

WOODWIND DOUBLING ON FOLK, ETHNIC, AND PERIOD INSTRUMENTS IN  
FILM AND THEATER MUSIC: CASE STUDIES AND A PRACTICAL MANUAL

by

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(Under the Direction of Dwight Manning)

ABSTRACT

Woodwind doubling is the practice of playing instruments from more than one woodwind family. In musical theater and film music, woodwind doublers are valuable for their ability to produce the sounds of a varied woodwind section for a fraction of the cost of hiring a specialist musician to play each instrument.

Since the 1990's, composers and orchestrators in musical theater and film scoring have shown increased interest in instrumental sounds from outside the traditional symphony orchestra. Many have featured folk, ethnic, or period instruments as solo instruments, bringing authentic sounds to scenes set in faraway locations or historical periods, giving an exotic flair to fictional locales, or simply adding new colors to the usual palette of instrumental sounds.

Composers of film and theater scores have used ethnic woodwinds, in particular, in their scoring. To meet the demand for ethnic woodwind sounds, many prominent woodwind doublers on Broadway and in Hollywood have adopted these instruments, in addition to their usual arrays of modern Western instruments.

Eight folk, ethnic, and period woodwinds recently employed in film and theater scoring have been selected for study in this document: bamboo flutes (especially the Indian bansuri and

flutes used by some flutists in Irish traditional music), the Chinese dizi, the Armenian duduk, the Native American flute, the panflutes of Romania and South America, the pennywhistle, the recorder, and the Japanese shakuhachi.

For each instrument, a representative example of use in theater or film music has been selected and transcribed from a commercial audio recording. Each transcription is discussed with emphasis on demands placed upon the ethnic woodwind musician. Additional discussion of each instrument includes suggestions for purchasing instruments, fingering charts, description of playing technique, description of instrument-specific performance practices, discussion of various sizes and/or keys of each instrument, discussion of instrument-specific notation practices, annotated bibliographies of available pedagogical materials, lists of representative recordings (including authentic ethnic music and other music), and information on relevant organizations and associations of professional or amateur musicians.

**INDEX WORDS:** woodwinds, woodwind doubling, folk instruments, ethnic instruments, period instruments, film music, theater music, bamboo flute, dizi, di-dze, di-tzu, di, duduk, doudouk, Native American flute, Lakota flute, panflute, pan flute, panpipes, pan pipes, pennywhistle, tinwhistle, Irish whistle, recorder, shakuhachi

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## Chapter 1: Introduction

Woodwind doubling is the practice of playing instruments from more than one woodwind family. Though woodwind doubling in Western music began at least as early as the fifteenth century, there has been a surge in this practice since the early twentieth century.<sup>1</sup> Phil Thompson names three primary settings in which contemporary woodwind doublers have used their skills: jazz or dance bands, musical theater pit orchestras, and score recording for film.<sup>2</sup>

In musical theater and film music, woodwind doublers are valuable for their ability to produce the sounds of a varied woodwind section for a fraction of the cost of hiring a specialist musician to play each instrument. A small section of woodwind doublers also takes up far less space in an orchestra pit than a full orchestral woodwind section and saxophone section. While the practice of woodwind doubling at a high level is a demanding discipline, it can lead to increased employability for woodwind players, as well as enhanced income (doubler often earn more for a performance than their colleagues who play a single instrument) and widely varied musical experiences.

Since the 1990's, composers and orchestrators in musical theater and film scoring have shown increased interest in instrumental sounds from outside the traditional symphony orchestra. Many have featured folk, ethnic, or period instruments as solo instruments, bringing authentic

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<sup>1</sup>Phil Atterbury Thompson, "A historical survey of woodwind doubling and a form/style analysis of four works for doubler and wind ensemble, a lecture recital together with three recitals of selected works by W. A. Mozart, A. Glazounov, P. Tate, A. Szalowski, A. Copland and others," (D.M.A diss., University of North Texas, 1993), 1, 14.

<sup>2</sup> Ibid., 14.

sounds to scenes set in faraway locations or historical periods, giving an exotic flair to fictional locales, or simply adding new colors to the usual palette of instrumental sounds.

Composers of film and theater scores have used ethnic woodwinds, in particular, in their scoring.<sup>3</sup> A few examples are provided in Tables 1 and 2.

Table 1: Selected ethnic woodwinds used in recent film scores

<b>Instrument</b>	<b>Used in films:</b>
Duduk (double reed instrument native to Armenia)	<i>The Passion of the Christ</i> (2004) <i>The Chronicles of Narnia: The Lion, the Witch, and the Wardrobe</i> (2005) <i>Munich</i> (2005) <i>Syriana</i> (2005) <i>The Kite Runner</i> (2007)
Pennywhistle (duct flute native to the British Isles)	<i>Titanic</i> (1997) <i>The Lord of the Rings: The Fellowship of the Ring</i> (2001) <i>Road to Perdition</i> (2002) <i>The Rookie</i> (2002) <i>The Alamo</i> (2004)
Shakuhachi (end-blown bamboo flute native to Japan)	<i>Legends of the Fall</i> (1994) <i>The Mask of Zorro</i> (1998) <i>Pearl Harbor</i> (2001) <i>The Last Samurai</i> (2003)

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<sup>3</sup> For brevity, the term “ethnic woodwinds” is used in this document to indicate ethnic, folk, period, or other woodwinds that do not fall within the five families of major, modern Western woodwinds: flute, oboe, clarinet, bassoon, and saxophone.

Table 2: Selected ethnic woodwinds used in recent Broadway musical theater scores

Instrument	Used in Broadway or Broadway-style musicals:
Bamboo transverse flutes (native to various musical traditions, including those of India and China)	<i>Miss Saigon</i> (1989) <i>Aida</i> (2000) <i>Flower Drum Song</i> (2002 revival) <i>Tarzan</i> (2006)
Panflutes (sets of endblown flutes, native to various musical traditions, including those of Romania and several South American nations)	<i>The Secret Garden</i> (1991) <i>The Lion King</i> (1997)
Recorder (duct flute important in the Renaissance and Baroque periods of Western music)	<i>You're a Good Man, Charlie Brown</i> (1999 revival) <i>Wicked</i> (2003) <i>Spamalot</i> (2005) <i>Les Miserables</i> (2006 revival)

To meet the demand for ethnic woodwind sounds, many prominent woodwind doublers on Broadway and in Hollywood have adopted these instruments in addition to their usual arrays of modern Western instruments. A few notable examples are David Weiss (credits include *The Alamo* and *The Lion King*), Chris Bleth (*The Kite Runner*, *The Chronicles of Narnia*), Pedro Eustache (*The Passion of the Christ*), and Tony Hinnigan (*Titanic*).<sup>4</sup>

#### Purpose of the study

The purpose of this study is to examine case studies of eight ethnic woodwind instruments and situations in which they are used, and to provide a practical overview of each instrument written with the perspective of the woodwind doubler in mind. In addition, an array of published references are catalogued and annotated for each instrument.

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<sup>4</sup><http://davidweissflute.net>; <http://chrisbleth.com>; <http://pedroflute.com>; <http://tonyhinnigan.com>.

## Need for the study

While the history and practices of woodwind doubling on the major, modern Western woodwinds have been thoroughly examined in other texts, the phenomenon of doubling on ethnic woodwinds remains largely unexplored.<sup>5</sup> This study benefits scholarly research of woodwind doubling by documenting this current trend.

Additionally, this study provides a resource for woodwind players: an introduction to selected ethnic woodwind instruments, with practical information related to the playing of these instruments. Some of these instruments have pedagogical resources readily available, while others have few or inadequate English-language resources. This study seeks to uncover available English-language resources for each instrument and compile important pedagogical information in a single volume.

The information included for each instrument is general enough in nature to bear broad application, but the inclusion of specific case studies for each instrument provides practical insight into the work of an ethnic-woodwinds doubler.

## Method

Eight representative instruments have been selected for study. Instruments of the woodwind family (mouthblown flutes and reed instruments) have been considered. Other factors considered in making the selection included:

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<sup>5</sup> For example, see theses/dissertations by Dennis Brian McLaughlin (Columbia University, 1985), Kimberly Anne Bain (Bowling Green State University, 1989), Phil Atterbury Thompson (University of North Texas, 1993), and Ed Joffe (City University of New York, 2006), listed in the bibliography on page 11.

1. Perceived frequency of use in recent film and theater music, based on observation of film scores and musical theater soundtrack recordings, as well as anecdotal evidence gathered from various sources.
2. Overall diversity of the final group of instruments. Instruments will be selected to represent several subcategories of the woodwind family (transverse flutes, duct flutes, reeds, etc.), and to represent a variety of musical traditions.

A listing of selected instruments is provided in Table 3.

Table 3: List of instruments for inclusion in the study

<b>Instrument</b>	<b>Type</b>	<b>Associated musical tradition</b>
Bamboo flutes (general category including, for example, the Indian bansuri)	Transverse flute	Indian and Far Eastern; also various folk traditions in Western music
Dizi	Transverse flute with mirliton (vibrating membrane)	Chinese
Duduk	Double reed	Armenian
Native American flute (Lakota style)	Duct flute	Native American
Panflute	Endblown flute	Romanian, South American
Pennywhistle	Duct flute	British (especially Irish), South African
Recorder	Duct flute	Western Renaissance and Baroque periods
Shakuhachi	Endblown flute	Japanese

Representative passages from film and theater music have been selected to showcase the characteristic sound of each instrument in a commercial context such as the score of a popular movie or Broadway musical, and to enhance and illustrate discussion of the technique and performance practice of each instrument. The musical examples have been transcribed.



