (mm): 32.0 (RUL)</p>		 <p>Non-original scroll</p>	
 <p>Label text: 'Gio. Giorgio Taningard fecit Romae Anno 1746'</p>			
 <p>Endoscopy: middle bout linings</p>			
 <p>Dark wood filler strip at bottom of rib garland</p>			
<p>Provenance (most recent first): - violin maker/dealer, Belgium (2015)</p>			
<p>Selected reference(s): n/a</p>			
<p>Remark(s): Violin attributed to Boussu. Scroll not by Boussu. Sound box shows various characteristics that strongly point towards Boussu (linings, dark wood filler strip, f-hole dimensions, back plate dimensions).</p>			

ID: BJBnd11vn	Type: violin	Year: 17??	Study status: MED
<p>Basic measurements: back length (mm): 363 (TAPE) back width, upper (mm): 169 (TAPE) back width, middle (mm): 108 (CAL) back width, lower (mm): 206 (TAPE) scroll width (mm): - (non-original scroll) rib height at neck (mm): 31.0 (RUL) rib height at bottom (mm): 30.0 (RUL)</p>		 <p>Non-original scroll</p>	
<p>Label text (handwriting in italic font): no label present</p>  <p>Atypical (likely non-original) branding mark 'B BOUSSU'</p>			
 <p>Endoscopy: detail of replacement upper block and replacement lining</p>			
 <p>Endoscopy: internal stamp/handwritten inscription: 'par / [...] Cuisset / LUTHIER D'ART / Bruxelles, Anno 1956' [likely repaired by Armand Cuisset]</p>			
<p>Provenance (most recent first): - musician, Belgium (c1992->2017) - violin maker/dealer, Belgium (c1992)</p>			
<p>Selected reference(s): n/a</p>			
<p>Remark(s):</p>			

ID: BJBnd12vn	Type: violin	Year: 17???	Study status: MED
<p>Basic measurements:</p> <p>back length (mm): 358 (CAL)</p> <p>back width, upper (mm): 166 (CAL)</p> <p>back width, middle (mm): 107.5 (CAL)</p> <p>back width, lower (mm): 208 (CAL)</p> <p>scroll width (mm): 36.1 (CAL)</p> <p>rib height at neck (mm): 29 (RUL)</p> <p>rib height at bottom (mm): 32 (RUL)</p>		 <p style="text-align: center;">Photo: Adam Lynch</p>	
<p>Label text (handwriting in italic font): No label present</p> <p>No brand mark(s) present</p> <p>No internal inscription present</p>			
 <p>Endoscopy: corner block and original linings</p>		 <p style="text-align: center;">Photo: Adam Lynch</p>	
 <p>Endoscopy: detail of replacement upper block, original platform removed</p>			
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - collector/dealer, UK (2020) - antiques dealer, in/near Scotland, UK (c2015-2020) 			
<p>Selected reference(s):</p> <p>n/a</p>			
<p>Remark(s):</p> <p>Instrument likely from late 1750s or early 1760s. Very slender back plate corners (reminiscent of the violin from 1760 with MIM inv. no. 1338/database code BJB6001vn). Rather low back plate arching. No brand mark(s). No soundpost markings visible, possibly bridge markings present, but obscured by bridge feet indentations. Most original glue linings present (except one in treble middle bout). Upper and lower block replaced. Ebony filler strip at joint of lower ribs.</p>			




ID: BJBnd13vn	Type: violin	Year: 17???	Study status: MED
<p>Basic measurements: back length (mm): 362 (CAL) back width, upper (mm): 170 (CAL) back width, middle (mm): 110 (CAL) back width, lower (mm): 207 (CAL) scroll width (mm): 41.5 (CAL) rib height at neck (mm): 28.0 (RUL) rib height at bottom (mm): 30-31 (RUL)</p>			
<p>Label text (handwriting in italic font): no label present</p>  <p>Branding mark 'BOUSSU' on back plate below button</p>			
 <p>Indication for soundpost (note earlier corrected lines)</p>			
 <p>Endoscopy: replacement upper block, original linings on the left (bass) side</p>			
<p>Provenance (most recent first): - musician, The Netherlands (....->2017)</p>			
<p>Selected reference(s): n/a</p>			
<p>Remark(s): Given the branding mark 'BOUSSU' and the soundpost indication, this instrument may be dated in the late 1750s or early 1760s. Atypical scroll width of 41.5 mm. Maximum back plate thickness (in centre): 3.0 mm. Handwritten internal inscription: '<i>Repare par / Ed. Schuster / Bruxelles 1922</i>'.</p>			





ID: BJBnd14vn	Type: violin	Year: 17??	Study status: NOT
<p>Basic measurements: back length (mm): - back width, upper (mm): - back width, middle (mm): - back width, lower (mm): - scroll width (mm): - rib height at neck (mm): - rib height at bottom (mm): -</p>	 <p>Photo: Max Möller</p>		
 <p>Photo: Max Möller</p> <p>Branding mark 'BOUSSU', possibly applied internally (Möller (1955) states: "Boussu used, in addition to a very small label, also a brand "Boussu", usually on the inside of the back of the instrument, practically in the centre.")</p>			
 <p>Photo: Max Möller</p>	 <p>F-hole, note bridge marking Photo: Max Möller</p>		
<p>Provenance (most recent first): - Max Möller collection, The Netherlands (<=1955)</p>			
<p>Selected reference(s): - Möller, The violin-makers of the Low Countries (Max Möller, 1955), p.37.</p>			
<p>Remark(s): Bridge position indicated on top plate (see photo above). Given the atypical, Italian-influenced style of scroll, f-holes and plate corners, as well as the branding mark 'BOUSSU' (used by Boussu post-c1759), this may be an instrument made in Boussu's later Dutch period, thus in the mid-1760s to early 1770s. Alternatively, the f-holes and scroll may be re-cut, or the scroll may be non-original. Since the instrument could not be physically studied, it is not possible to confirm one of the above options. In Möller (1955), the instrument is mentioned as "ex-Möller", and said to contain a handwritten label "Répare par L. Bernadel / Amsterdam 1841".</p>			

ID: BJBnd15vn	Type: violin	Year: 17??	Study status: NOT
<p>Basic measurements: back length (mm): - back width, upper (mm): - back width, middle (mm): - back width, lower (mm): - scroll width (mm): - rib height at neck (mm): - rib height at bottom (mm): -</p>	 <p>Photo: owner of the violin (2015)</p>		
<p>Label text (handwriting in italic font): no label present</p>			
	 <p>Photo: owner of the violin (2015)</p>		
<p>Provenance (most recent first): - collector/musician, France (1972-c2015) - private collection, France (<1972)</p>			
<p>Selected reference(s): n/a</p>			
<p>Remark(s): Violin attributed to Boussu. As far as can be judged on the basis of the photo, the scroll has the character of an original Boussu scroll. Attribution of sound box is doubtful. The sound box may either be not by Boussu, or a very early creation by Boussu (maybe from his French period, before 1748). According to the last known owner, he bought this instrument from a family in Boulogne-sur-Mer (France), of which a forefather had known Boussu well and bought or received the instrument from the maker. Of course, this curious anecdote needs to be investigated further in order to prove the claim.</p>			




ID: BJBnd16va	Type: viola	Year: 175? (1755?)	Study status: MED
<p>Basic measurements: back length (mm): 420 (TAPE) back width, upper (mm): 195 (TAPE) back width, middle (mm): 127 (CAL) back width, lower (mm): 244 (TAPE) scroll width (mm): 41.5 (CAL) rib height at neck (mm): 38-39 (RUL) rib height at bottom (mm): 40-41 (RUL)</p>			
 <p>Label text (handwriting in italic font): '[...]T-JOSEPH BOUSSU. Me. [..]uthier à Bruxelles. 175[..].' NB: after the printed '175', a handwritten '5' appears to be present.</p>			
 <p>Endoscopy: replacement upper block; notice screw and repair patch on top plate.</p>			
 <p>Indication for soundpost position</p>			
<p>Provenance (most recent first): - musician, The Netherlands (c1980->2016) - musician, The Netherlands (1955)</p>			
<p>Selected reference(s): - Möller, The violin-makers of the Low Countries (Max Möller, 1955), p.35.</p>			
<p>Remark(s): Möller states: "Joseph Benoît Boussu, Brussels, Period 1755, Viola Mr. Leo Blom".</p>			

ID: BJBnd17va	Type: viola	Year: 17???	Study status: HIGH
<p>Basic measurements: back length (mm): 418 (CT) back width, upper (mm): 191 (CT) back width, middle (mm): 124 (CT) back width, lower (mm): 239 (CT) scroll width (mm): 40.5 (CAL) rib height at neck (mm): 37.0 (CT) rib height at bottom (mm): 41.0 (CT)</p>			
 <p>Label text (handwriting in italic font): 'Boussu Bruxelles 1755' Non-original label</p>			
 <p>Endoscopy: replacement upper block, original linings, large repair on upper side of top plate</p>			
 <p>Endoscopy: original linings in middle bout</p>			
<p>Provenance (most recent first):</p> <ul style="list-style-type: none"> - musician, Belgium (c2009->2016) - violin maker/dealer, Belgium (c2009) 			
<p>Selected reference(s):</p> <ul style="list-style-type: none"> - website Gert Schrijvers, 'Violas', http://www.vioolbouwer.be/en/altviolen.html (accessed October 2018). 			
<p>Remark(s):</p> <p>This instrument has been CT scanned; CT scan data available at the author.</p>			


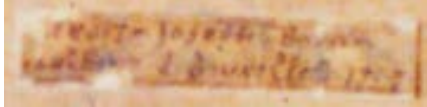


ID: BJBnd18va	Type: viola	Year: 17???	Study status: NOT
<p>Basic measurements: back length (mm): - back width, upper (mm): - back width, middle (mm): - back width, lower (mm): - scroll width (mm): - rib height at neck (mm): - rib height at bottom (mm): -</p>	 <p>Photo: unknown</p>		
<p>Label text (handwriting in italic font): most likely no label present (instrument's dating is given by Chimei Museum as "1750- 1780")</p>			
 <p>Indication for bridge position on top plate</p>	 <p>Photo: unknown</p>		
<p>Provenance (most recent first): unknown</p>			
<p>Selected reference(s): n/a</p>			
<p>Remark(s): Information regarding this instrument was provided by the Chimei Museum, Taiwan, although this instrument is not part of their collection.</p>			






ID: BJBnd19vc	Type: cello	Year: 17??	Study status: MED
<p>Basic measurements: back length (mm): 752 (TAPE) back width, upper (mm): 332 (TAPE) back width, middle (mm): 222 (TAPE) back width, lower (mm): 430 (TAPE) scroll width (mm): 54.7 (CAL) rib height at neck (mm): 120 (RUL) rib height at bottom (mm): 117 (RUL)</p>			
<p>Label text (handwriting in italic font): no label (or internal inscription) present</p>			
 <p>Endoscopy: remaining original middle bout lining (most other linings have been replaced)</p>			
 <p>Endoscopy: replacement upper block on remains of original platform</p>			
<p>Provenance (most recent first): - musician, Belgium (<2009->2015) - violin maker/dealer, Belgium (2009)</p>			
<p>Selected reference(s): n/a</p>			
<p>Remark(s): Internal handwritten inscription present: '[...]paree / [...] Delgalle / 1826'. Instrument contains many internal reinforcement cleats on top plate and ribs. Upper and lower bout linings replaced by larger ones.</p>			

