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Re-tuning the mind's ear: An anonymous history of acoustic prosthetic technologies for the ear

A thesis presented in partial fulfilment of the requirements for the degree of Doctor of Philosophy in Communication at Massey University, Palmerston North, New Zealand.

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2019
Dedication

This thesis is dedicated to my beloved father, Brian Herlihy (1926 – 2011), and my dear friend and teacher, Dr Scott Thomas Eastham (1949 – 2013).

Two extraordinary men who made this endeavour possible.

With love and light.
Acknowledgements

My most sincere and humble thanks go to my supervisors, Associate Professor Margaret Brunton and Dr Pansy Duncan, for their unwavering support and guidance. Their encouragement and inspiration were integral to me having the courage, and endurance, to complete this research.

My special thanks Dr Mary Eastham and Peter Horsley for their assistance and friendship, and whose help in the final months helped me to complete this thesis.

My thanks also go to Associate Professor Jenny Lawn, Professor Shiv Ganesh, Dr Doug Ashwell, Dr Chris Galloway and Dr Jan Sinclair for their ongoing support.

I would also like to thank my colleagues in the Department of Communication, Journalism and Marketing, and the Department of English and Media Studies at Massey University’s Albany and Palmerston North campuses who continued to encourage me through some very trying times.

I especially thank my family, particularly my mother Louise Herlihy, for believing that I could overcome all of the hurdles I faced and complete this project.

And to all of my friends, especially Terry W Burgher, Dr Jan Gregson and Peter Mealey, who had the patience to listen, challenge and back me for the duration of this research.

Words cannot express my most sincere gratitude to you all.
Abstract

Over the last century the use of wearable personal acoustic technologies for the ear in a variety of different guises has become commonplace in daily life. These devices, such as hearing aids and headphones, have the propensity to reshape auditory experience and in turn, the perception of acoustic space by enabling personalised and immersive encounters with sound that alter the user’s understanding of, and relationship to, their surrounding environment.

The aim of this study is to explore how acoustic prosthetic devices modify how sound is experienced, and how ensuing changes in auditory acuity affect the user’s perception of acoustic space. To achieve these aims this study compiled an anonymous history of acoustic space through the lens of various acoustic prosthetic technologies for the ear. It presents an historical analysis of the development and application of these personal devices in key areas of innovation and application, in particular hearing aids, the stethoscope, and headphones. In this thesis, a hybrid methodological approach is offered to expand Siegfried Giedion’s contribution to anonymous history by integrating analysis of a post-phenomenology of embodiment. This methodology illustrates the ways in which the technological evolution of these devices across history significantly influenced the user’s experience of mediated sound and, in turn, acoustic space.
This research provides further insight into, first, the ways in which hearing aids, devices used to ameliorate a deficit in hearing, historically contributed to a reshaping of the user's perception of acoustic space. Second, this thesis examines how the development and application of the stethoscope marked the beginning of a movement towards the increasing privatisation of mediated listening experiences. Finally, the influence towards private mediated experiences of sound that began to build momentum in the late nineteenth century is explored to foreground the increasingly widespread use of prosthetic technologies for the ear, in particular headphones, also examined in this thesis.