Discussion of the technique and performance practice of each instrument is based on information compiled from published texts and other media. Discussion is conducted from the perspective of a woodwind doubler, and includes (but is not limited to):

1. Annotation of transcribed score sample, with emphasis on demands placed upon the ethnic woodwind musician
2. Suggestions for purchasing hard-to-find ethnic instruments
3. Fingering charts
4. Description of playing technique
5. Description of instrument-specific performance practices
6. Discussion of various sizes and/or keys of each instrument, where applicable
7. Discussion of instrument-specific notation practices
8. Annotated bibliographies of available pedagogical materials
9. Lists of representative recordings (including authentic folk, ethnic, or period music and other music)
10. Information on relevant organizations and associations of professional or amateur musicians

#### Literature Review

Because woodwind doubling in the twentieth century traditionally has included only modern Western woodwinds, few sources dedicated to woodwind doubling make mention of ethnic instruments. Chris Vadala's column "Tips on Doubling" in *Saxophone Journal* includes some discussion of bamboo transverse flutes, shakuhachi, pennywhistle, and recorder in issues

from 1994 and 1995.<sup>6</sup> Sources devoted to specific modern Western woodwinds or to specific musical genres occasionally address closely-related ethnic woodwinds; examples include an article on the dizi from *Flutist Quarterly* and one on using ethnic woodwinds in jazz from the “Creative Jazz Improvisation” column in *Saxophone Journal*.<sup>7</sup>

Increasingly, texts on scoring for commercial music written since 1990 (especially books on film scoring) include discussion of ethnic instruments.<sup>8</sup> While these passages are likely to focus on ethnic percussion instruments or stringed instruments, some make mention of ethnic woodwinds, especially pennywhistles and bamboo or wooden flutes.

There are hundreds of resources available that address specific ethnic woodwinds; these are of varying degrees of practical usefulness to the woodwind doubler. Many resources, if not most, are ethnomusicological, organological, or historical in nature; while they are of value in academic study of ethnic woodwinds, they may have limited application in terms of learning to play these instruments. Some instruments have method books or other pedagogical resources available, and most can be studied aurally through imitation of commercially-available recordings. Some of the instruments that are popular with amateur musicians have related method books that are unsuitable for professional-level woodwind doublers due to oversimplified pedagogy. Among the pedagogical sources that are of appropriate quality and

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<sup>6</sup> Chris Vadala, “Tips on Doubling: The Other Flutes,” *Saxophone Journal* (November/December 1994): 28-31; “Tips on Doubling: Responses from Readers,” *Saxophone Journal* (March/April 1995): 22-25.

<sup>7</sup> Charles DeLaney, “DIZI! Sounds from Ancient China,” *Flutist Quarterly* 12, no. 4 (Fall 1987): 33-34; David Pope, “Creative Jazz Improvisation: World Music Doubling for Jazz Improvisers,” *Saxophone Journal* (March/April 2008): 20-21.

<sup>8</sup> For example: Fred Karlin and Rayburn Wright, *On the Track: A Guide to Contemporary Film Scoring* (New York: Schirmer, 1990): 280; Richard Davis, *Complete Guide to Film Scoring: The Art and Business of Writing Music for Movies and TV* (Boston: Berklee Press, 1999): 172-173; Sonny Kompanek, *From Score to Screen: Sequencers, Scores, and Second Thoughts: The New Film Scoring Process* (New York: Schirmer Trade Books, 2004): 61.

content for professional woodwind musicians, many are hard to find or unavailable in the desired language (this document deals only with English-language texts).

Transverse bamboo flutes are found in many musical traditions, and are in some cases made without any particular tradition in mind. The Indian *bansuri* tradition has a small number of pedagogical works available in English, including those by B. K. Chaturvedi (which also addresses the *shahnai*), Lyon Leifer (which is based on the teaching of Devendra Murdeshwar, and includes an audio recording), and S. Krishnaswami.<sup>9</sup> As most bamboo flutes are diatonic, simple-system instruments (having six fingered toneholes, which, opened in sequence, produce a major scale), materials geared toward the Irish flute tradition, such as the exhaustive manual by Grey Larsen, may also be applicable.<sup>10</sup>

The Chinese dizi, also a transverse bamboo flute, will be treated separately because it uses a mirliton (vibrating membrane) that sets it apart from other bamboo flutes. The dizi tradition is well established in China and many pedagogical materials are available in the Chinese language. Texts by Marsha Lynne Baxter and Charles DeLaney are relevant to woodwind doublers due to their viewpoint of Western classically-trained musicians approaching the dizi.<sup>11</sup> Dissertations by Frederick Cheungkong Lau and Li Ming and an article by Alan Thrasher present a less West-centric approach.<sup>12</sup>

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<sup>9</sup> B. K. Chaturvedi, *How to Play Flute and Shahnai* (New Delhi: Diamond Pocket Books, 1988); Lyon Leifer, *How to Play the Bansuri: A Manual for Self-instruction Based on the Teaching of Devendra Murdeshwar* (Glenview, IL: Rasa Music Company, 1997); S. Krishnaswami, "Musical Instruments of India," *Asian Music* 2, no. 2 (1971): 31-42.

<sup>10</sup> Grey Larsen, *The Essential Guide to Irish Flute and Tin Whistle* (Pacific, MO: Mel Bay Publications, 2003).

<sup>11</sup> Marsha Lynne Baxter, "The Chinese Dizi, the Native American Courting Flute, and the Andean Panpipes: An Investigation of Pedagogy and Musical Practice" (D.Ed. diss., Columbia University, 2001); Charles DeLaney, "DIZI! Sounds from Ancient China," *Flutist Quarterly* 12, no. 4 (Fall 1987): 33-34.

<sup>12</sup> Frederick Cheungkong Lau, "Music and Musicians of the Traditional Chinese Dizi in the People's Republic of China" (D.M.A. diss., University of Illinois at Urbana-Champaign, 1991); Li Ming, "Di-zi: The History

Few resources are available in print for the duduk. An exception is John Vartan's tutor; also somewhat relevant is Andy Nercessian's book, which contains information on technique and performance practice scattered throughout a primarily ethnomusicological text.<sup>13</sup> A video method is available on DVD through dudukonline.com, a US-based instrument dealer.<sup>14</sup>

The best source for Native American flute playing information is the influential Carlos Nakai and James DeMars book, which codifies aspects of the aural tradition of this instrument.<sup>15</sup> The Baxter dissertation also includes useful information. Several beginning methods are available, though they may be overly simple for professional woodwind doublers. These are by Jeffrey K. Ball and Bruce A. Whitten, Odell Borg, and Henry R. Hermann.<sup>16</sup>

Two panflute methods dealing with the Romanian tradition are by Valeriu Apan and Costel Puscoiu.<sup>17</sup> Materials that address the South American (particularly Andean) tradition include a book by Alvaro Graña and an instructional video by members of the group Sukay.<sup>18</sup> A dissertation by Apan gives a thorough overview of both Romanian and South American traditions, as well as other, lesser-known panflutes of the world; it discusses virtually every aspect of the panflute: history, technique, repertoire, and organology.<sup>19</sup>

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and Performance Practice of the Chinese Bamboo Transverse Flute" (D.M. diss., Florida State University, 1995); Alan Thrasher, "The Transverse Flute in Traditional Chinese Music," *Asian Music* 10, no. 1 (1978): 92-114.

<sup>13</sup> John Vartan, *The Armenian Duduk: An Instructional Book for Beginners*, ed. Ara Topouzian (West Bloomfield, MI: American Recording Productions, 2000); Andy Nercessian, *The Duduk and National Identity in Armenia* (Lanham, MD: Scarecrow Press, 2001).

<sup>14</sup> *Learn the Art of Duduk Playing* (Pasadena, CA: dudukonline.com, n.d.), video recording.

<sup>15</sup> R. Carlos Nakai and James DeMars, *The Art of the Native American Flute* (Phoenix: Canyon Records Productions, 1996).

<sup>16</sup> Jeffrey K. Ball and Bruce A. Whitten, *Trailhead of the American Indian Courting Flute* (Lafayette, CO: Red Feather Music, 2001); Odell Borg, *Introduction to the Native American Style Flute* (N.p.: High Spirits, n.d.); Henry R. Hermann, *Enjoying the Native American-Style Flute* (Happy Camp, CA: Naturegraph, 2004).

<sup>17</sup> Valeriu Apan, *How to Play Romanian Panpipe*, 2<sup>nd</sup> edition (Santa Monica, CA: Fuge Imaginea Press, 1995); Costel Puscoiu, *You Can Teach Yourself Pan Flute* (Pacific, MO: Mel Bay, 1997).

<sup>18</sup> Alvaro Graña, *How to Make and Play Pan-Pipes* (Coventry, England: Condor Books, 1995); *How to Play Flutes of the Andes: Taught by Sukay* (Woodstock, NY: Homespun Tapes, 1987). Video recording.

<sup>19</sup> Valeriu Apan, "The Panpipe (Nai) in Contemporary Romanian Folk Music" (Ph.D. diss., University of California, Los Angeles, 1994).

The pennywhistle's tradition and pedagogy in music of the British Isles are well documented. Some excellent resources are those by L. E. McCullough and the aforementioned book by Larsen; many more methods are available, most geared toward beginners who may have no musical background.<sup>20</sup> The pennywhistle's use in South African music is less thoroughly documented; a book chapter by Lara Allen is a good starting point.<sup>21</sup>

The recorder also has a well-established pedagogical tradition and has been written about extensively. Among the many published methods, some fine examples include texts by Anthony Rowland-Jones, Walter van Hauwe, and Daniel Waitzman.<sup>22</sup> For information on historical performance practice, good sources are period writings such as that by Jacques Hotteterre, or modern treatises like those by Hans-Martin Linde, Rowland-Jones, and Kenneth Wollitz.<sup>23</sup> Twentieth-century extended techniques are discussed by Eve O'Kelly and Niall O'Loughlin.<sup>24</sup>

The shakuhachi methods by Christopher Blasdel and Kamisango Yuko, Masayuki Koga, and Tom W. Deaver are excellent starting points for exploring the complexities of the instrument's technique.<sup>25</sup> For woodwind doublers, it may be useful to be conversant in an

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<sup>20</sup> L. E. McCullough, *The Complete Irish Tinwhistle Tutor* (Pittsburgh: Silver Spear Publications, 1976); "Style in Traditional Irish Music," *Ethnomusicology* 21, no. 1 (1977): 85-97.

<sup>21</sup> Lara Allen, "Kwela: The Structure and Sound of Pennywhistle Music," In *Composing the Music of Africa: Composition, Interpretation, and Realisation*, ed. Malcolm Floyd, Ashgate Studies in Ethnomusicology (Aldershot, England: Ashgate, 1999).