ID: BJBnd20vc	Type: cello	Year: 17???	Study status: LOW
<p>Basic measurements: back length (mm): - back width, upper (mm): - back width, middle (mm): - back width, lower (mm): - scroll width (mm): - rib height at neck (mm): - rib height at bottom (mm): -</p>			
<p>Label text (handwriting in italic font): no label present (not checked for internal inscriptions)</p>			
			
<p>Provenance (most recent first): - violin maker/dealer, Belgium (2009)</p>			
<p>Selected reference(s): n/a</p>			
<p>Remark(s):</p>			

ID: BJBnd21vc	Type: cello	Year: 17???	Study status: LOW
<p>Basic measurements: back length (mm): 714 (TAPE) back width, upper (mm): 321 (TAPE) back width, middle (mm): 214 (TAPE) back width, lower (mm): 420 (TAPE) scroll width (mm): 61.3 (CAL) rib height at neck (mm): 111-113 (RUL) rib height at bottom (mm): 111-113 (RUL)</p>			
<p>Label text (handwriting in italic font): no label (or internal inscription) present</p>			
 <p>Endoscopy: replacement upper block on remains of original platform. Note the original linings.</p>			
<p>Provenance (most recent first): - violin maker/dealer, Belgium (2013) - violin maker, Belgium (2013), for restoration</p>			
<p>Selected reference(s): - website violin maker Valentine Dewit, 'Restauration cello 'Boussu'', https://valentinedewitluthier.wordpress.com/restauration/restauraion-cello-boussu/ (accessed October 2018).</p>			
<p>Remark(s): Original scroll, likely of beech wood. Numerous internal cleats on top plate and ribs, large internal doubling of the top plate, doubling of the top edge. Most original linings still present.</p>			

ID: BJBnd22vc	Type: cello	Year: 17??	Study status: MED
<p>Basic measurements: back length (mm): 714 (TAPE) back width, upper (mm): 320 (TAPE) back width, middle (mm): 218 (TAPE) back width, lower (mm): 420 (TAPE) scroll width (mm): 60.8 rib height at neck (mm): 112 rib height at bottom (mm): 113</p>			
<p>Label text (handwriting in italic font): no label (or internal inscription) present</p>			
 <p>Endoscopy: replacement upper block, two screws applied to attach the neck</p>			
 <p>Bottom filler strip of light-coloured wood</p>			
<p>Provenance (most recent first): - musician, Belgium (c2000->2016) - amateur musician, Belgium (<c2000)</p>			
<p>Selected reference(s): n/a</p>			
<p>Remark(s): Original linings replaced by larger ones. Internal repairs and reinforcement cleats.</p>			

ID: BJBnd23vc	Type: cello	Year: 17???	Study status: NOT
<p>Basic measurements: back length (mm): c700 mm* back width, upper (mm): - back width, middle (mm): - back width, lower (mm): - scroll width (mm): - rib height at neck (mm): - rib height at bottom (mm): - * estimated length as provided by the violin maker who restored the instrument in 2002.</p>	 <p>Photo: A. Jassogne</p>		
 <p>Label text (handwriting in italic font): '[...]ENOIT-JOSEPH Bousсу [Luthier?] à Bruxelles 1753 [or 1755?]' (non-original label, possibly a handwritten copy of the lost original printed label)</p>			
 <p>Top plate of instrument prior to restoration in 2002 Photo: A. Jassogne</p>	 <p>After restoration Photo: A. Jassogne</p>		
<p>Provenance (most recent first): - violin maker/restorer, Belgium (2002), for restoration</p>			
<p>Selected reference(s):</p> <ul style="list-style-type: none"> - website violin maker Antoni Jassogne, http://www.luthier-jassogne.com/#/atelier/ (accessed October 2018). - interview from 12 April 2011 with Antoni Jassogne on website 'Les Miroirs de l'Ombre', http://www.lesmiroirsdelombre.com/2011/12/la-clinique-des-sons/ (accessed February 2015). 			
<p>Remark(s):</p> <p>Excerpt from interview with violin maker/restorer Antoni Jassogne on website 'Les Miroirs de l'Ombre' (12 April 2011): "J'ai terminé la restauration d'un cello Benoît Bousсу 1753-5 qui a duré pas moins de deux ans. Imaginez la scène. Il est tard le soir, le musicien se prépare à rentrer chez lui, fatigué de sa prestation. Le cello est au sol et l'artiste l'oublie jusqu'au moment où il écrase l'instrument en reculant sa voiture pour sortir du parking. Piqûre de rappel garantie! C'était évidemment très impressionnant et pour tout dire un peu désespéré. L'instrument a repris du service depuis lors, je l'ai entièrement restauré."</p>			

ID: BJBnd24db	Type: double bass	Year: 17???	Study status: MED
<p>Basic measurements: back length (mm): 1115* back width, upper (mm): 462* back width, middle (mm): 332* back width, lower (mm): 628* scroll width (mm): 91.0* rib height at neck (mm): 160* rib height at bottom (mm): 188* * measurements by Jeroen Bruynooghe</p>			
 <p>Label text (handwriting in italic font): <i>'Benoit Joseph Boufsu, Me. Luthier a Bruxelles. 1756.'</i> Label likely not original</p>			
 <p>Mark 'BOUSSU' on the back, near neck root</p>		 <p>Photo: owner of the bass (2015)</p>	
 <p>Endoscopy: replacement upper block, replacement linings, many repairs</p>			
<p>Provenance (most recent first): - musician, France (<2015->2015)</p>			
<p>Selected reference(s): n/a</p>			
<p>Remark(s): Sound box shape has been modified, from 'violin' model to 'viola da gamba' model, by truncating the upper bouts. Many internal repairs and internal reinforcement cleats, on top plate, back plate and ribs. Most original linings replaced by larger ones; one original middle bout lining remaining. The label is likely not original, therefore the dating of 1756 is doubtful. Given the 'BOUSSU' branding mark, which Boussu started using only from c1759, a dating between c1759 and c1762 seems more likely.</p>			

Appendix VI. Overview of instruments not examined or fully documented

Part A - This Part A presents instruments attributed to Benoit Joseph Boussu, of which the existence is known to the author, but for which there was no opportunity (yet) for examination, or for which no additional information (photos, measurement data) was made available (yet) to the author. Although the attributions of the instruments included in this group could not be judged personally by the author, it is believed, due to the origin of the information, that these attributions could be considered reasonably reliable. It may well be that some of the instruments mentioned under this section have already been included in the database in Appendix V, without awareness of this double inclusion. Owner and dealer names have been anonymised.

1. Violin used in the 1990s by the violinist of the Dutch string ensemble '*Strijktrio Boussu*'. The violin was sold by this musician to a Belgian dealer, who likely re-sold it soon afterwards. The violin's current location is unknown. Remark: the viola player and cellist of the trio played the Boussu instruments BJBnd16va and BJB4901vc respectively.

2. Violin used by a Belgian violinist until his death in 2016. The violin was not examined by the author before the passing of its owner, and after the passing of the owner, the whereabouts of the instrument have become unknown. According to a colleague musician, the violin could be described as "a late example of Boussu's work".

3. Viola offered by a British dealer in 2016. This same instrument was transferred to a Belgian dealer in c2017, and sold soon after. According to the latter, this instrument has both a label and branding mark, suggesting that it was made in the late 1750s or early 1760s. Possibly, this is the viola included in the database under number BJBnd18va.

4. Cello mentioned in 2017 by a dealer from The Netherlands, as being owned by a Dutch musician.

5. Viola mentioned in 2017 by a maker/dealer from The Netherlands, as being owned by a Dutch amateur musician. The musician was contacted, in late 2019, and had agreed with examination of his instrument, but due to his further irresponsiveness, no viewing of the instrument could be organised.

6. Violin labelled "Leiden 176..." cited in the book '400 jaar vioolbouwkunst in Nederland' by Bolink et al. (Amsterdam: NGV/Papyrus, 1999), p.179, as well as mentioned as "*violon*

Benoît-Joseph Boussu, Bruxelles - Leiden ca 1760” in the booklet of the CD ‘Joseph-Hector Fiocco - Petits motets’ by Scherzi Musicali (Liège: Musique en Wallonie, 2010), p.8. The owner of the instrument used for the CD-recording by Scherzi Musicali told the author that this instrument was sold around 2010 to a foundation in Asia. This might thus be the same instrument as the violin included in the database in Appendix V, as BJB6501vn, which was acquired by the Chimei Museum in 2010 (personal communication with the Chimei Museum staff), although that would imply that the label “Leiden 176...” was no longer present at the moment of the sale to Asia. The instrument has not been examined by the author before it left Europe.

7. According to Véronique Wintgens (1988), “*seuls deux instruments signés par Boussu à Liège prouvent qu’il s’est probablement installé dans cette ville de 1749 à 1750 [...] un violoncelle et un violon de Boussu*”. Assuming that one of these two instruments is the cello with our database code BJB4901vc, then a violin signed in Liège should exist (unless the violin with our database code BJB5001vn is referred to by Wintgens). Source: <https://popups.uliege.be/1371-6735/index.php?id=1382&file=1&pid=1379> (accessed May 2020).

Part B - This Part B describes instruments claimed to be made by Benoit Joseph Boussu, according to musicians, auction houses, written sources, websites, etc., but which could not be localised and examined, and for which the alleged attribution could thus not be personally validated. Hence, the attribution of instruments included in this group is more doubtful than for the instruments mentioned under the category presented in Part A of this appendix. Owner and dealer names have been anonymised.

1. Violin auctioned at Sotheby’s in London on 27 February 2007 in London as lot no. 29. According to the information on Sotheby’s website, the instrument is “attributed to Joseph Benoit Boussu (fl Etterbeek, c1750-c1780)”, made in “France or Flanders” in the “late 18th century”. The violin is “branded *Boussu* by the button” and has a “length of back” of “13 13/16 in., 35.1cm”. The instrument’s estimate was 1,000 to 2,000 GBP, it was sold for 1,080 GBP. No image is available on the website. Sotheby’s webpage: <http://www.sothebys.com/en/auctions/ecatalogue/lot.29.html/2007/musical-instruments-l07250> (accessed March 2020).

Given the atypical back length of 35.1 cm, attribution to Boussu may be questioned.

2. Violin auctioned at auction house Millot/Drouot in Paris on 7 November 2005. The following information was included on the Drouot website, regarding the auction result: “*Attribué à Benoît Joseph Boussu à Bruxelles, un violon de la deuxième partie du XVIIIe siècle doublait à 8 200 € son estimation. Dans un bon état de restauration, il est prêt à jouer.*”. Drouot

webpage:

http://www.drouot.com/static/resultat_vente_encheres/enchere.html?lang=fr&id=708kksvwu63xcwmlblfmyji6lv0abwnt8tmjyba82bu5b36lke60h7ha (accessed February 2016).