In so doing, this study draws attention to new complexities in the experience of auditory encounters facilitated by acoustic prosthetics. The thesis further reveals the paradoxical nature of these devices as their form and function has continued to evolve over time. Additionally, through the integration of digital technology, this study also explores how acoustic prosthetic wearers are able to facilitate, and control, new hybridised and customised experiences of sound and acoustic space. It is argued that the new and increasing ability to experience what is not possible through the unmediated ear raises new challenges to the ways in which acoustic space has previously been considered. Heterogeneous experiences of acoustic space made possible through rapidly advancing developments in prosthetic technologies for the ear require greater consideration, in particular the potential effect(s) that these experiences of acoustic space have upon the re-tuning of the mind's ear.
# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dedication</td>
<td>i</td>
</tr>
<tr>
<td>Acknowledgements</td>
<td>ii</td>
</tr>
<tr>
<td>Abstract</td>
<td>iii</td>
</tr>
<tr>
<td>Table of Contents</td>
<td>v</td>
</tr>
<tr>
<td>List of Figures</td>
<td>viii</td>
</tr>
<tr>
<td><strong>Chapter One: Scope of the research</strong></td>
<td></td>
</tr>
<tr>
<td>1.1 Introduction</td>
<td>1</td>
</tr>
<tr>
<td>1.2 Existing literature</td>
<td>3</td>
</tr>
<tr>
<td>1.3 Research questions</td>
<td>10</td>
</tr>
<tr>
<td>1.4 Research aims</td>
<td>12</td>
</tr>
<tr>
<td>1.5 Method and methodologies used</td>
<td>13</td>
</tr>
<tr>
<td>1.6 Chapter summaries</td>
<td>17</td>
</tr>
<tr>
<td><strong>Chapter Two: Literature Review</strong></td>
<td></td>
</tr>
<tr>
<td>2.1 Introduction</td>
<td>21</td>
</tr>
<tr>
<td>2.2 Media ecology and the concept of acoustic space</td>
<td>23</td>
</tr>
<tr>
<td>2.3 Acoustic space, sound studies and acoustic prosthetics for the ear</td>
<td>31</td>
</tr>
<tr>
<td>2.3.1 Acoustic ecology and acoustic space</td>
<td>32</td>
</tr>
<tr>
<td>2.3.2 Sound localisation and a sense of acoustic space</td>
<td>39</td>
</tr>
<tr>
<td>2.4 Existing literature on acoustic prosthetics</td>
<td>46</td>
</tr>
<tr>
<td>2.5 Phenomenologies of sound</td>
<td>61</td>
</tr>
<tr>
<td>Summary</td>
<td>66</td>
</tr>
</tbody>
</table>
Chapter Three: Methodologies and method

3.1 Introduction...........................................................................................................69
3.2 Media ecology ......................................................................................................71
3.3 Anonymous history ............................................................................................76
3.4 Post-phenomenology and embodiment ...............................................................84
3.5 Method ..................................................................................................................93
Summary ....................................................................................................................100

Chapter Four: A phenomenological anonymous history of hearing aids

4.1 Introduction ..........................................................................................................102
4.2 Hearing and impairment ......................................................................................108
4.3 The early history of hearing aids .........................................................................116
4.4 Hearing aids and acoustic space ..........................................................................131
4.5 Hearing aids and social stigma ...........................................................................147
4.6 The electrification of hearing aids ........................................................................162
4.7 Digital hearing aids ............................................................................................183
Summary ....................................................................................................................194

Chapter Five: Anonymous history, phenomenology and the development of the stethoscope

5.1 Introduction ..........................................................................................................196
5.2 Acoustic space, auscultation and the unmediated ear ..........................................199
5.3 The binaural stethoscope and acoustic space .......................................................220
Summary ....................................................................................................................230
## Chapter Six: An anonymous history of the phenomenological influence of headphones

6.1 Introduction ........................................................................................................... 233
6.2 Extending the telephone ......................................................................................... 236
6.3 Headphones and customised auditory isolation ...................................................... 263
6.4 Expanding interior acoustic space .......................................................................... 274
6.5 The end of noise ..................................................................................................... 283
6.6 Acoustic space on the move ..................................................................................... 288
6.7 The future of headphones ......................................................................................... 298

Summary ....................................................................................................................... 307

## Chapter Seven: Conclusion

7.1 Introduction ............................................................................................................. 309
7.2 Limitations ................................................................................................................ 311
7.3 Key findings ............................................................................................................. 312
7.3.1 The importance of the shaping of acoustic space .............................................. 314
7.3.2 The paradoxical nature of acoustic prosthetics ............................................... 317
7.3.3 Hybridised experiences of acoustic space ......................................................... 321
7.3.4 Contribution to method ....................................................................................... 322
7.4 Implications ............................................................................................................... 324
7.5 Opportunities for further research ......................................................................... 326

References .................................................................................................................... 329
List of Figures