<sup>22</sup> Anthony Roland-Jones, *Recorder Technique* (London: Oxford University Press, 1959); Walter van Hauwe, *The Modern Recorder Player* (London: Schott, 1984); Daniel Waitzman, *The Art of Playing the Recorder* (New York: AMS Press, 1978).

<sup>23</sup> Jacques Hotteterre le Romain, *Principles of the Flute, Recorder, & Oboe*, trans. David Lasocki (New York: Frederick A. Praeger, 1968); Hans-Martin Linde, *The Recorder Player's Handbook*, trans. Richard Deveson (London: Schott, 1991); Kenneth Wollitz, *The Recorder Book* (New York: Alfred A. Knopf, 1982).

<sup>24</sup> Eve O'Kelly, *The Recorder Today*, (Cambridge: Cambridge University Press, 1990); Niall O'Loughlin, "The Recorder in 20th-Century Music," *Early Music* 10, no. 1 (1982): 36-37.

<sup>25</sup> Christopher Blasdel and Kamisango Yuko, *The Shakuhachi: A Manual for Learning; Learning to Play* (Tokyo: Ongaku no Tomo Sha, 1988); Masayuki Koga, *Shakuhachi: Japanese Bamboo Flute* (Navarro, CA: Japanese Music Institute of America, 1978); Tom W. Deaver, *Ichiyo Shakuhachi Manual* (Nagano Ken, Japan: n.p., 1976).

approach to scoring for the instrument in Western notation, such as that suggested by Jeffrey Lependorf.<sup>26</sup>

## Organization

This document consists of the following chapters:

1. Introduction. This chapter includes an introduction, purpose of the study, need for the study, method, literature review, and organization.
2. Discussion of individual instruments
  - a. Bamboo transverse flutes
  - b. Dizi
  - c. Duduk
  - d. Native American flute
  - e. Panflute
  - f. Pennywhistle
  - g. Recorder
  - h. Shakuhachi
3. Conclusions and future research

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<sup>26</sup> Jeffrey Lependorf, "Contemporary Notation for the Shakuhachi: A Primer for Composers," *Perspectives of New Music* 27, no. 2 (1989): 232-51.

## Bibliography

### *Woodwind doubling*

Bain, Kimberly Anne. "The saxophonist's perspective on woodwind doubling: its history and current trends." M.M. thesis, Bowling Green State University, 1989.

This is a brief history of woodwind doubling, with appendices of "selected material" for study of each woodwind instrument family.

Filas, Thomas. "The Art of Doubling." *Woodwind Anthology: A Compendium of Woodwind Articles from The Instrumentalist, Vol. 2*. Northfield, Illinois: Instrumentalist, 1992: 735-736.

Filas discusses fundamental issues of playing multiple instruments, woodwind or otherwise.

Holgate, Max. "Some Thoughts on Multi-Instrumentalism." *The School Musician* (October 1984): 18-20.

Holgate argues in favor of multi-instrumentalism, mostly focusing on the benefits and challenges of woodwind doubling.

Joffe, Edward. "Woodwind doubling: A historical survey and examination of performance problems and practices between saxophones, clarinets and flutes." D.M.A. diss., The City University of New York, 2006.

This work discusses the history of woodwind doubling from 1300 to 2005, and includes a pedagogical approach to woodwind doubling and discussion of musical excerpts (mostly from musical theater).

Kennedy, Shannon. "Flute as a Double." *Flute Talk* (April 2006): 22-23.

This short article is a basic introduction to woodwind doubling, not particularly geared toward flute.

McLaughlin, Dennis Brian. "An Investigation of Performance Problems Confronted by Multiple-woodwind Specialists." Ed.D diss., Columbia University, 1985.

This work is based on a survey of fourteen professional woodwind doublers with varied "primary" instruments. Chapters discuss issues of transferring ability from each of the five major woodwinds to each of the four others. Appendices include recommended recordings, literature, and pedagogical materials, problematic fingerings, and selection of instruments.

Reimer, Bennett. "Woodwind Doubling: Mind over Matter." *Woodwind Anthology: A Compendium of Woodwind Articles from The Instrumentalist, Vol. 2*. Northfield, Illinois: Instrumentalist, 1992: 706-707.

Reimer addresses physical and mental challenges inherent in woodwind doubling.

Ricker, Ramon. "Doubling in the Studios: An Interview with George Marge." *Woodwind Anthology: A Compendium of Woodwind Articles from The Instrumentalist, Vol. 2*. Northfield, Illinois: Instrumentalist, 1992: 827-829.

This interview provides a look into the life of a New York City studio doubler, including advice for aspiring woodwind doublers and studio musicians.

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Swoboda shares brief thoughts on problems of doubling flute/piccolo, clarinet, oboe/English horn, and saxophones.

Thompson, Phil Atterbury. "A historical survey of woodwind doubling and a form/style analysis of four works for doubler and wind ensemble, a lecture recital together with three recitals of selected works by W. A. Mozart, A. Glazounov, P. Tate, A. Szalowski, A. Copland and others." D.M.A diss., University of North Texas, 1993.

This dissertation includes a survey of woodwind doubling in the fifteenth through twentieth centuries.

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*Folk, ethnic, and period woodwinds*

Carlin, Dan, Sr. *Music in Film and Video Productions*. Stoneham, MA: Focal Press, 1991.

Carlin mentions the use of specialist musicians for ethnic instrument sounds in film scoring, and specifically names the pennywhistle.

Davis, Richard. *Complete Guide to Film Scoring: The Art and Business of Writing Music for Movies and TV*. Boston: Berklee Press, 1999.

This text includes a chapter entitled “Ethnic and Period Music,” which specifically mentions panflute, pennywhistle, and wooden flute.

Karlin, Fred, and Rayburn Wright. *On the Track: A Guide to Contemporary Film Scoring*. New York: Schirmer Books, 1990.

Karlin and Wright mention ethnic woodwinds under the heading of “Fresh Sounds,” including an anecdote about “woodwind guys” being called upon to play the Japanese *sho*, a mouth organ, for the Henry Mancini score to the film *Wait Until Dark*.

Kompanek, Sonny. *From Score to Screen: Sequencers, Scores, and Second Thoughts: The New Film Scoring Process*. New York: Schirmer Trade Books, 2004.

This text includes brief discussion of ethnic instruments in film scoring.

MacDonald, Laurence E. *The Invisible Art of Film Music: A Comprehensive History*. New York: Ardsley House, 1998.

This substantial work discusses thousands of film scores, including numerous mentions of ethnic woodwinds.

Pope, David. “Creative Jazz Improvisation: World Music Doubling for Jazz Improvisers.” *Saxophone Journal* (March/April 2008): 20-21.

Pope offers practical suggestions for the use of ethnic woodwinds in jazz improvisation, including tips on purchasing instruments.

Skiles, Marlin. *Music Scoring for TV & Motion Pictures*. Blue Ridge Summit, PA: Tab Books, 1976.

In this book, an interview with film composer Quincy Jones reveals Jones’s distaste for ethnic instruments used “to replace quality,” and includes a mention of the (presumably fictional) “three-tit bassoon from Malaya.”

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This column discusses woodwind doublers using ethnic woodwinds, and mentions some specific musicians and situations.

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This column is a continuation of discussion from the November/December 1994 column.

## Chapter 2: Discussion of Individual Instruments

### a. Bamboo Flutes

Bamboo transverse flutes are associated with many cultures. Among these perhaps the best known are the Chinese *dizi* (which will be discussed in a separate section) and the Indian *bansuri*. Bamboo flutes have also become a popular alternative to wooden flutes in Irish traditional music, for reasons of artistic expression and perhaps for the somewhat lower cost of bamboo instruments. Additionally, some modern flute makers produce bamboo flutes that are not necessarily attached to a specific musical tradition. Some flute makers successfully substitute other materials, such as delrin or even PVC plumbing pipe; information in this section applies equally to instruments made from these materials.



Figure 1: A bamboo flute. Embouchure hole is at the left.

The instruments that will be considered here are transverse flutes using simple-system fingering, that is, six fingered toneholes which, when opened in sequence, produce a major scale. These instruments also share the characteristic of an embouchure hole with a relatively shallow chimney. Wooden flutes, having thicker walls, have deeper chimneys; the modern Western flute has a chimney that is artificially deepened by adding a riser beneath the lip plate. The shallow chimney gives bamboo instruments a distinctive sound, perhaps less complex in harmonic content than deeper-chimneyed flutes.

Pitch designations for bamboo flutes may be confusing to modern Western flutists. Irish-style flutes are named for their lowest pitch (with six toneholes closed), so a flute with D as its lowest pitch is a “D” flute. The bansuri and dizi traditions both use the convention of naming flutes for the pitch produced with the first three toneholes closed. A flute with D as its lowest (six-hole) note produces a G with three toneholes closed; thus, a flute with a six-hole note of D is a D flute in Irish music and a G flute in Indian or Chinese music. As an additional complication, modern Western flutes of any size produce a six-hole note notated as D, regardless of actual sounding pitch. For example, the modern Western alto flute’s equivalent to a six-hole note is notated as D but sounds a G. Thus the fingerings of the modern Western flute in C most closely parallel the Irish flute in D, or the bansuri in G, so Western musicians will be likely to regard either of these instruments as playing at “concert” pitch, whereas all modern Western woodwinds that play at concert pitch are said to be in C.

Table 4: Examples of flutes in the Western classical, Irish, Indian, and Chinese traditions, comparing the pitch nomenclature of each system. This comparison assumes that all the listed flutes are notated using the Western convention of keeping the same fingering for a notated pitch, regardless of the size of the instrument; this is not necessarily standardized practice for all non-Western flutes.