3. Violin mentioned on page 96 of the book 'Rare violins, violas, violoncellos of the seventeenth eighteenth and nineteenth centuries of the Wurlitzer collection part I', published by the Rudolph Wurlitzer Company in 1931. The instrument is described as follows: "No. 7141 BENOIT JOSEPH BOUSSU *Brussels, 1753* / One of the prominent Belgian masters, whose style shows French influence. Medium-arched model. The back is of pretty, small-figured curly maple, strong flamed, the ribs showing smaller figure. Golden-brown varnish. Excellent, fresh tone. *Seven hundred and fifty dollars*". No photo(s) or measurements are included in the book.

4. Violin auctioned at Christie's auctioneers, London on 13 November 2002 under lot 234. The lot is described on the Christies website as: "A violin labelled *Jacobus Stainer in Absam, prope Oenipontum* **65, the length of back 14 1/8in. (359mm), and a violin labelled *Benoît-Joseph Boussu Me Luthier à Bruxelles 1757*, the length of back 14 5/16in. (363mm), with bow in double case (4) / Price realised GBP 8,225 / Estimate GBP 800 - GBP 1,200". No image is available on the website. Christie's webpage:

<https://www.christies.com/lotfinder/Lot/a-violin-labelled-jacobus-stainer-in-absam-3994171-details.aspx> (accessed March 2020).

5. Violin mentioned in 2017 by a Belgian violin maker. This maker asked the author for advice regarding appraisal (by telephone), but she refused afterwards to make the violin available for examination by the author. This may well be one of the instruments already included in the database in Appendix V, without the author's awareness of this inclusion.

6. Small size cello (7/8) offered for sale in 1989 in Dutch magazine 'Mens en Melodie', vol. 44 (1989), p.620. No image(s) included. The instrument is described as: "*7/8 cello, bouwer: Boussu (1750-1780), vraagprijs f 12.000,- taxatierapport*".

7. Small size violin (7/8 size) offered for sale around 2004 by a North-American dealer. Very low quality photographs of the sound box and scroll of the instrument have been available from the website of this dealer. However, since the quality of these photos is too low, the attribution to Boussu cannot be judged. The instrument is also mentioned in the spring 2004 edition of the newsletter 'La Voce' from this dealer, on page 2:

<https://www.givensviolins.com/wp-content/uploads/2016/08/spring04.pdf> (accessed October 2018). A request by the author to the dealer by email, for more information, has not been answered.

8. Small size cello (7/8 size) mentioned by the Belgian owner of the cello with database code BJBnd22vc, as being played by her Belgian colleague musician. This latter musician was contacted by email, but no reply was received.

9. Violin mentioned in a 1906 newspaper advertisement for instrument dealer W.F. Meldrum (New Zealand), in the newspaper 'Oamaru Mail' (Vol. 33, Issue 9324, 6 August 1906, p.3). The instrument is described as: "BOUSSU, Luthier, handsome sycamore back, rosewood pegs, ebony fittings, solo violin, full lined case, well-balanced bow, £4.". The advertisement can be found here:

<https://paperspast.natlib.govt.nz/newspapers/OAM19060806.2.22.4> (accessed March 2020).

10. Viola mentioned by a German musician (owner of the viola with database code BJB5901va), as owned by his German colleague. This latter musician was contacted by the first-mentioned musician, but no reply was received.

11. Viola offered for auction on 25 October 2019 by Brompton's auctioneers. The instrument is described as "Lot 124: A Viola, attributed to and probably by Joseph Boussu, Low Countries circa 1760". Length of the back plate is 427 mm. No label is present, according to the website, and the instrument has a certificate by Williams Moennig & Son, Inc, from 1967. This certificate mentions 42.8, 20.1, 24.7 and 13.4 as "length, width u.b., width l.b. and width m.b." respectively. The instrument's estimate was set at £12,000-£18,000. The instrument was sold for an unknown price. Several high-resolution photographs are included on the webpage. Brompton's webpage:

<https://www.bromptons.co/auction/9th-21st-october-2019/lots/124-a-viol-a-attributed-to-and-probably-by-joseph-boussu-low-countries-circa-1760.html> (accessed March 2020). Judging from the photos on the website, attribution to Boussu is highly doubtful.

12. Viola mentioned in a post on Maestronet Pegbox forum, by member PhilipKT: "A friend owns a Boussu viola that is every bit of 17 inches. It's ENORMOUS". Source:

<https://maestronet.com/forum/index.php?/topic/339882-5-string-small-widhalm-viol-a/page/3/&tab=comments#comment-862313> (accessed September 2020).

The forum member PhilipKT was contacted through a private message in September 2020, and he explained that the instrument "has been in San Antonio [Texas] for many years and before that was in Argentina". He also contacted the owner of the instrument, asking her to get in contact with the author, but no reply was received.

Appendix VII. Axial plane reconstructions of CT data for six instruments by Boussu

This appendix provides the three main axial plane reconstructions of CT data for the sound box of all six bowed string instruments by Boussu which underwent a CT scan during the currently presented study. For each instrument, the cross sections of the sound box are given at the widest part of the upper bout, the narrowest part of the middle bout and the widest part of the lower bout. A reference bar, representing a length of 100 mm, is added to provide information regarding the dimensions.

Axial plane reconstructions start on the next page.

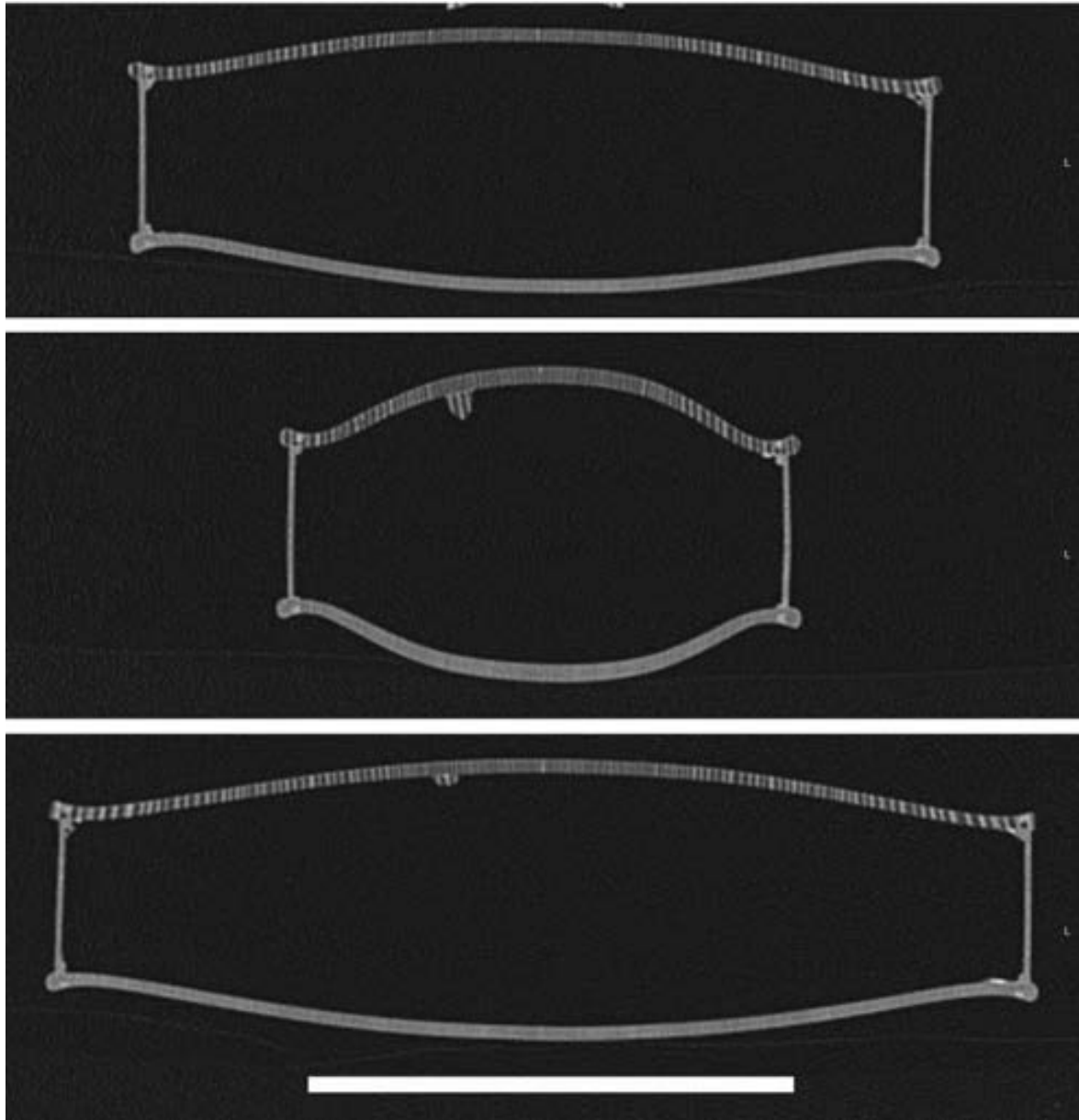


Figure VII.1. The three main axial plane reconstructions of CT data for the sound box of a violin by Boussu from 1750 (MIM inv. no. 2781, database code BJB5001vn). Top to bottom: (a) at the widest part of the upper bout, (b) at the narrowest part of the middle bout, (c) at the widest part of the lower bout. The white bar represents a length of 100 mm.