Chapter Four

Figure 4.1  Painting by J.M. Woodhouse of Odysseus and the Sirens on the Straight of Messina (1891) ................................................................. 122
Figure 4.2  Bison horn ear trumpet ............................................................. 129
Figure 4.3  Telescoping tube ear trumpet ...................................................... 129
Figure 4.4  Portrait of Mary Greg and her ear trumpet ................................. 137
Figure 4.5  Illustration of different long and short ear trumpets .................. 138
Figure 4.6  Brass London Dome ear trumpet ................................................ 138
Figure 4.7  Opening to the resonator of a brass London Dome ear trumpet .. 138
Figure 4.8  Illustration of a conversation tube in use .................................... 142
Figure 4.9  Hard rubber conversation tube (c. 1880) ..................................... 153
Figure 4.10 Illustration of an acoustic fan in use ....................................... 150
Figure 4.11 An open acoustic fan ................................................................. 151
Figure 4.12 The Acoustic Throne of King Goa ............................................ 153
Figure 4.13 Pair of silver ear inserts ............................................................. 155
Figure 4.14 Print advertisement for auricules from T. Hawksley of London ... 156
Figure 4.15 A monaural auricule disguised as a flower ............................... 157
Figure 4.16 An acoustic urn (c. 1820) .......................................................... 159
Figure 4.17 The Acousticon Model A carbon hearing aid (c. 1905) ............ 164
Figure 4.18 Print advertisement for the Paravox ‘HEARzone’ hearing aid (1947) 168
Figure 4.19 A table vacuum tube hearing aid (c. 1948) .............................. 171
Figure 4.20 Print advertisement for the Sonotone body vacuum tube aid ...... 172
Figure 4.21 Print advertisement for a Zenith vacuum tube aid ..................... 174
Figure 4.22 The Sonotone 1010 transistor hearing aid (1952) ................. 176
Figure 4.23 The Acousticon Model A-600 Privat-Ear behind-the-ear transistor hearing aid ........................................................... 177
Figure 4.24  Print advertisement for the Beltone Electronic Ear transistor hearing aid ................................................................. 179
Figure 4.25  Digital hearing aid .................................................................................................................................................. 184
Figure 4.26  Miniaturised in-ear digital hearing aid .......................................................... 184

Chapter Five
Figure 5.1  Théobald Chartran’s painting of René Laënnec demonstrating immediate auscultation (n.d.) .................................................................................................................. 201
Figure 5.2  Illustration of the parts of the monaural stethoscope from Laënnec’s treatise (1821) ........................................................................................................................................ 209
Figure 5.3  Robert A. Thom’s painting of Laënnec performing mediate auscultation with his monaural stethoscope (c. 1952) ........................................................................ 211
Figure 5.4  Arthur Leared’s binaural stethoscope (c. 1860) .................................................. 221

Chapter Six
Figure 6.1  Print advertisement for the Telefon Himondó (c. 1900) ............................. 238
Figure 6.2  Illustration of the Telefon Himondó earpieces (c. 1895) .......................... 239
Figure 6.3  Illustration of the Telefon Himondó afternoon concert ............................. 241
Figure 6.4  Illustration of the Théâtrophone unit and earpieces .................................... 248
Figure 6.5  Print advertisement for the Théâtrophone service ....................................... 250
Figure 6.6  Illustration of a Théâtrophone public listening room .................................. 251
Figure 6.7  The Electrophone headphones in use (c. 1894) ........................................... 252
Figure 6.8  Photo of an Electrophone public listening room (1903) ......................... 255
Figure 6.9  Patent drawing of Mercadier’s Bi-telephone headphones ....................... 260
Figure 6.10 Illustration of Mercadier using the Bi-telephone headphones ............ 261
Figure 6.11 A pair of Baldwin headphones (c. 1918) .................................................... 264
Figure 6.12 Beyerdynamic DT48 headphones (c. 1940) .............................................. 268
Figure 6.13 Beyerdynamic DT49 headphones in use ............................................... 271
Figure 6.14 Beyerdynamic DT49 headphones ................................................................ 272
Figure 6.15  Koss SP3 stereophones ................................................................. 277
Figure 6.16  Print advertisement for Koss stereophones (1970) ..................... 280
Figure 6.17  Print advertisement for Koss stereophones (1976) ..................... 281
Figure 6.18  ‘Live and let live’ print advertisement for Koss stereophones (1970) .... 282
Figure 6.19  Neil Armstrong wearing a pair of Plantronics noise cancelling
headphones ........................................................................................................... 286
Figure 6.20  Print advertisement for Bone Fone (1979) .................................... 289
Figure 6.21  The Bone Fone (1979) .................................................................. 289
Figure 6.22  Print advertisement for the Bone Fone (1979) .............................. 290
Figure 6.23  The Sony Walkman and headphones ........................................... 293
Figure 6.24  A pair of Apple earbuds ............................................................... 298
Figure 6.25  A pair of Aftershockz bone conduction headphones .................... 299
Figure 6.26  A prototype of the Ossic X 3D headphones .................................... 304
Figure 6.27  Illustration of the experience of sound and acoustic space through
Ossic X headphones ......................................................................................... 305