	<b>Six-finger pitch (notated)</b>	<b>Six-finger pitch (sounding)</b>	<b>Western nomenclature</b>	<b>Irish flute nomenclature (6-hole note)</b>	<b>Bansuri or dizi nomenclature (3-hole note)</b>
<b>Western flute</b>	D	D	C	D	G
<b>Western alto flute</b>	D	G	G	A	D
<b>Irish flute in D</b>	D	D	C	D	G
<b>Irish flute in E-flat</b>	D	E-flat	D-flat	E-flat	A-flat
<b>Bansuri or dizi in G</b>	D	D	C	D	G
<b>Bansuri or dizi in F</b>	D	C	B-flat	C	F

The sound and playability of a bamboo flute are affected by its bore diameter and the size of its toneholes. Flutes with narrower bores tend to be softer and play easily in the high register, while larger-bore flutes are louder and favor the lowest octave. Instruments with toneholes of non-uniform size may suffer from uneven tone from one note to the next; instruments with uniform tonehole size may require the holes to be spaced farther apart, making the reach more difficult. Smaller toneholes may allow for more cross-fingerings, while large-holed flutes are better suited to half-holing. For theater and film music, it may be possible to use different types of bamboo flutes more or less interchangeably; practical considerations such as instrument availability, key, and pitch may trump strict authenticity in some cases.

Much of the tone production technique of the modern Western flute can be applied to playing bamboo transverse flutes. Western flutists will take to bamboo instruments easily.

Relaxed but upright posture is essential to good tone production.<sup>1</sup> The lower lip contacts the edge of the embouchure hole, and covers it to some extent; the amount of coverage affects pitch and tone and a suitable position must be determined by trial and error for each instrument.<sup>2</sup> The embouchure must be relaxed enough to be somewhat mobile—continually adjusting for register changes, dynamics, and adjustments of tone—but sufficiently strong to maintain a small aperture in the lips.<sup>3</sup> This small aperture will produce a narrow, focused airstream, which is crucial for control of all aspects of flute playing.<sup>4</sup> The upper lip plays a role in this; B. K. Chaturvedi indicates that air is “thrown with the upper lip in such a way that it directly goes into the main hole.”<sup>5</sup>

Because bamboo flutes are essentially cylindrical, their acoustical nature causes them to be somewhat flat when overblown to higher octaves. Some skilled flute makers use pieces of bamboo with a slight taper at either end, which may minimize the problem. In many cases, however, bamboo flutes will require some embouchure adjustment to keep the upper octaves in tune with the lower.

Most modern players of bamboo transverse flutes use the left hand closest to the embouchure, matching the technique of the modern Western instrument. Flutes with inline holes and a symmetrical embouchure hole can technically be played with either the left or right hand

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<sup>1</sup> Grey Larsen, *The Essential Guide to Irish Flute and Tin Whistle* (Pacific, MO: Mel Bay Publications, 2003), 81. Larsen’s book deals with the Irish flute tradition, which typically uses 19<sup>th</sup>-century wooden flutes (or modern replicas). Because many flutists in Irish traditional music have accepted bamboo flutes as a suitable substitute for wooden instruments, material from Larsen’s book applies here.

<sup>2</sup> B. K. Chaturvedi, *How to Play Flute and Shahnai* (New Delhi: Diamond Pocket Books, 1988), 12; Larsen, 102.

<sup>3</sup> Erik Sampson, *Erik the Flutemaker Presents Bamboo Sax 101* (Davie, FL: Erik the Flutemaker, n.d.).

<sup>4</sup> Chaturvedi, 34; Larsen, 98-99.

<sup>5</sup> Chaturvedi, 12.

closest to the embouchure; Chaturvedi's bansuri tutor recommends the player use their dominant hand farthest from the embouchure.<sup>6</sup> Western musicians will of course be most comfortable with the left hand closest; further discussion here will assume this.

Flutes that have no thumbhole (including most simple-system instruments) may be played with the thumbs of each hand supporting the instrument. This method is preferred by bansuri players.<sup>7</sup> Instruments with a left-hand thumbhole require the flute to be supported at the base of the left index finger, in the manner of the modern Western flute, in order to keep the thumb free to move. For six-holed flutes, the little fingers may rest on the flute to provide additional stability.<sup>8</sup> This use of the right little finger will feel especially familiar to Western flutists, who use that instrument's little finger D-sharp key as a stabilizing point.

The pads of the fingers are used to close the toneholes.<sup>9</sup> The fingers must be kept relaxed for freedom of movement; Chaturvedi points out that variations in finger pressure may also affect tone.<sup>10</sup> Half-holing may be used to obtain a chromatic scale.<sup>11</sup> Leifer suggests that, for half-holing, the fingers should be rolled slightly upward to uncover the lower part of a tonehole, except for the left hand first finger, for which the fingertip should be lifted to uncover the side of the hole closest to the player. He also suggests that firmer air support may be necessary for half-holed notes to better match their otherwise weaker tone quality to the stronger notes.<sup>12</sup> Some cross-fingerings may be available, especially for flutes with small toneholes, but these fingerings will vary from instrument to instrument. For flutes with large toneholes, some traditions open

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<sup>6</sup> Chaturvedi, 34.

<sup>7</sup> Chaturvedi, 12; Lyon Leifer, *How to Play the Bansuri: A Manual for Self-instruction Based on the Teaching of Devendra Murdeshwar* (Glenview, IL: Rasa Music Company, 1997), 15.

<sup>8</sup> Leifer, 20.

<sup>9</sup> Sampson.

<sup>10</sup> Chaturvedi, 34, 36.

<sup>11</sup> Chaturvedi, 15.

<sup>12</sup> Leifer, 53.

only one tonehole at a time, closing all toneholes beneath the open one; this system will be unfamiliar to Western woodwind players but may be adopted selectively to improve pitch or tone of some notes.<sup>13</sup>

Simple-system flutes are best suited to playing in one or two major keys (or closely-related keys). For example, a flute that sounds a D with six holes covered will play a D major scale as its basic scale, and can also play without much difficulty in G major, requiring only one cross-fingered or half-holed fingering to produce the C-natural. B and E natural minor are thus also available, as well as E and A Dorian scales, and so forth. Bamboo flute players often have instruments available in a variety of sizes, allowing easier playing in a greater number of keys.<sup>14</sup>

Many bansuri have an additional tonehole, which may be closed with the right little finger, or, if the tonehole is placed on the underside of the flute, may be closed by pressing against the knee when playing in a seated position. This tonehole provides an extra half-step of low range; it may also be used an octave higher to provide an alternative to the open fingering and ease some passages played across the break. For flutists unused to a seven-hole instrument, the seventh hole may simply be ignored and the familiar six-hole fingerings used.












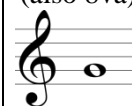
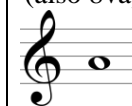
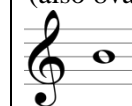
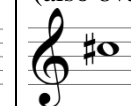
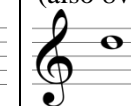
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<sup>13</sup> Chaturvedi, 14.

<sup>14</sup> Chaturvedi, 11; Leifer, 1.










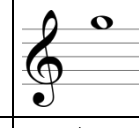




Table 5: Fingerings for basic scale, bansuri in E or Irish flute in D<sup>15</sup>

<b>Bansuri</b>	(also 8va) 	(also 8va) 	(also 8va) 	(also 8va) 	(also 8va) 	(also 8va) 	(also 8va) 	(also 8va) 
<b>Irish</b>	(also 8va) 	(also 8va) 	(also 8va) 	(also 8va) 	(also 8va) 	(also 8va) 	(also 8va) 	(also 8va) 
	●●●●●●	●●●●●○	●●●●●○○	●●●●○○○	●●○○○○○	●○○○○○○	○○○○○○○	○○●●●●

<sup>15</sup> Based on Larsen, 454-455; Leifer, 16.

Table 6: Fingerings for expanded chromatic scale, bansuri in E or Irish flute in D<sup>16</sup>

Bansuri								
Irish	N/A							
	●●●●●●●●	●●●●●●●●	●●●●●●●○	●●●●●●○	●●●●●○	●●●●○	●●●○	●●○
Bansuri								
Irish								
	●●○ ○○○	●●○ ○○○	●○○ ○○○	●○○ ○○○	●○○ ○○○	○●● ●●●	○●● ●●●	○●● ●●○
			○●● ○○○	○●● ○○○	○●● ○○○			
				(bansuri only)				
Bansuri								
Irish								
	●●●●●○	●●●●●○	●●●●○○	●●●○○○	●●○○○○	●●○○○○	●○○○○○	●○○○○○

<sup>16</sup> Based on Larsen, 454-455; Leifer, 16.

Bansuri								
Irish								
	○ ○ ○ ○ ○ ○ ○ ○	● ● ● ● ● ● ● ●	● ● ● ○ ○ ○ ○ ○	● ● ○ ○ ○ ● ● ●	● ● ○ ○ ○ ○ ○ ○	● ○ ● ● ● ○ ● ●	● ● ● ○ ○ ○ ○ ○	○ ○ ● ○ ○ ○ ○ ○
	○ ● ● ● ● ● ● ● (bansuri only)							
Bansuri								
Irish								
	○ ● ● ● ● ● ○							

Bansuri are usually narrow-bore flutes with large toneholes. They are associated with the virtuosic flute-playing tradition of Hindustani *raga* music.<sup>17</sup> They are made in a wide range of sizes, identified by the pitch produced when the top three toneholes are covered.<sup>18</sup> The large E flute (E<sub>4</sub> being the pitch produced with three toneholes covered) is the most common instrument used in traditional music.<sup>19</sup> The toneholes are traditionally numbered from one to seven, starting from the bell end of the instrument.<sup>20</sup>

<sup>17</sup> Leifer, 23.

<sup>18</sup> Ibid., 1.

<sup>19</sup> Ibid., 2. Pitch indications given in this text are based on the “Scientific Pitch Notation” system used by the *Journal of the Acoustical Society of America*.

<sup>20</sup> Chaturvedi, 12.

Large flutes, such as the bansuri in E favored for concert playing, may require some adjustment of normal hand position in order to reach all the toneholes with the fingers, particularly the right hand little finger hole if present. For these larger flutes, the curved fingers favored for Western flute playing may need to be straightened somewhat for additional reach.<sup>21</sup> In some cases, the fingers and hands must be trained for flexibility and extension; Leifer's bansuri tutor offers slow trill exercises for this purpose.<sup>22</sup> For the right hand in particular, some rotation of the wrist or even raising of the elbow may be required to attain a comfortable and agile playing position.<sup>23</sup>

Some techniques characteristic to the bansuri tradition are glissandi between notes (accomplished by rolling fingers to open or close tone holes), the use of microtones (accomplished by partial covering of toneholes), and *andolan*, a microtone tremolo.<sup>24</sup>

Raga music is essentially an aural tradition, but a type of notation called *bhatkande* has been used in northern India.<sup>25</sup> Bamboo flute parts intended to be played by Western woodwind players would be better notated in Western notation; it may be convenient to transpose notation so that the six-finger note is written as D<sub>4</sub> so that the fingerings parallel those of the Western flute.