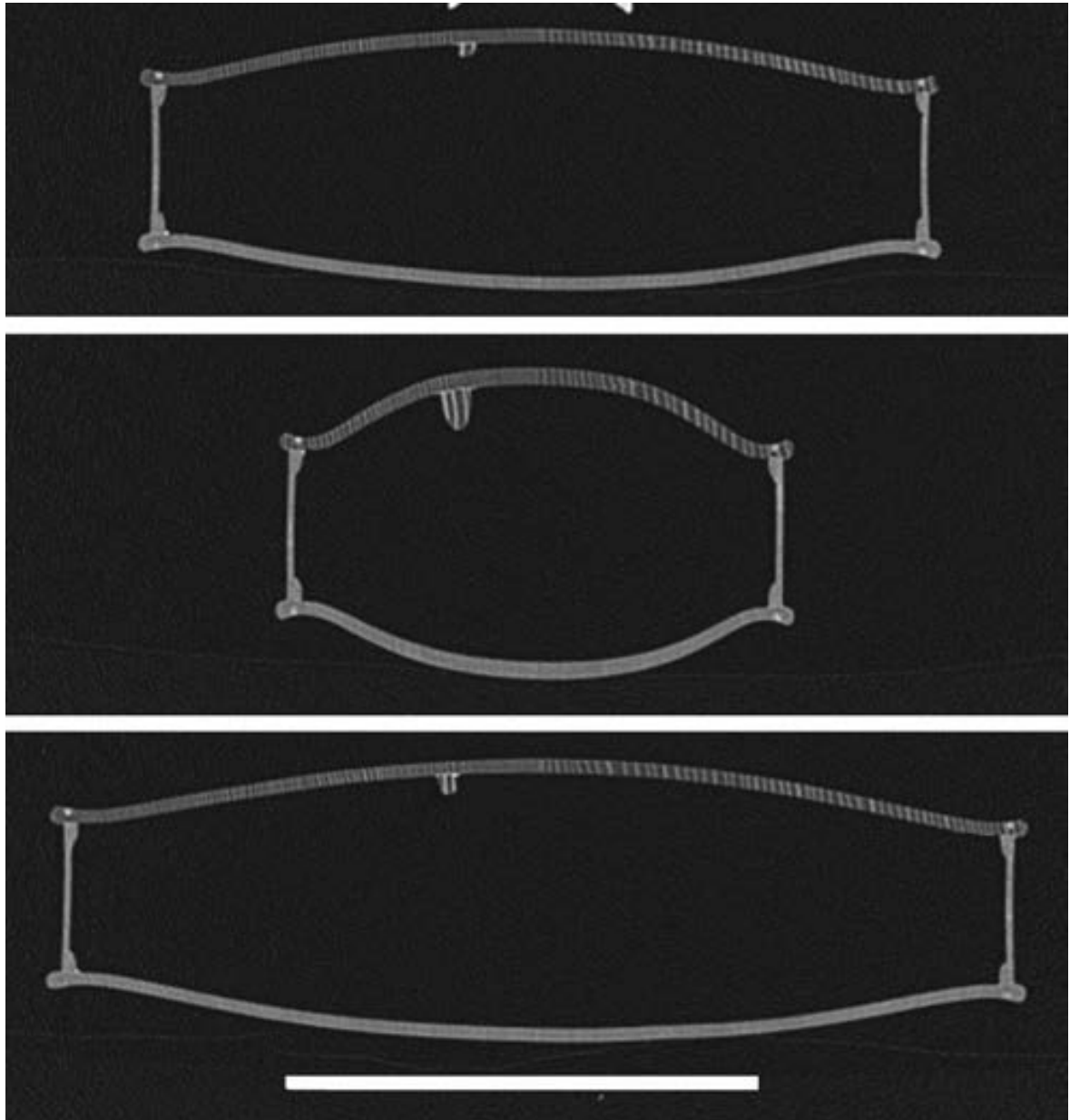


Figure VII.2. The three main axial plane reconstructions of CT data for the sound box of a violin by Boussu from June 1753 (MIM inv. no. 2784, database code BJB5302vn). Top to bottom: (a) at the widest part of the upper bout, (b) at the narrowest part of the middle bout, (c) at the widest part of the lower bout. The white bar represents a length of 100 mm.

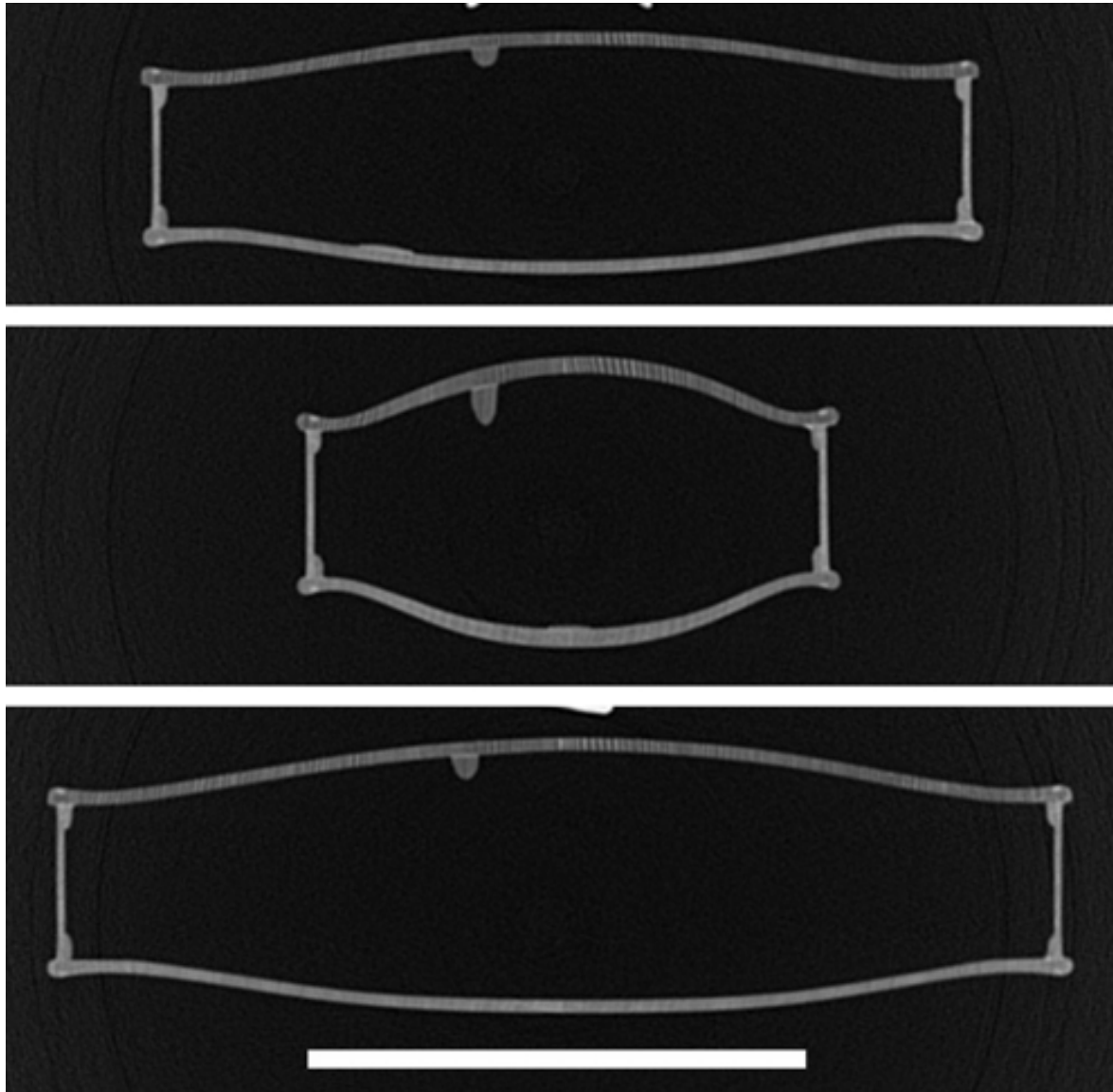


Figure VII.3. The three main axial plane reconstructions of CT data for the sound box of a violin by Boussu from 1759 (database code BJB5903vn). Top to bottom: (a) at the widest part of the upper bout, (b) at the narrowest part of the middle bout, (c) at the widest part of the lower bout. The white bar represents a length of 100 mm.

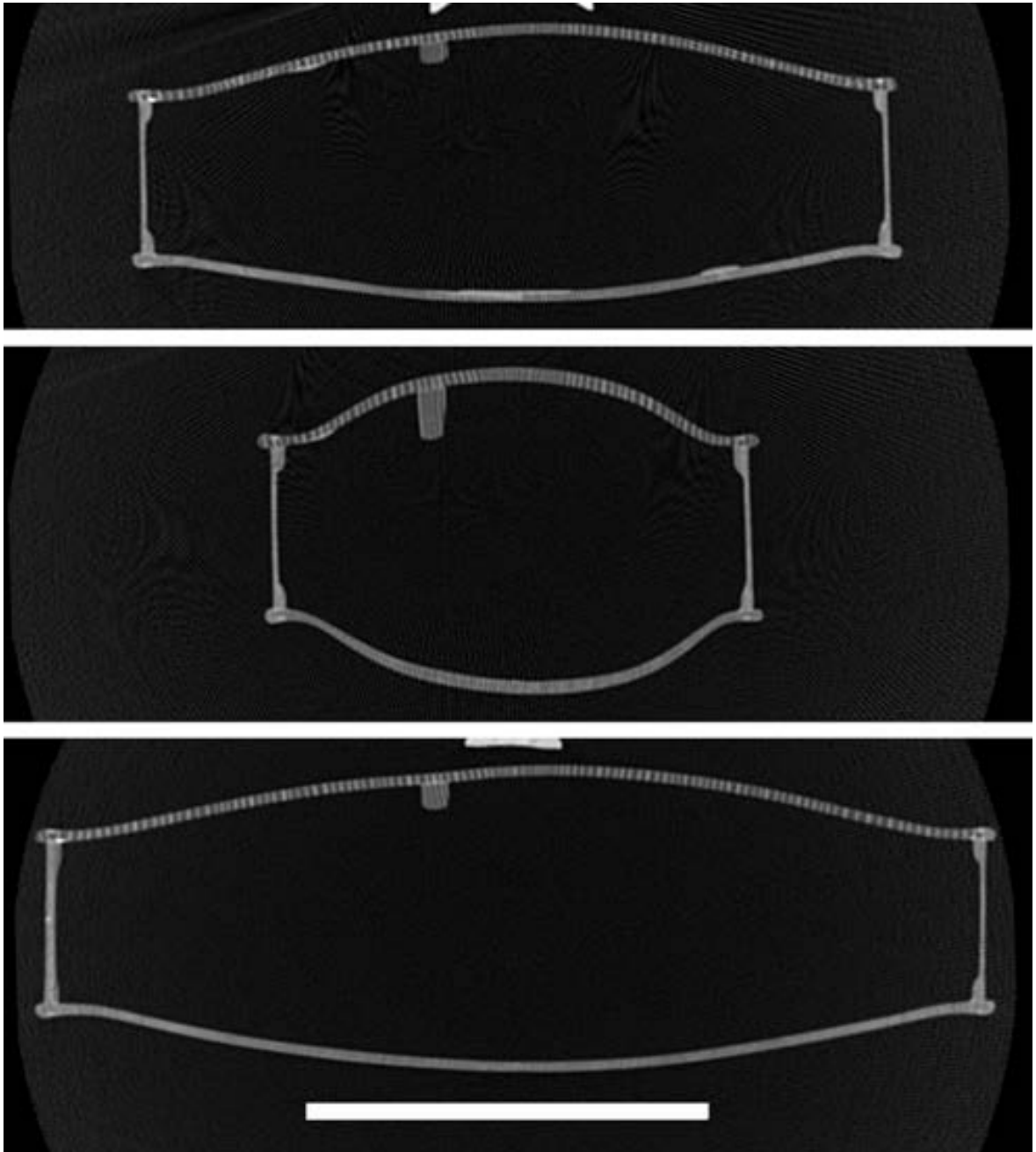


Figure VII.4. The three main axial plane reconstructions of CT data for the sound box of an undated viola by Boussu (database code BJBnd17va). Top to bottom: (a) at the widest part of the upper bout, (b) at the narrowest part of the middle bout, (c) at the widest part of the lower bout. The white bar represents a length of 100 mm.