The Irish flute tradition favors flutes in D (six-hole note of D<sub>4</sub>) with a wide bore, large toneholes, and a large embouchure hole, for a "powerful, rich, hard-edged tone."<sup>26</sup> While wooden flutes are still the standard instruments for Irish traditional music, many flutists are adopting bamboo instruments to bring additional colors to their playing, or as a lower-cost

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<sup>21</sup> Leifer, 15.

<sup>22</sup> *Ibid.*, 2, 18-19.

<sup>23</sup> *Ibid.*, 65.

<sup>24</sup> Leifer, 32-33, 66-69.

<sup>25</sup> Leifer, 4-5; Chaturvedi, 31.

<sup>26</sup> Larsen, 52.

alternative to wood. Some flute makers produce bamboo instruments specifically for Irish-style playing. Performance practice for the Irish flute tradition, which is based on Irish uilleann pipes technique, tends toward legato playing with notes articulated by fingered ornaments; this style is virtually identical to the Irish pennywhistle style that will be addressed in a later section of this document. It adapts without any difficulty to bamboo instruments.

The Chinese dizi tradition (discussed in another section) may also inform playing of non-dizi bamboo flutes. Dizi are typically narrow-bore flutes. Dizi may be played as simple bamboo flutes if the vibrating membrane is replaced with, for example, a piece of tape, permanently or temporarily sealing the membrane hole with an airtight but silent patch.

Some flute makers are producing bamboo flutes that are not necessarily intended to relate to a certain musical tradition. These may vary widely in dimensions and may even be designed to play alternative scales, but virtually all of these flute makers sell primarily simple-system instruments.

Woodwind players seeking to purchase bamboo flutes may consider bansuri, Irish-style flutes, dizi, non-tradition-specific bamboo flutes, and others. Factors to consider include bore and tonehole dimensions (and their respective effects on tone and volume), intonation, finger stretch, special finishing (or lack thereof) to the embouchure hole, size or key, and fingering system. Simple-system flutes are useful for ease of playing in major keys (and modes thereof) and because simple-system fingerings are common to a number of folk and ethnic instruments. Flutes made of materials other than bamboo (such as plastics) may also be suitable, and, in some cases, superior, due to greater consistency of the inorganic materials and higher tolerances used in manufacturing. Bansuri, dizi, and other flutes native to the Eastern hemisphere may be more difficult to obtain, although there are currently some skilled makers in the West, as well as

reputable importers. Irish-style flutes and generic “bamboo flutes” are readily available and can be purchased from specialty shops or, often, directly from the flute makers. Because they are basically diatonic instruments, it is advisable to obtain flutes in a variety of keys.

### Case Study

Bamboo flutes in a variety of keys are used in the score of the Broadway-style musical *Miss Saigon*. The song “The Ceremony: Dju Vui Vai” features a high-pitched bamboo flute as a solo instrument and as accompaniment to vocalists.

"The Ceremony:  
Dju Vui Vai"

0:00      ♩ = 80

bamboo flute  
in B-flat  
(6-finger)

**"Dju Vui Vai"**

From the musical: MISS SAIGON  
 BY Alain Boublil & Claude-Michel Schönberg  
 Music by: Claude-Michel Schönberg  
 Lyrics by: Alain Boublil & Richard Maltby Jr.  
 © Alain Boublil Music Ltd. (ASCAP)

Example 1: Excerpts using bamboo flute in Broadway-style show *Miss Saigon* (1989).<sup>27</sup>  
 Transposed for flute pitched in high B-flat (using 6-hole nomenclature; equivalent to E-flat flute in 3-hole nomenclature); sounds minor 6<sup>th</sup> higher.

<sup>27</sup> *Miss Saigon: Original London Cast Recording* (Geffen, 1990). Throughout this document, measure numbers are applied to the excerpted parts, and do not necessarily coincide with measure numbers in the original scores. All musical examples have been transcribed from commercial recordings, and may differ from the original scores. Time indications apply to the specific recordings used.

In measures 2-10, the bamboo flute makes a solo statement of the melody. The melody, tonally centered on G, may be played with relative ease on either a flute with a six-hole note of B-flat<sub>4</sub> (as notated here), or on a very small flute with a six-hole note of F<sub>5</sub>. In bansuri or dizi nomenclature, these are equivalent to flutes in E-flat or B-flat. The six-hole B-flat instrument has been selected as a better candidate here due to the relative rarity of small F flutes.

The upward pitch bends indicated throughout the passage may be achieved by half-holing, or by bringing the fingers close to open toneholes to shade the pitch downward, and then raising the fingers in question in a smooth motion. They can also be done by rolling the flute inward to start the pitch bend, then returning the flute smoothly to its normal position to bring the pitch back up. Because the portamento in measure 8 crosses between registers and begins on a note that has no open toneholes (other than the first, opened as a register vent), it can be best played by rolling the flute inward to gradually lower the pitch of the (notated) D<sub>6</sub>, then switching as smoothly as possible to the C-sharp<sub>6</sub> fingering. For bansuri-style flutes with a seventh tone hole, it may, depending on the instrument, be used to lower the high D's pitch to C-sharp.

In measures 11-20, the melody is sung by a chorus, with a vocal soloist and the bamboo flute echoing the melody in octaves. The flutist must take special care here to match the solo voice for pitch and balance, while playing in the instrument's difficult high register. The G-sharp<sub>5</sub> grace note in measure 12 falls outside the instrument's basic scale, but on some bamboo flutes may be cross-fingered by fingering A<sub>5</sub> and adding one or more fingers of the right hand.

Measures 21-27 feature the bamboo flute in its lower register, underscoring onstage dialogue. The use of the lower register allows for soloistic playing while maintaining a suitably low volume.



Throughout the excerpts, the flutist on the transcribed recording uses consistent vibrato, similar to that used by Western classical flutists. The grace notes are played fairly slowly and with flexible rhythm.

The bamboo flute in these excerpts is used soloistically and is fairly exposed. Because of the high tessitura, it must be played either in the high register of a B-flat flute or on a very small F flute; in either case, significant challenges are faced in maintaining good intonation and a pleasing tone quality.

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Bullard, Beth Alice B. "Wind of Change in South Indian Music: The Flute Revived, Recaste, Regendered." Ph.D. diss., University of Maryland, 1998.

The text deals primarily with changes in South Indian society with regard to social class and gender. Of most interest are the profiles of contemporary bansuri players.

Chaturvedi, B. K. *How to Play Flute and Shahnai*. New Delhi: Diamond Pocket Books, 1988.

This work is surprisingly full of useful information for such a small volume. It includes information on the theory of traditional Indian music and on the technique and performance practice of the bansuri. The author's English can be difficult to follow at times.

Deva, B. Chaitanya. *An Introduction to Indian Music*. New Delhi: Ministry of Information and Broadcasting, Publications Division, 1973.

This text includes organological and historical information on various types of Indian flutes and reed instruments, with photographs.

Haroon, Mohammed. *Indian Music Literature*. Delhi: Indian Bibliographies Bureau, 1992.

This is a bibliography of scholarly materials relating to Indian music. It includes a large section on Indian musical instruments, and sections on Indian music theory, style, and genres.

Krishnaswami, S. "Musical Instruments of India." *Asian Music* 2, no. 2 (1971): 31-42.

This article includes a brief paragraph on the bansuri and a photo of one specimen. The text discusses performance practice and technique issues, stressing the differences between the Indian bamboo flute and Western wind instruments.

Larsen, Grey. *The Essential Guide to Irish Flute and Tin Whistle*. Pacific, MO: Mel Bay Publications, 2003.

This substantial work is a comprehensive method for flute and pennywhistle in Irish traditional music. Larsen's emphasis is on style, especially ornamentation. The text introduces Larsen's methodical and clear approach to notating ornaments. Extensive exercises and authentic repertoire are included. Accompanying compact discs include musical examples, some of which are played on pennywhistle and some of which are played on flute.

Leifer, Lyon. *How to Play the Bansuri: A Manual for Self-instruction Based on the Teaching of Devendra Murdeshwar*. Glenview, IL: Rasa Music Company, 1997.

This is a thorough method for playing the bansuri, including history and culture, issues of selecting an instrument, elements of Indian music theory, and traditional notation. It includes a cassette tape of musical examples.

Sampson, Erik. *Erik the Flutemaker Presents Bamboo Sax 101*. Davie, FL: Erik the Flutemaker, n.d.

This DVD is an introduction to playing bamboo flutes (and other bamboo woodwinds) made by Erik "The Flutemaker" Sampson. It is geared toward nonmusicians.

Spottswood, Richard. *Ethnic Music on Records: A Discography of Ethnic Recordings Produced in the United States, 1893 to 1942*. Vol. 5, Mid-East, Far East, Scandinavian, English Language, American Indian, International. Urbana, IL: University of Chicago Press, 1990.

This is a reference for locating field recordings and early commercial recordings of Indian music. Some listings indicate the use of flute.

#### Selected Recordings

Flook. *Rubai*. World Village, 2002.

This recording is an example of the use of bamboo flutes (as well as wooden and Boehm flutes and pennywhistles) in Irish-influenced music.

Sachdev, G. S. Bansuri: *The Bamboo Flute of India*. Lyrichord, 1991.  
Sachdev, G. S. *Incantations*. Arion, 2000.

These are representative recordings by bansuri master Sachdev.

Sampson, Erik "The Flutemaker." *On That Note*. Erik the Flutemaker, 2005.  
\_\_\_\_\_. *Moving Right Along*. Erik the Flutemaker, n.d.

These recordings feature music in various popular genres played on bamboo flutes (and other bamboo wind instruments) made by Sampson (b. 1952).

*Miss Saigon: Original London Cast Recording*. Claude-Michel Schönberg, composer. Geffen, 1990.

This recording uses bamboo flutes to evoke a Vietnamese setting in a musical theater score.

#### Organizations in North America

Ali Akbar College of Music  
415 454-6264  
215 West End Ave.  
San Rafael, CA 94901  
<http://www.aacm.org>

The Ali Akbar College of Music offers instruction in bansuri and other Indian instruments.

Note: Many of the organizations listed in the pennywhistle section provide Irish flute resources, and may be of interest for Irish-style flute playing.

#### b. Dizi

The *dizi* is a bamboo transverse flute of Chinese origin. Because of the difficulty of transliterating Chinese words into English, many Romanized variants of the name are used,

including “*di-zi*,” “*di-dze*,” and “*di-tzu*,” *di*, a more general term indicating a flute, is also sometimes used.<sup>28</sup>

The quintessential feature of the dizi is the *dimo*, a mirliton (membrane) stretched across a hole in the dizi’s body, giving the instrument its characteristic buzzing sound. The earliest Chinese membrane flutes probably date to the T’ang dynasty (618-907 CE).<sup>29</sup>

The dizi has an embouchure hole, a *dimo* hole, and six fingered toneholes, operated by the three middle fingers of each hand. The toneholes are traditionally numbered from one to six, starting from the hole farthest from the embouchure, which may be the opposite of what is expected by Western-trained musicians.<sup>30</sup> The toneholes traditionally have the same diameter and are equidistant, though modern dizi makers tend to allow minor variation of this to meet contemporary standards of intonation.<sup>31</sup> Dizi often have additional holes at the bell end of the instrument, which serve to tune the lowest note and provide a means of hanging tassels for decoration or for balancing the instrument.<sup>32</sup> Dizi usually have extensive lacquered thread wrappings, which help to prevent cracking, enhance the instrument’s appearance, and, it has been suggested, may improve the sound of the upper octave.<sup>33</sup> Both ends of the flute traditionally are, for aesthetic reasons, either painted with black lacquer or tipped with fittings of animal bone.<sup>34</sup>

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<sup>28</sup> Frederick Cheungkong Lau, “Music and Musicians of the Traditional Chinese Dizi in the People’s Republic of China” (D.M.A. diss., University of Illinois at Urbana-Champaign, 1991), 6; Marsha Lynne Baxter, “The Chinese Dizi, the Native American Courting Flute, and the Andean Panpipes: An Investigation of Pedagogy and Musical Practice” (D.Ed. diss., Columbia University, 2001), 43; Alan Thrasher, “The Transverse Flute in Traditional Chinese Music,” *Asian Music* 10, no. 1 (1978): 92.

<sup>29</sup> Thrasher, “Transverse Flute,” 93.

<sup>30</sup> Li, 69; Thrasher, “Transverse Flute,” 98.

<sup>31</sup> Thrasher, “Transverse Flute,” 96.

<sup>32</sup> Lau, “Music and Musicians,” 7.

<sup>33</sup> Thrasher, “Transverse Flute,” 96-97.

<sup>34</sup> *Ibid.*, 97.



Figure 2: A dizi. The dimo covers the hole at approximately the center point of the instrument.

Two primary musical traditions have made use of the dizi: the *Bangzi* opera of northern China, and the *Kunqu* opera of southern China. The northern style favors smaller, higher-pitched flutes (*bangdi*) and a bright, virtuosic style, while the southern style uses longer, lower-pitched flutes (*qudi*) with a mellow sound and songlike style.<sup>35</sup> Each style of dizi playing has a characteristic method of ornamenting melodies. A modern dizi repertoire has been developed since the creation of the People's Republic of China in 1949, including a conservatory training system.<sup>36</sup>

Much of modern dizi technique will be familiar to Western-trained flutists. Although some dizi players hold the instrument in the manner of the Western flute, with the weight of the instrument resting primarily at the base of the left index finger, this is not necessary for the dizi. Because it lacks the left thumb keywork of the Western flute, the left thumb may be used to support the instrument's weight, and the hands may therefore be oriented with the fingers of both hands perpendicular to the instrument. This gives the left hand fingers more freedom of

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<sup>35</sup> Thrasher, "Transverse Flute," 94; Lau, "Music and Musicians," 10.

<sup>36</sup> Lau, "Music and Musicians," 168-9.

movement than the Western style, and is favored by many dizi players.<sup>37</sup> Because the finger and embouchure holes are usually inline, and because the embouchure hole is usually symmetrical, the dizi may be held either to the player's right, with the left hand closest to the embouchure (the manner familiar to Western flutists), or vice versa.<sup>38</sup> The use of the left hand on top will be assumed throughout this section. The right little finger is used to stabilize the instrument by resting on the dizi's body, similar to the way the right little finger on the D-sharp key provides some stability for the Western flute.<sup>39</sup>

Breathing and embouchure on the dizi are largely the same as those of the Western flute: controlled exhalation with abdominal muscular support, combined with a small and flexible aperture.<sup>40</sup> Circular breathing is frequently used.<sup>41</sup>

Tongued articulation is widely used in modern dizi playing, including the double- and triple-tonguing and flutter-tonguing techniques familiar to Western flutists.<sup>42</sup> In older styles of dizi playing, tonguing is rarely used; a legato style articulated by fingered ornamentation and breath accents is favored instead.<sup>43</sup>

Dizi players place less emphasis on the use of dynamics than Western musicians, though they do seek for balanced contrast in their playing. This is often described as an interaction of "light" and "dark."<sup>44</sup>

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<sup>37</sup> Lau, "Music and Musicians," 115; Thrasher, "Transverse Flute," 99.

<sup>38</sup> Charles DeLaney, "DIZI! Sounds from Ancient China," *Flutist Quarterly* 12, no. 4 (Fall 1987): 34; Thrasher, "Transverse Flute," 99.

<sup>39</sup> Li Ming, "Di-zi: The History and Performance Practice of the Chinese Bamboo Transverse Flute" (D.M. diss., Florida State University, 1995), 23.

<sup>40</sup> *Ibid.*, 23-24.

<sup>41</sup> DeLaney, 34; Li, 24.





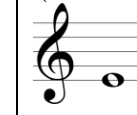
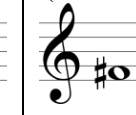
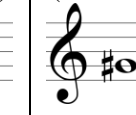

<sup>42</sup> Lau, "Music and Musicians," 116, 212; Li, 25-26.

<sup>43</sup> Thrasher, "Transverse Flute," 105.

<sup>44</sup> Baxter, 176-177.

The balls of the fingers are used to cover the toneholes, except with some of the larger dizi where the larger flat surfaces of the fingers' middle joints must be used.<sup>45</sup> Cross fingerings are seldom used, and half-holing even less so.<sup>46</sup> These methods are technically quite possible with the dizi; the rarity of their use is likely due more to the relatively simple harmony of the repertoire (which largely corresponds to a Western pentatonic scale) than to limitations of the instrument or the players.<sup>47</sup> Western woodwind players, who may be called upon to use the dizi in non-authentic contexts, may find use for cross fingerings and half-holing, which can produce a full chromatic scale.

Table 7: Fingerings for basic scale, dizi in D<sup>48</sup>

(also 8va)	(also 8va)	(also 8va)	(also 8va)	(also 8va)	(also 8va)	(also 8va)	(also 8va)
							
●●●●●●●●	●●●●●●○	●●●●●○○	●●●●○○○	●●○ ○○○	●○○ ○○○	○○○ ○○○	○●● ●●●

<sup>45</sup> Li, 23.

<sup>46</sup> DeLaney, 33; Thrasher, "Transverse Flute," 97.

<sup>47</sup> Lau, "Music and Musicians," 208.

<sup>48</sup> Based on Li, 75.

Table 8: Fingerings for expanded chromatic scale, dizi in D<sup>49</sup>

●●●●●●	●●●●●●	●●●●●○	●●●●○●	●●●●○●	●●●●○●	●●○●●●	●●○●●○
						●●○●●●	●●○●●○
						●●○●●○	
●○●●●●	●○●○●●	○●●●●●	○●●○●●	○●●●●●	●●●●●○	●●●●●○	●●●●○●
				○●●●●●			
				●●●●●●			
●●●●●○	●●●●●○	●●●●○●	●●○●●○	●●●●○●	●●○●●○	●○●○●○	○●○●○●
○●●●●●	●●●●●○	●●○●●○	●●○●●○	●●●●●○	●●○●●○		
○●●●●○							

The proper use of the dimo (membrane) is of crucial importance. The difficulties of attaching it properly, its sensitivity and delicacy, and its major influence on pitch and tone parallel the challenges presented to Western oboists by temperamental reeds. A dimo that is stretched too tightly, for example, will fail to produce enough buzziness, while a dimo that is too loose will result in flat pitch and a strident tone.<sup>50</sup> The dimo is intentionally wrinkled or pleated when attached, with the wrinkles running perpendicular to the length of the flute. The manner of wrinkling also has a great effect on the dimo's function.<sup>51</sup>

<sup>49</sup> Ibid.

<sup>50</sup> Thrasher, "Transverse Flute," 112.

<sup>51</sup> Ibid., 96.



The dimo is preferably made from the inner film of a variety of reed, though it can also be made from a comparable film extracted from bamboo; the inner skin of an onion or even plastic food wrap can also be used with reasonably satisfactory results.<sup>52</sup> *Be-ji*, an herbal extract available in crystallized form, is used to glue the dimo to the dizi. Alternatively, garlic juice, egg white thinned with water, moist rosin, or adhesive from postage stamps (the type that must be moistened) may be used.<sup>53</sup>

Li Ming gives a clear set of instructions for attaching the dimo (quoted):

- 1) Cut a small piece of membrane, usually into a square shape, at least twice the size of the membrane hole.
- 2) Find the natural lines on the membrane, then make several artificial wrinkles on it which should be perpendicular to the natural lines. This process will keep the membrane from being easily broken. The number of wrinkles will vary, according to the quality of the membrane.
- 3) Before placing the membrane on the *di-zi*, after the wrinkles are made, the student must place a drop of water around the membrane hole. Then the Chinese medicine *be-ji* is applied to make a sticky surface. *Be-ji* is a plant which produces a sticky liquid ideal for affixing a membrane on a *di-zi*. Never use any kind of glue to attach the membrane to the *di-zi* because it will ruin the membrane. Normally, with proper placement, a high quality membrane will last from several weeks to several months. Its exact longevity depends on how often the *di-zi* is played.
- 4) When a *di-zi* is not played for one day or one week, its membrane will usually be in a loose condition, and it needs to be “awakened” (moistened). The traditional way to moisten it is by breathing with the mouth very close to the membrane, and letting the condensation wet the surface of the membrane. Never put water on the center of the membrane, because it will ruin it. After wetting the surface of the membrane with condensation from the breath, let it “cool off” (dry). It will usually be back to normal and in good working condition after being “awakened” several times. The flutist must test the membrane by playing and listening for a “normal” buzzy sound. An experienced *di-zi* player can easily hear when the membrane is back to a standard position. Due to the importance of the

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<sup>52</sup> Ibid.