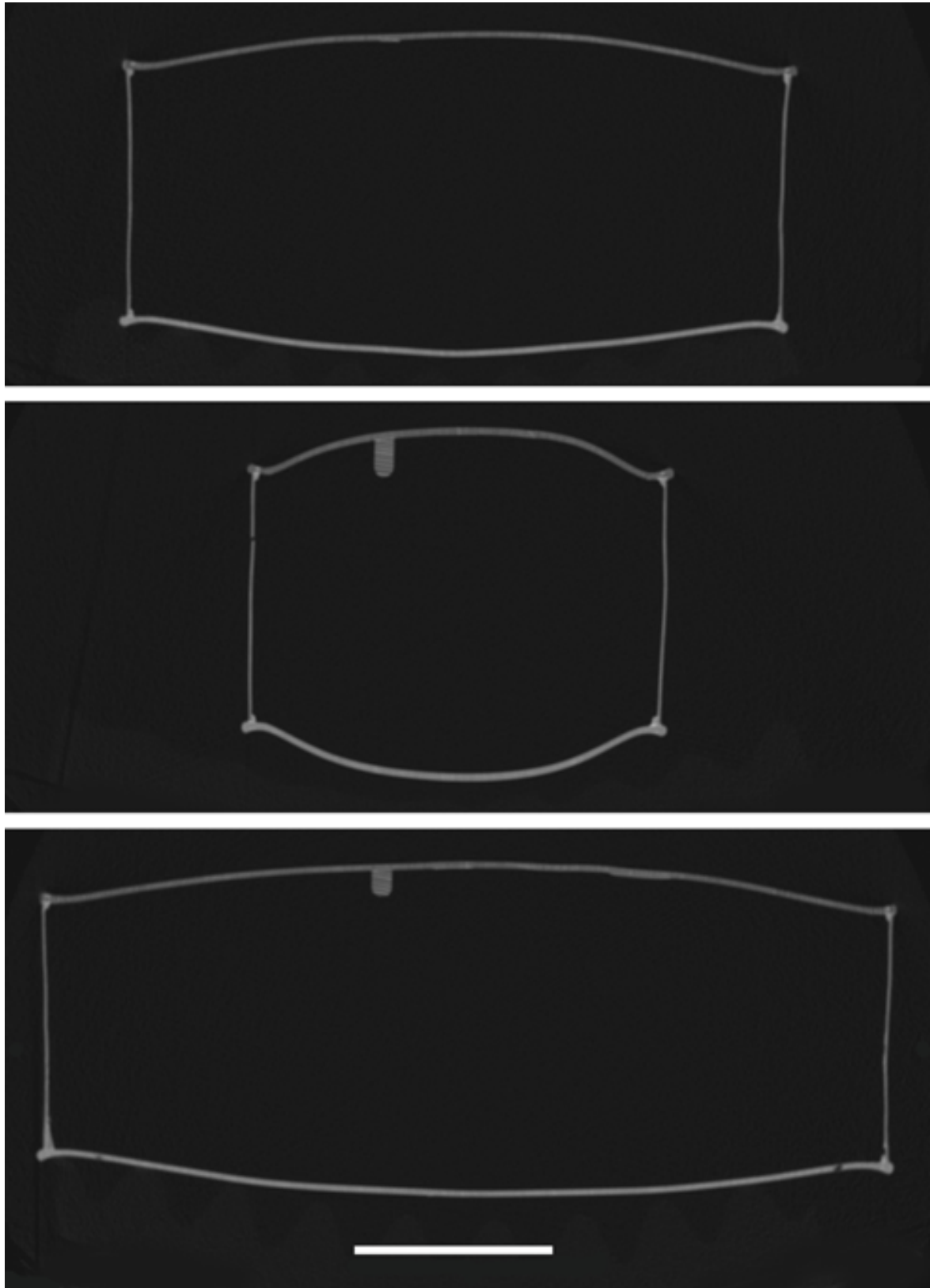


Figure VII.5. The three main axial plane reconstructions of CT data for the sound box of a cello by Boussu from January 1752 (MIM inv. no. 2863, database code BJB5201vc). Top to bottom: (a) at the widest part of the upper bout, (b) at the narrowest part of the middle bout, (c) at the widest part of the lower bout. The white bar represents a length of 100 mm.

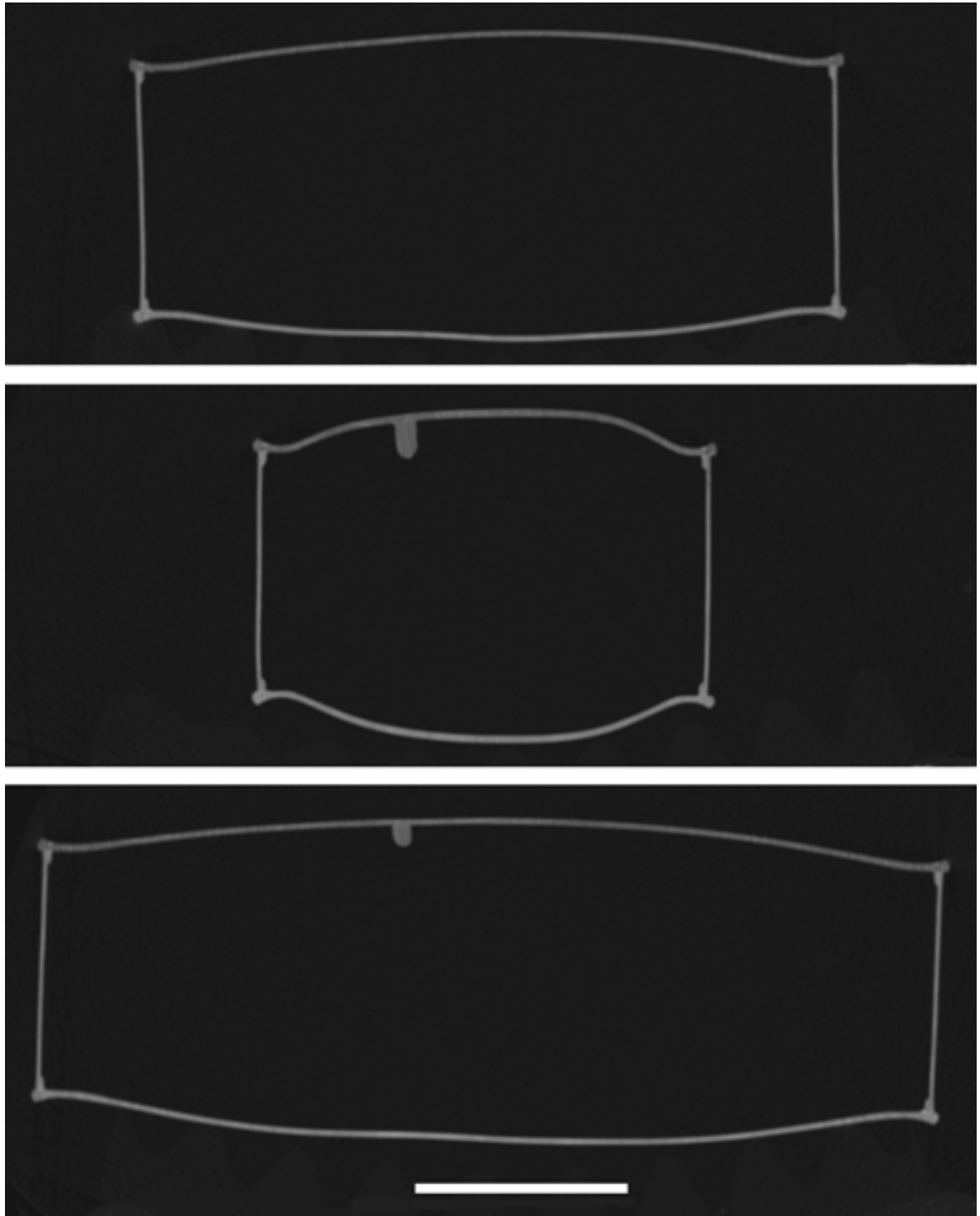


Figure VII.6. The three main axial plane reconstructions of CT data for the sound box of a cello by Boussu from 1757 (MIM inv. no. 1372, database code BJB5701vc). Top to bottom: (a) at the widest part of the upper bout, (b) at the narrowest part of the middle bout, (c) at the widest part of the lower bout. The white bar represents a length of 100 mm.

Appendix VIII. Instrument documentation form

This appendix shows the form that was used to document an examined instrument. The first part of the table includes descriptive attributes. The second part of the table includes quantitative dimensions. After the table, several drawings are included for registration of further measurements. Instructions for a minimum set of photographs are included as well.

Instrument type (violin/viola/cello/bass/....)	
Collection/owner	
Inventory number (if applicable)	
Maker	
Year of production	
Label text	
Internal inscription (if applicable)	

Neck-to-upper block construction type	
Modernised/modified neck? - if so, description of modification	
Original scroll present?	

Ribs-to-back plate connection: - ribs inserted in back plate? - linings present? - if linings, material and size	
Ribs-to-top plate connection: - linings present? - if linings, material and size - other type of reinforcement?	
Corner blocks present? - if so, particularities	

Description wood top plate	
Description wood back plate	
Description wood ribs	
Description wood neck/scroll	
Description wood fingerboard	
Description wood tailpiece	
Description wood pegs	
Description wood bridge	
Description material nut	
Description material lower saddle	

Type of fingerboard - modern/Baroque/other? - solid/veneered?	
Type of tailpiece (include photograph) - sketch of tailpiece including measurements	
Type of bridge (include photograph)	
Varnish type	
Varnish colour	

Photographs:

- top plate (at perpendicular angle)
- back plate (at perpendicular angle)
- side profile sound box (at perpendicular angle, for plate archings)
- detail purfling corner at back plate
- f-hole close-up
- neck profile
- pegbox/scroll bass side
- pegbox/scroll treble side
- pegbox/scroll front side
- pegbox/scroll backside
- label
- various relevant details
- endoscopy

Length of back	
Width of back (at upper bout)	
Width of back (at middle bout)	
Width of back (at lower bout)	

Top plate thicknesses (with Hacklinger)	see drawing
Back plate thicknesses (with Hacklinger)	see drawing

Maximum arching height top plate	
Maximum arching height back plate	

Depth re-curve channel back plate	
Width re-curve channel back plate - in middle bout - in upper and lower bouts	
Depth re-curve channel top plate	
Width re-curve channel top plate - in middle bout - in upper and lower bouts	

Distance upper edge top plate - bridge	
Neck length (nut - upper edge top plate)	
Neck length (nut - end neck)	
Neck thickness upper (without fingerboard)	
Neck thickness upper (with fingerboard)	
Neck thickness lower (without fingerboard)	

Neck thickness lower (with fingerboard)	
Width neck (at nut)	
Width neck (at lower end)	
Neck overstand over top plate	
Neck angle	
Description of attachment method neck-to-body	
Distance inner curve neck heel (at centre) to top plate edge	
Neck shape (include photograph)	
Length back plate button	
Width back plate button	

Height ribs at neck (bass side)	
Height ribs at neck (treble side)	
Height ribs at upper corners (bass side)	
Height ribs at upper corners (treble side)	
Height ribs at middle bout (bass side)	
Height ribs at middle bout (treble side)	
Height ribs at lower corners (bass side)	
Height ribs at lower corners (treble side)	
Height ribs at lower block	

Thickness rib (upper bout/bass side)	
Thickness rib (upper bout/treble side)	
Thickness rib (middle bout/bass side)	
Thickness rib (middle bout/treble side)	
Thickness rib (lower bout/bass side)	
Thickness rib (lower bout/treble side)	

Thickness edge back plate	
Thickness edge back plate (at corners)	
Overhang back plate	
Thickness edge top plate	
Thickness edge top plate (at corners)	
Overhang top plate	
Width of plate corners	
Plate overhang at plate corners	

Width purfling (total)	
Width purfling (white)	
Width purfling (black)	
Distance purfling-plate edge	
Material purfling (white)	
Material purfling (black)	

Fingerboard length	
Fingerboard width (at nut)	
Fingerboard width (at lower end)	
Fingerboard edge thickness (at nut)	

Fingerboard edge thickness (at lower end)	
Fingerboard radius (upper)	
Fingerboard radius (lower)	
Fingerboard projection at bridge position	
Fingerboard particularities	
Length of vibrating string (nut - bridge)	
String length after bridge (bridge - tailpiece)	
Distance between string 1 and 4 over nut	
Distance between string 1 and 4 over bridge	
Distance string 1 to fingerboard surface (at fingerboard end)	
Distance string 4 to fingerboard surface (at fingerboard end)	
Width nut	
Height nut	

Bridge width (upper side)	
Bridge width (lower side)	
Bridge thickness (upper side)	
Bridge thickness (lower side)	
Bridge height (in centre)	
Bridge particularities	

Height lower saddle	
Width lower saddle	
Length lower saddle	

Soundpost diameter	
--------------------	--

Upper block width	
Upper block length	
Lower block width	
Lower block length	
Upper and lower block particularities	

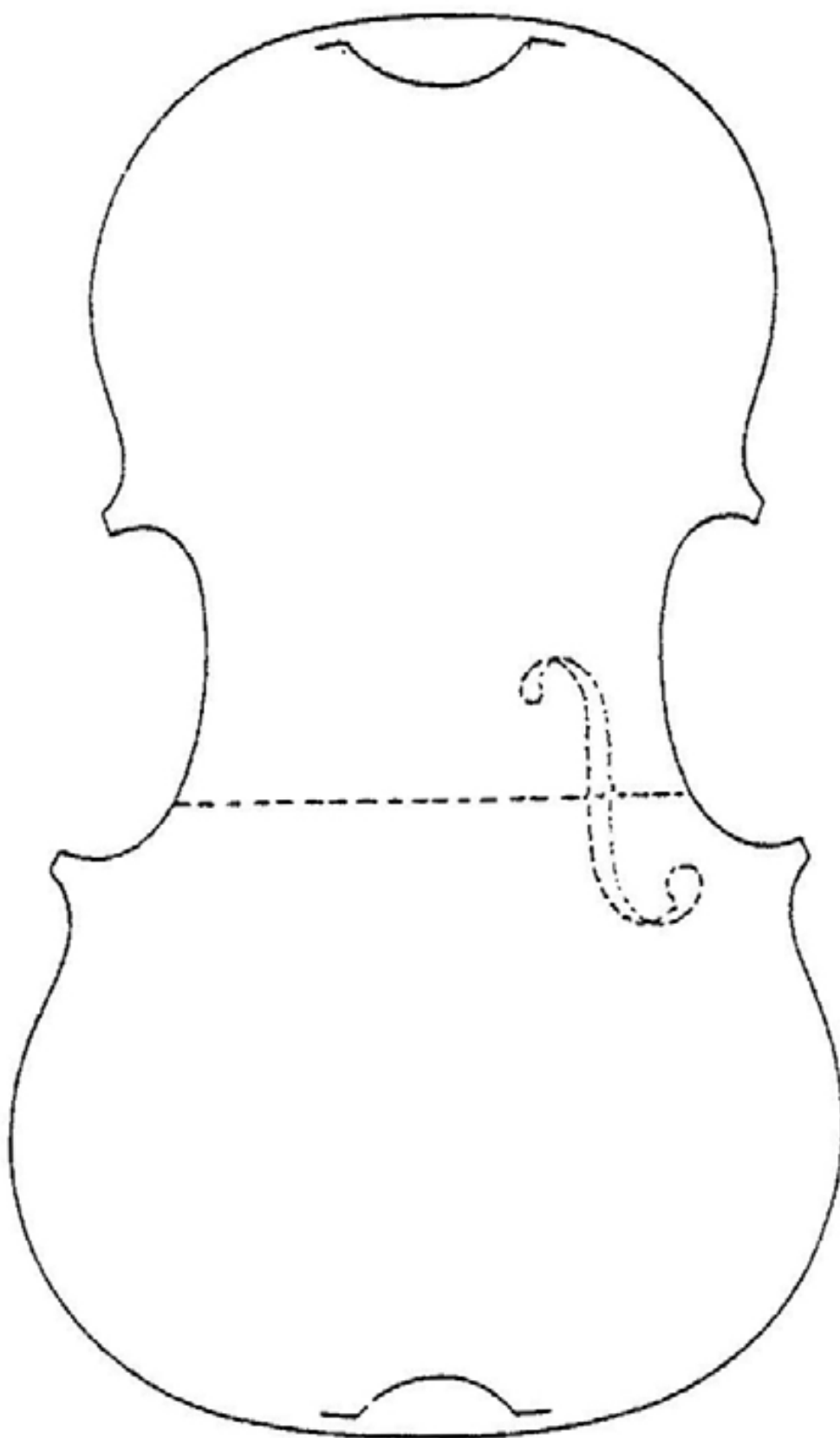
Bass bar length	
Bass bar width	
Bass bar height at centre	
Bass bar position	

Inner distance between upper eyes f-holes	
Inner distance between f-holes at inner notches	
Further f-hole dimensions	see drawing

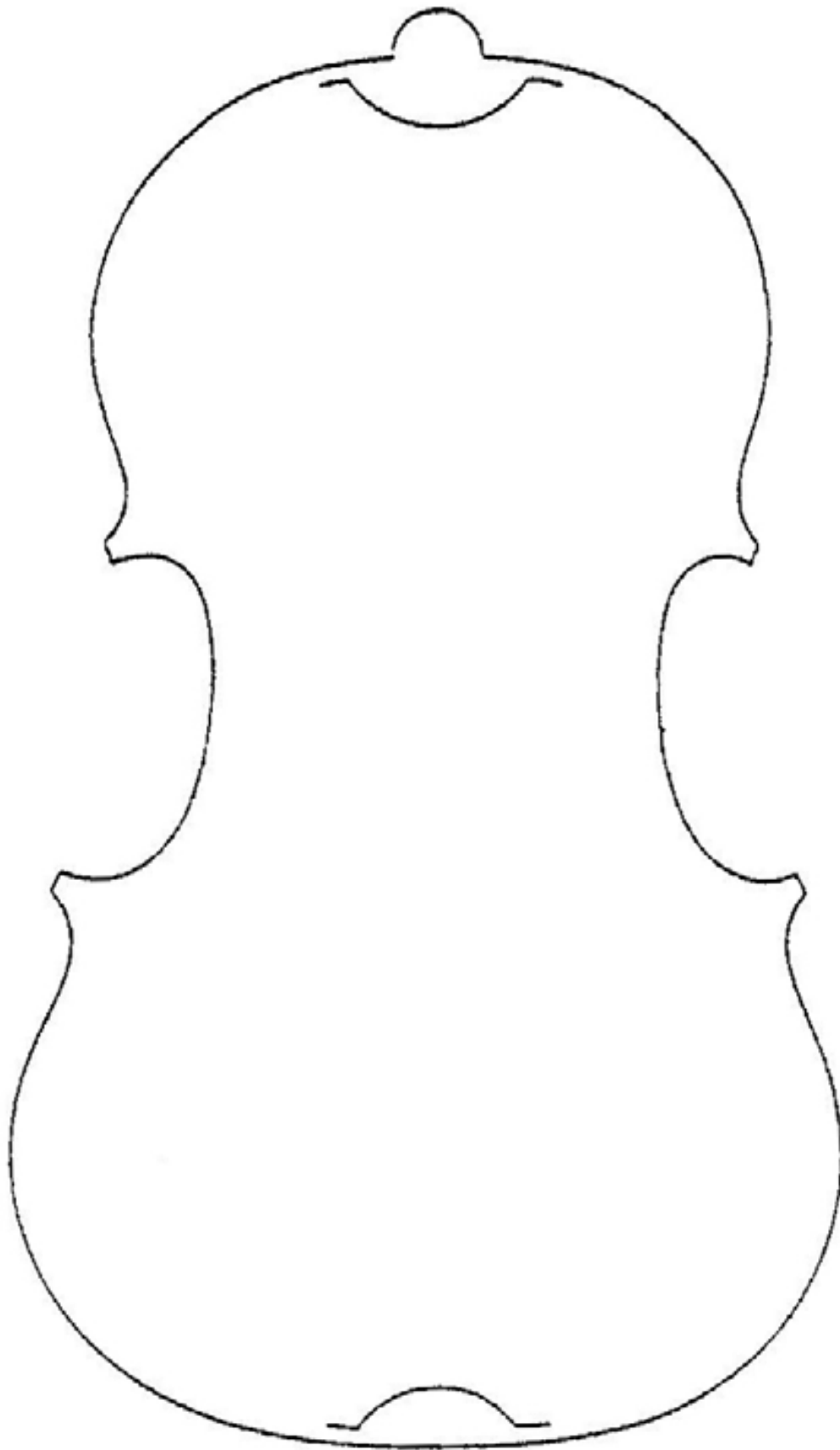
Scroll dimensions	see drawing
-------------------	-------------

Pegbox: distance between holes string 1 and 4	
Pegbox: distance between holes string 4 and 2	
Pegbox: distance between holes string 2 and 3	
Further pegbox dimensions	see drawing