<sup>53</sup> Ibid.

buzz, students must always check the condition of the membrane before they play the *di-zi*. It has to be in ideal condition.<sup>54</sup>

In modern dizi repertoire, ornamentation is determined by the composer, and largely adhered to by the performer.<sup>55</sup> Characteristic ornamentation includes glissandi (scalar or smooth) between notes, as well as overtones used for variation of timbre.<sup>56</sup> The “gift sound,” another common ornament, is a slur to a high and short grace note, used at the end of a phrase. Upper or lower neighbor tones played in the manner of quick grace notes before the beat are used extensively. They are sometimes used to rearticulate repeated notes, and sometimes include brief trills. Sometimes multiple grace notes are used, usually a portion of the instrument’s basic scale.<sup>57</sup>

Ornamentation varies with regional styles. The virtuosic northern style favors flutter tonguing, portamentos between notes (accomplished by sliding a finger onto or off of a tonehole), and measured trills.<sup>58</sup> The more lyrical southern style uses trills, vibrato, and especially a single trill leading into a note and played before the beat.<sup>59</sup> Trills wider than steps of the instrument’s basic scale (for example, trills of a third) are characteristic of Mongolian music.<sup>60</sup>

Modern dizi are made in every key, but the nomenclature for identifying the key of a dizi may be misleading for Western musicians.<sup>61</sup> Dizi are named for the fundamental

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<sup>54</sup> Li, 28-29.

<sup>55</sup> Lau, “Music and Musicians,” 210, 213.

<sup>56</sup> Li, 26-27.

<sup>57</sup> Baxter, 183-4, 190-2.

<sup>58</sup> Baxter, 218-220; Thrasher, “Transverse Flute,” 109.

<sup>59</sup> Baxter, 178, 182-4; Lau, “Music and Musicians,” 211.

<sup>60</sup> Baxter, 172, 175.

<sup>61</sup> Lau, “Music and Musicians,” 12.

pitch produced with the three left-hand toneholes closed (assuming the left hand is closest to the embouchure), thus, a standard dizi “in D” plays a D<sub>4</sub> with three fingers down.

The most commonly used instrument for modern conservatory-style playing is the instrument in D, with A<sub>3</sub> as its lowest note.<sup>62</sup> The slightly larger C is also common. For smaller flutes, G is the most common, followed by F and A.<sup>63</sup>

The earliest written notation for dizi music appears to have been a 12<sup>th</sup>-century system using Chinese characters, read in vertical columns from right to left.<sup>64</sup> Today, the prevalent method used in Chinese conservatories is a method of cipher notation, using numerals to represent scale degrees, read horizontally from left to right. Durations are shown using horizontal lines borrowed from the note beaming of Western notation.<sup>65</sup>

Because of the unfamiliarity of these notation systems to Western musicians, and since dizi cipher notation transcribes into Western notation in a relatively straightforward manner without lost information, standard Western notation seems to be the best option when scoring dizi parts for Western woodwind players.<sup>66</sup> Some woodwind players may find it convenient to have dizi parts transposed so that the lowest note of the instrument is notated as D<sub>4</sub>, as this matches the dizi fingerings closely to those of the Western flute, oboe, or saxophone.

Western woodwind players can obtain quality dizi, as well as membranes and traditional adhesives, through any of several dealers and importers specializing in Chinese artist-quality musical instruments. Prospective buyers should note that bamboo flutes are popular tourist souvenirs, and are used in *Feng Shui* practice (a Chinese aesthetic system that is used, for

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<sup>62</sup> Thrasher, “Transverse Flute,” 100; Lau, “Music and Musicians,” 10.

<sup>63</sup> Thrasher “Di,” 278; Lau, “Music and Musicians,” 10.

<sup>64</sup> Lau, “Music and Musicians,” 157.

<sup>65</sup> Lau, “Music and Musicians,” 159.

<sup>66</sup> See Baxter for extensive examples of cipher notation transcribed into Western notation.

example, in home décor). Flutes sold for these purposes are not necessarily of suitable quality for professional use, and may, in fact, be wholly unplayable. Low D and C and high G are commonly-used flutes for traditional Chinese music, but woodwind players working in theater and film music may need other keys, as well.

### Case Study

The dizi is used extensively as a featured solo instrument in the score of the film *Crouching Tiger, Hidden Dragon*. In the score segment entitled “In the South,” the dizi in F is used; here it is shown transposed so that the instrument’s 6-hole note corresponds to D on the staff.

"To the South"

0:00

♩ = 60

dizi in F

Example 2: Excerpt using dizi in film *Crouching Tiger, Hidden Dragon* (2000). Transposed for dizi in F; sounds minor 7<sup>th</sup> higher.<sup>67</sup>

The dizi player on the transcribed recording plays with a light, clear sound with only a hint of buzz from the dimo. The grace notes indicated as sixteenth notes, as well as the trills, are played very rapidly and give a fluttering effect. The grace notes notated as eighth notes are played more slowly and deliberately. The phrasing is largely legato, with only a few notes other than phrase beginnings being clearly tongued. Vibrato is used sparingly and subtly, and only on notes a dotted-eighth or longer in duration.

Other than the quick grace notes, the passage gives few significant technical challenges; the primary difficulty of this passage is playing with suitable delicacy and sweetness of tone.

<sup>67</sup> *Crouching Tiger, Hidden Dragon: Original Motion Picture Soundtrack* (Sony Classical, 2000).

## Bibliography

Baxter, Marsha Lynne. "The Chinese Dizi, the Native American Courting Flute, and the Andean Panpipes: An Investigation of Pedagogy and Musical Practice." D.Ed. diss., Columbia University, 2001.

This work describes Baxter's dizi studies with teacher and performer Chen Tao in New York City. It explores performance practice and technique according to both "northern" and "southern" schools of dizi playing, including ornamentation, tone, and dynamics, and philosophical concepts such as *yin* and *yang*, the "five elements," and *qi*, as applied to dizi performance. It also includes musical examples in both Western and *jianpu* (numeric) notation.

Beeson, Craig Brooks. "Origins and Early Functions of the Chinese Vertical Flute." M.A. thesis, University of Washington, 1980.

This is a detailed look at Chinese end-blown flutes such as the *xiao* and *yuan*, close relatives of the dizi, with context of the history of Chinese traditional flute music.

DeLaney, Charles. "DIZI! Sounds from Ancient China." *Flutist Quarterly* 12, no. 4 (Fall 1987): 33-34.

The author describes his encounters with the dizi during a tour of China. Useful information includes discussion of the various keys in which dizi are made and how they are used. This is a respectful and enthusiastic reaction to the dizi and its music, from the perspective of a Western Boehm-style flutist.

Lau, Frederick Cheungkong. "Forever Red: The Invention of Solo Dizi Music in Post-1949 China." *British Journal of Ethnomusicology* 5 (1996): 113-31.

This article is primarily an examination of the "invention" in the later twentieth century of an ostensibly ancient flute-playing tradition in China. It contains some transcriptions in Western notation, discussion of the eclectic nature of the modern dizi player's repertoire, and short profiles of leading contemporary dizi players and their individual styles.

\_\_\_\_\_. "Individuality and Political Discourse in Solo Dizi Compositions." *Asian Music* 27, no. 1 (1996): 133-52.

This article is primarily a discussion of sociopolitical meaning in dizi compositions. It includes useful information on classification of dizi music and elements of musical style and performance practice.

\_\_\_\_\_. "Music and Musicians of the Traditional Chinese Dizi in the People's Republic of China." D.M.A. diss., University of Illinois at Urbana-Champaign, 1991.

This dissertation is a thorough discussion of the dizi and its music, especially within the context of mainland China since 1950. Its topics include history, organology, and performance practice. A valuable feature is an appendix listing dizi-related vocabulary in both Chinese characters and Romanized versions, useful for English speakers dealing with Chinese-language materials. It also includes transcriptions in Western notation of characteristic repertoire, and a listing of 372 dizi compositions with notes on history, form, mode, meter, etc.

Li Ming. "Di-zi: The History and Performance Practice of the Chinese Bamboo Transverse Flute." D.M. diss., Florida State University, 1995.

This is a comprehensive look at the dizi from both performance and musicological perspectives. It includes some discussion of other Chinese flutes such as the *xiao*, the *kou-di*, and the *xun*. Dizi-related topics include history, all aspects of playing technique, *jianpu* notation, instrument care, placement of the mirliton, a who's-who of dizi flutists, a glossary, a fingering chart, and representative repertoire in both Western and *jianpu* notation.

Shen Sin-Yan. *Chinese Music and Orchestration: A Primer on Principles and Practice*. Woodridge, IL: Chinese Music Society of North America, 1991.

This work is useful for its discussion of the theory of traditional Chinese music, as well as an overview of the use of the dizi and other traditional Chinese woodwinds in various types of ensembles.

Spottswood, Richard. *Ethnic Music on Records: A Discography of Ethnic Recordings Produced in the United States, 1893 to 1942*. Vol. 5, Mid-East, Far East, Scandinavian, English Language, American Indian, International. Urbana, IL: University of Chicago Press, 1990.

This is a reference for locating field recordings and early commercial recordings of Chinese music. Some listings indicate the use of Chinese flute, but it is unclear whether this refers to dizi flutes or other Chinese flutes.

Thrasher, Alan. "Di [dizi]." In *The New Grove Dictionary of Music and Musicians*, ed. Stanley Sadie, 7:277-9. London: Macmillan, 2001.