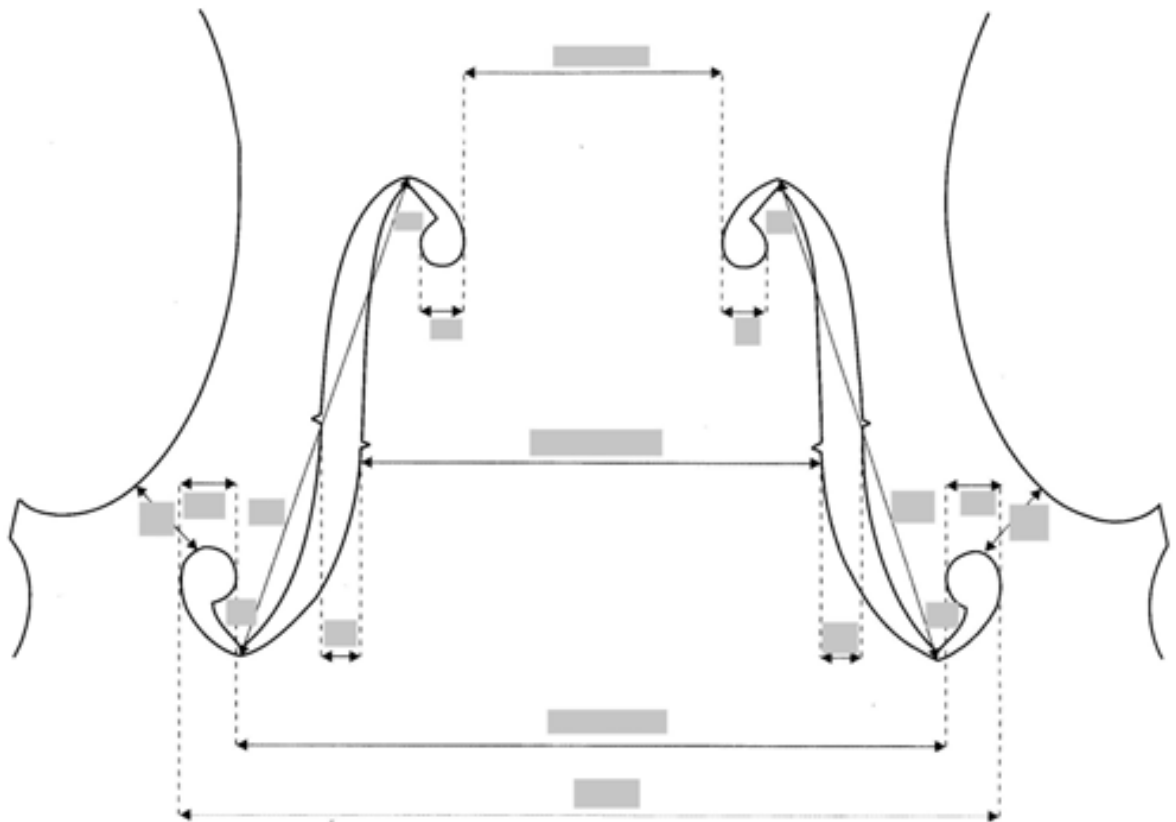
Thicknesses for top plate (NB: a generic plate model is used)



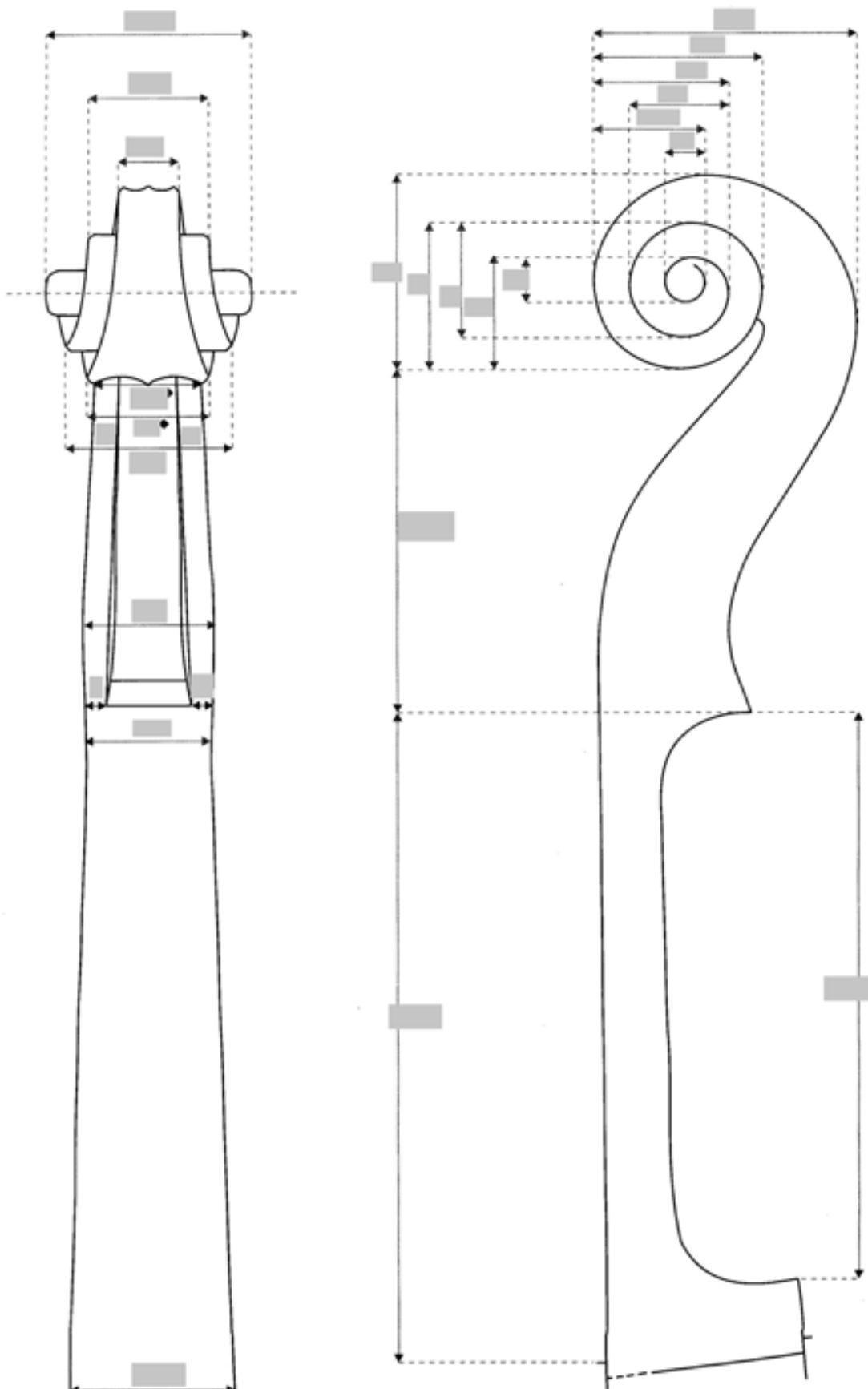
Thicknesses for back plate (NB: a generic plate model is used)



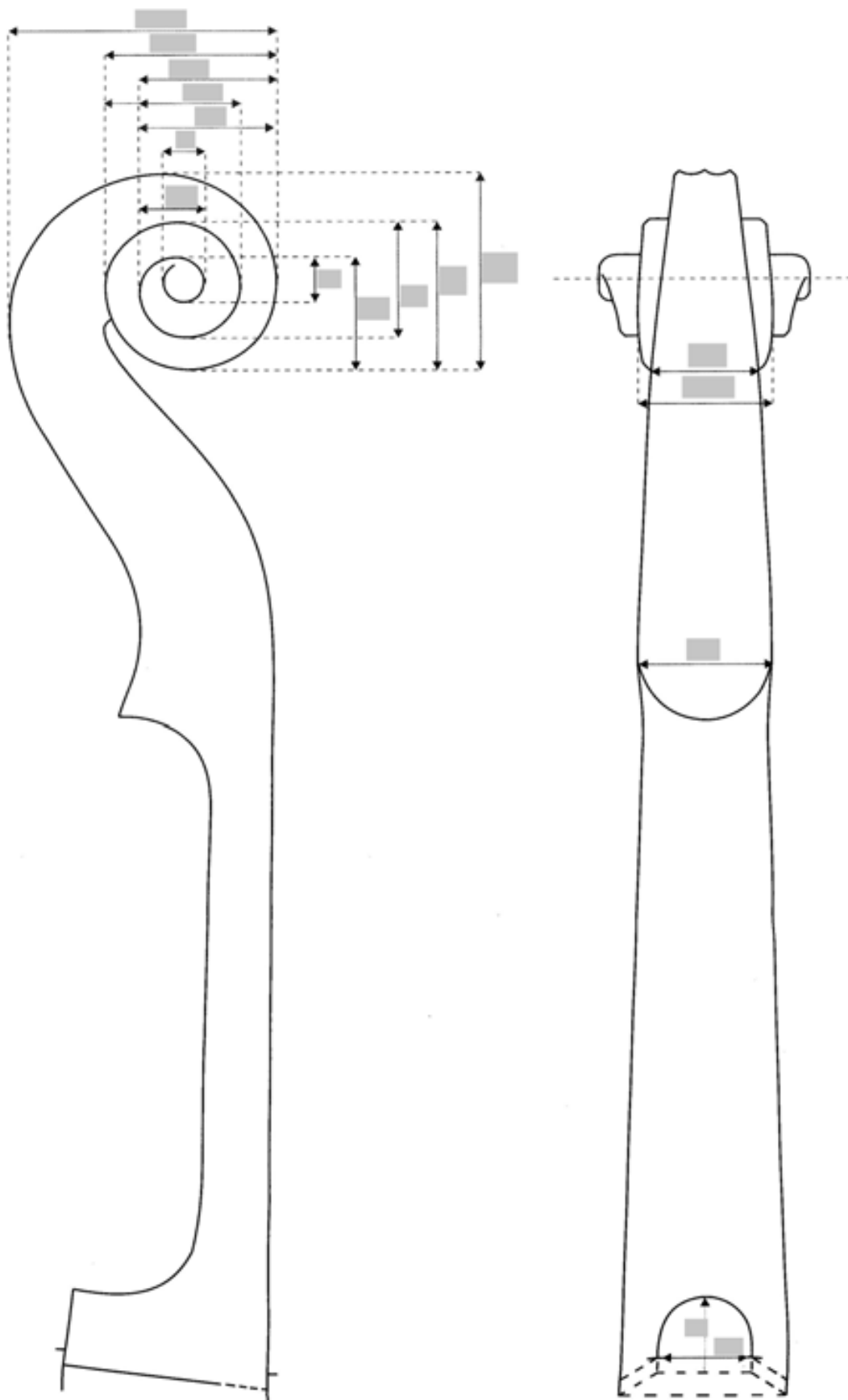
F-hole dimensions (NB: a generic f-hole model is used)



Neck/scroll dimensions 1 (NB: a generic neck/scroll model is used)



Neck/scroll dimensions 2 (NB: a generic neck/scroll model is used)



Appendix IX. Content of the videos documenting the violin and cello replication

This appendix gives an overview of the content of the videos documenting the making process of the violin and cello replicas. These videos are available on the YouTube channel 'Boussu_Inside_Out'. Channel link:

https://www.youtube.com/channel/UChivkXPogBhUIj3X2I_DFWA

Exploring lost violin making practices 1: the neck (duration: 00:15:16)

YouTube link: <https://www.youtube.com/watch?v=R5vYO7h9pKw>

- 0:08 Planing the neck block
- 0:33 Marking the neck block
- 2:49 Making the side slots
- 4:11 Sawing out the scroll
- 4:46 Finishing the scroll outline
- 5:20 Measuring the neck thickness
- 5:38 Planing the neck foot lower gluing surface
- 5:57 Shaping the upper block upper gluing surface
- 6:42 Shaping the upper block sides
- 7:20 Shaping the neck root
- 7:40 Marking the back of pegbox and scroll
- 8:27 Viewing scroll photos
- 8:41 Shaping the pegbox
- 9:33 Making the pegbox opening
- 9:51 Carving the scroll
- 14:03 Carving the back of pegbox and scroll
- 14:46 Cutting scroll chamfer

Exploring lost violin making practices 2: the back plate (duration: 00:23:24)

YouTube link: https://www.youtube.com/watch?v=VS_Ab-dPuW4

- 0:08 Jointing the back plate halves
- 2:09 Levelling the back plate blank lower surface
- 2:37 Preparing the back plate template
- 2:54 Marking the back plate outline
- 4:06 Sawing out the back plate
- 4:34 Rough shaping the outer arching of the back plate
- 5:29 Finishing the plate outline
- 5:56 Establishing plate edge thickness
- 7:13 Plate arching continued
- 9:45 Blackening purfling strips (walnut wood, boiled 1 hour in iron(II) sulfate solution)
- 10:07 Making purfling laminate
- 12:59 Inlaying purfling
- 18:13 Shaping plate 're-curve'
- 18:59 Final arching
- 21:58 Plate hollowing and establishing final thickness
- 23:03 Completed back plate

Exploring lost violin making practices 3: the rib structure (duration: 00:19:22)YouTube link: <https://www.youtube.com/watch?v=i4N5E8F5W64>

- 0:08 Planing and scraping maple strips to required thickness
- 0:42 Inspecting CT scan to view the rib structure
- 1:25 Bending the ribs
- 3:51 Gluing the lining strips
- 4:49 Planing the rib parts to required height
- 6:30 Shaping the corner blocks
- 7:32 Shaping lower block
- 7:48 Gluing neck to back plate
- 8:57 Gluing corner blocks and lower block to the back plate
- 10:11 Tapering lining ends
- 10:30 Tapering the rib ends (centre bout)
- 11:20 Gluing centre bout rib part to the corner blocks
- 13:01 Tapering the rib ends (lower bout)
- 13:22 Attaching upper rib parts to neck root and corner blocks
- 15:11 Attaching lower rib parts to lower block
- 16:12 Gluing rib parts to back plate
- 17:57 Shaping inner surface of corner blocks
- 18:58 Levelling the rib structure

Exploring lost violin making practices 4: the top plate (duration: 00:18:08)YouTube link: <https://www.youtube.com/watch?v=GJi7ZLec1Ik>

- 0:08 Jointing top plate halves
- 1:16 Levelling the top plate blank lower surface
- 1:25 Planing square edge on top plate blank
- 1:46 Marking the top plate outline
- 3:38 Sawing out the top plate
- 3:47 Rough shaping outer arching of the top plate
- 4:41 Finishing the plate outline
- 4:46 Establishing plate edge thickness
- 5:04 Inlaying purfling
- 6:55 Plate arching continued
- 8:07 Plate hollowing and establishing final thickness
- 9:02 Marking and cutting the f-holes
- 10:35 Marking and fitting the bass bar
- 11:49 Gluing the bass bar
- 13:26 Finishing the bass bar
- 14:15 Gluing the top plate to the rib structure
- 16:52 Removing clamps

Exploring lost violin making practices 5: finishing (duration: 00:20:39)YouTube link: <https://www.youtube.com/watch?v=UVfqzvpcr1c>

- 0:08 Finishing the plate edges and 're-curve' channel
- 1:10 Polishing sound box wood with horse tail plant
- 1:44 Making varnish
- 2:16 Varnishing the sound box (alcohol varnish)
- 3:22 Levelling the varnish of the sound box with pumice and water
- 3:43 Blackening the fingerboard sides (fruit wood, boiling in iron(II) sulfate solution with added galls)
- 3:52 Making the veneered fingerboard
- 8:29 Gluing the fingerboard to the neck
- 9:30 Shaping the neck

continued:

- 11:43 Making the nut
- 12:13 Varnishing the neck and scroll (alcohol varnish)
- 12:48 Levelling the varnish of the neck and scroll with pumice and water
- 13:31 Fitting the pegs
- 14:14 Making the tailpiece
- 14:33 Making the bridge
- 15:25 Placing the soundpost
- 16:30 Fitting the bridge
- 17:00 Stringing
- 17:55 The two violins replicas played for the first time by Dr. Ann Cnop
- 18:55 Dr. Ann Cnop and Shiho Ono of 'Ensemble Boussu' play the violin replicas

Exploring lost cello making practices 1: the neck (duration: 00:07:53)

YouTube link: https://www.youtube.com/watch?v=Apt_DwT6UzM

- 0:09 Introduction text
- 0:41 CT scanning of the original cello
- 1:32 Making the side slots
- 2:50 Shaping the upper block sides
- 3:35 Shaping the neck root
- 3:52 Making the pegbox opening
- 4:17 Shaping the pegbox
- 4:59 Carving the scroll

Exploring lost cello making practices 2: the back plate (duration: 00:06:57)

YouTube link: <https://www.youtube.com/watch?v=4vPRifJ3NVI>

- 0:08 Jointing the back plate halves
- 1:28 Levelling the back plate blank lower surface
- 1:54 Marking the back plate outline
- 3:08 Rough shaping the outer arching of the back plate
- 3:34 Establishing plate edge thickness
- 3:46 Preparing purfling laminates
- 4:44 Inlaying purfling
- 5:17 Final arching
- 6:07 Plate hollowing and establishing final thickness
- 6:39 Completed back plate

Exploring lost cello making practices 3: the rib structure (duration: 00:08:19)

YouTube link: <https://www.youtube.com/watch?v=WyJgR0hQ1dU>

- 0:08 Gluing neck to back plate
- 1:26 Gluing corner blocks and lower block to the back plate
- 1:31 Bending the ribs
- 1:49 Gluing the lining strips (centre bout)
- 2:20 Tapering the rib ends (centre bout)
- 2:32 Gluing centre bout rib part to the blocks
- 3:55 Planing upper rib part to the required height
- 4:09 Attaching upper rib parts to neck root
- 4:51 Gluing rib parts to back plate
- 5:37 Levelling the rib structure
- 5:52 Removing the supporting cross-structure
- 6:28 Shaping inner surface of corner blocks
- 7:03 Removing cello from alignment table

Exploring lost cello making practices 4: the top plate (duration: 00:07:38)

YouTube link: <https://www.youtube.com/watch?v=5OulzkKI-tU>

- 0:08 Sawing out the top plate
- 0:17 Establishing plate edge thickness
- 0:42 Inlaying purfling
- 1:16 Shaping outer arching of the top plate
- 3:34 Plate hollowing and establishing final thickness
- 4:25 Cutting the f-holes
- 4:48 Gluing the bass bar
- 5:46 Investigating bass bar shape from CT reconstruction
- 6:06 Finishing the bass bar
- 6:18 Finished top plate
- 6:26 Gluing the top plate to the rib structure

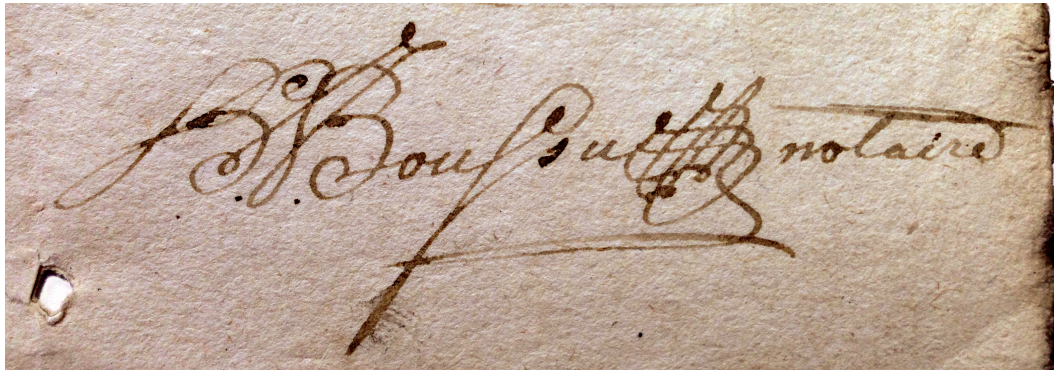
Exploring lost cello making practices 5: finishing (duration: 00:08:24)

YouTube link: <https://www.youtube.com/watch?v=pSHAtV6pgiY>

- 0:08 Final finishing of the sound box wood surface
- 0:22 Varnishing the sound box (alcohol varnish)
- 0:55 Making the veneered fingerboard
- 3:26 Gluing the fingerboard to the neck
- 4:36 Shaping the neck
- 4:54 Varnishing the neck and scroll (alcohol varnish)
- 5:12 Levelling the varnish of the neck and scroll with pumice and water
- 5:33 French polishing the varnish of the sound box
- 5:54 Making the bridge
- 6:11 Stringing
- 6:31 Images of finished cello
- 6:51 Mathilde Wolfs of 'Ensemble Boussu' plays the cello replica

The research presented in this thesis delves into the existence of the eighteenth-century **violin maker and notary Benoit Joseph Boussu**, while also analysing and ‘turning inside out’ his extant instruments. An interdisciplinary approach results in a rich and coherent account of Boussu’s life course, oeuvre, making methods, even his personality, all in the perspective of the conditions of late *Ancien Régime* society. We get to know a man who was able to create instruments of an exceptional and consistent quality, in considerable numbers and likely produced through a business model not uncommon for the era studied. But whose unusual career and repeated relocations within the Low Countries also make us wonder whether we might need to reconsider some of the prevailing, but generalising ideas about instrument makers from the past.

The multifaceted strategy of this study – combining a scholarly viewpoint with practice-oriented components in the form of ‘workbench research’ and musical performance – can serve as an inspiration, guide or even template for methodologies of forthcoming initiatives. Further, by studying a relatively unknown maker, the author hopes to illustrate that research in organology, especially in the realm of violins, does not predominantly have to concentrate on the famous names. Turning our attention to the ‘lesser gods’ can also provide us with valuable insights. In fact, such a shift of focal point contributes to a more complete, realistic and diverse understanding of historical instrument making. But for now... **welcome to Boussu’s world!**



Geerten Verberkmoes (Bergen op Zoom, 1968) holds degrees in chemistry, music and musical instrument making. He has worked in chemistry education and the field of acoustics. Since 2001, he is a musical instrument maker, and from 2010 onwards, he teaches instrument making, chemistry and acoustics at the School of Arts Ghent, Belgium. Verberkmoes currently specialises in the construction and research of historical bowed string instruments. His articles have appeared in publications such as *Early Music*, *The Galpin Society Journal* and *The Strad*.