Thrasher discusses the dizi primarily from musicological and organological perspectives.

\_\_\_\_\_. "The Transverse Flute in Traditional Chinese Music." *Asian Music* 10, no. 1 (1978): 92-114.

This article includes history, detailed organology (including comparison of measurements and temperament of several specimens), performance practice in both folk and Kun opera

traditions, and comparison of historical notation systems. It is especially useful for its distillation, in English, of a number of important Chinese-language sources.

Wang Tiechui. "Notes on Special Techniques of Dizi (Flute) Performance." *Chinese Music* 12, no. 3 (1989): 51-55.

Wang discusses some characteristic techniques.

### Selected Recordings

Tang Jun Qiao. *Magical Flute of China: Portrait of Dizi Master Tang Jun Qiao*. Channel Classics, 2007.

Tang Jun Qiao (b. 1974? ) is a leading contemporary dizi soloist and principal dizi player of the Shanghai Ensemble of Traditional Chinese Instruments. This recording includes music from the modern dizi repertoire.

*Crouching Tiger, Hidden Dragon: Original Motion Picture Soundtrack*. Tan Dun, composer. Sony Classical, 2000.

This soundtrack uses the dizi (and other Chinese instruments) in combination with Western orchestral instruments. It won Oscar and Grammy awards for best soundtrack.

### Organizations in North America

Chinese Music Society of North America  
630 910-1551  
P.O. Box 5275  
Woodridge, IL 60517-0275  
<http://www.chinesemusic.net>

The Chinese Music Society of North America sponsors Chicago-based Chinese music ensembles and supports scholarly activity in the area of Chinese music.

Clarion Music Center  
415 391-1317  
816 Sacramento St.  
San Francisco, CA 94108  
<http://www.clarionmusic.com>

Clarion Music Center offers group and individual dizi instruction.



MayTune Chinese Music Teaching Studio  
905 471-4068  
18 Beulah Dr.  
Markham, ON L3S3N7  
Canada  
<http://www.maytune.com>

The MayTune Chinese Music Teaching Studio offers group and individual dizi instruction.

### c. Duduk

The duduk is a double reed instrument native to Armenia. It is traditionally made of apricot wood and has nine fingered toneholes of uniform size (one of these being a thumb hole), plus an additional tuning hole near the bell end.<sup>68</sup> It uses a large double reed, called a *ghamish*, made from a piece of tube cane that has been flattened and stripped of bark at one end, and wrapped in thread at the other.

The duduk is used in some Armenian dance music, but its quintessential role is in Armenian funeral music. In traditional funerals, the duduk is usually played in pairs, with one duduk player playing a solo melody and the other (often a student of the soloist) sustaining a drone pitch with circular breathing.<sup>69</sup> These melodies are characterized by a flexible approach to rhythm.<sup>70</sup> Since 1978, there has been a conservatory training system for the duduk in Armenia.<sup>71</sup>

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46. <sup>68</sup> Andy Nercessian, *The Duduk and National Identity in Armenia* (Lanham, MD: Scarecrow Press, 2001),

<sup>69</sup> *Ibid.*, 53-54.

<sup>70</sup> *Ibid.*, 94.

<sup>71</sup> *Ibid.*, 35.

The ghamish is quite large compared to double reeds used by Western instruments, usually about 10.5cm (4.13 inches) long, with blades sometimes thicker than one millimeter (0.04 inches). It uses a bridle which can be moved up or down the length of the ghamish to adjust the size of the tip opening (paralleling the use of wires on English horn reeds). The size of the tip opening affects the tone and pitch of the instrument.<sup>72</sup> The end of the ghamish that is inserted into the duduk is wrapped with thread, and thread may be added or removed to adjust how far the reed can be inserted, thereby affecting pitch.<sup>73</sup> Ghamishes of different sizes are used for duduks of different length.<sup>74</sup>

The ghamish, as with Western double reeds, must be soaked before playing. Because it is so much larger than oboe or bassoon reeds, it must be soaked for a relatively long time (Nercessian suggests 3-8 minutes) before it is flexible enough to vibrate properly.<sup>75</sup> As with Western double reeds, the longer the reed is soaked, the larger the tip opening of the reed.

A cap is tied to the bridle, which protects the tip and holds the blades of the ghamish closed when it is not in use.<sup>76</sup> The ghamish should always be stored with the cap in place and the bridle loosened, to maintain the ghamish's shape.<sup>77</sup>

Upright but relaxed posture is essential to proper tone production, and aids in proper breath support.<sup>78</sup> Nercessian indicates that the duduk should be



Figure 3: A duduk. The ghamish cap is shown dangling from the bridle.

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<sup>72</sup> Ibid., 78.

<sup>73</sup> Nercessian, 115-116; *Learn the Art of Duduk Playing*.

<sup>74</sup> *Learn the Art of Duduk Playing*.

<sup>75</sup> John Vartan, *The Armenian Duduk: An Instructional Book for Beginners*, ed. Ara Topouzian (West Bloomfield, MI: American Recording Productions, 2000), 6.

<sup>76</sup> *Learn the Art of Duduk Playing*.

<sup>77</sup> Ibid.

held close to body, though video recordings of Djivan Gasparian and Shea A. J. Comfort with Albert Vardanyan show the instrument being held slightly below horizontal.<sup>79</sup>

The duduk embouchure is distinctive and may seem unusual to Western-trained woodwind musicians. The lips are placed at the very tip of the reed, cushioning the reed from the player's teeth, and should be arranged so as to make as little contact with the reed as possible, allowing free vibration.<sup>80</sup> The corners of the mouth are brought inward to contact the sides of the ghamish.<sup>81</sup> This unusual embouchure helps to avoid what Andy Nercessian calls a "brassy" tone, though it also reduces the player's ability to adjust pitch by manipulation of the embouchure.<sup>82</sup> Additionally, the lower part of the cheeks should be allowed to puff outward with air, further relaxing the lips and reducing contact with the reed.<sup>83</sup> The throat must also remain relaxed.<sup>84</sup>

Print sources in English overlook the question of articulation. Close examination of video recordings suggests that notes are articulated by using the lips to open and close the tip of the reed, as in pronouncing the letter "P." Tonguing in the manner of a Western double reed instrument is also a technical possibility, as is breath articulation.

Vibrato in duduk music is used flexibly and variably, giving variety and interest according to the player's taste and style.<sup>85</sup> Nercessian refers to use of the masseters (jaw muscles) in producing vibrato (making it similar to that used by saxophonists), though Shea A. J.

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<sup>78</sup> Ibid.

<sup>79</sup> Nercessian, 117; Djivan Gasparian, *Tribute to Innocent Souls Lost to World Atrocities*, video recording, (n.p.: Duduk.com, 2004); *Learn the Art of Duduk Playing*.

<sup>80</sup> Nercessian, 116-117; Vartan, 6; *Learn the Art of Duduk Playing*.

<sup>81</sup> Nercessian, 116-117.

<sup>82</sup> Ibid., 105.

<sup>83</sup> Nercessian, 116-117; *Learn the Art of Duduk Playing*.

<sup>84</sup> *Learn the Art of Duduk Playing*.

<sup>85</sup> Nercessian, 40, 105.

Comfort rejects the notion of jaw vibrato, instead describing and demonstrating vibrato by pulsation of the lips.<sup>86</sup>

The duduk may be played with either the left or right hand on top; Western woodwind players will likely be more comfortable with the left hand on top, and this approach will be assumed in the following discussion.<sup>87</sup> In most cases, the left thumb will cover the thumb hole and the index, middle, and ring fingers will cover the three uppermost finger holes. The four fingers of the right hand (excluding thumb) will cover the next four holes, and one will be left open at the bottom. In cases where the lowest hole must be covered, each finger of the right hand moves down to the next lowest hole, the little finger of the right hand covering the lowest hole and the little finger of the left hand covering the hole previously covered by the right index finger. Duduk players may shift their hands in this manner just long enough to play the instrument's lowest fingered note, shifting back as soon as is practical.<sup>88</sup> An additional low note may be achieved in some cases by using the knee to close the tuning hole near the duduk's bell end.

When three fingers of the left hand are in use, the flat pads of the fingers' distal joints are used to cover the toneholes. The distal pad of the right little finger is also used, but the other fingers of the right hand use the pads of the middle joints. In cases where the left hand uses four fingers (as when the right hand is shifted downward to reach the lowest tonehole), it uses this same method and must therefore shift slightly.<sup>89</sup> This hand configuration keeps the hands in a relaxed position while fully covering the toneholes.

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<sup>86</sup> Nercessian, 116-117; *Learn the Art of Duduk Playing*.

<sup>87</sup> Nercessian, 117; *Learn the Art of Duduk Playing*.

<sup>88</sup> Nercessian, 117; *Learn the Art of Duduk Playing*.

<sup>89</sup> Nercessian, 117-118; Vartan, 6; *Learn the Art of Duduk Playing*.

Because of the large size of the toneholes, few cross fingerings can be used. A corollary of this is that, generally, lifting only a single finger is sufficient to produce the desired pitch, and the fingers below it may be left down with minimal effect on tone and pitch. Nercessian regards this as the standard method, while recognizing that alternatives exist; video recordings of Gasparyan and Vardanyan show this method being used inconsistently.<sup>90</sup> The inconsistency can likely be attributed to some combination of convenience in fingering, concessions to characteristics of specific instruments, and purposeful use of slight variations in tone or pitch.

Half-holing is used extensively to obtain a full chromatic scale and to adjust the pitch of individual notes. Duduk music is not traditionally governed by Western pitch standards (the use of Western scales in modern duduk music is an artifact of Soviet-era reforms), and the instrument must be humored considerably to play in tune with Western instruments.<sup>91</sup> Because adjusting the pitch with the embouchure has an adverse effect on tone, the fingers are used for pitch correction.<sup>92</sup> For fingers that are using the middle pad to cover toneholes, half-holing is accomplished by raising the fingertip, causing the middle pad to tilt slightly and open the tonehole somewhat.<sup>93</sup> For holes covered with the distal pad, the finger may be rolled upward, opening the lower part of the tonehole.<sup>94</sup> Half-holing with the little finger of either hand may be done by shifting the wrist upward, causing the little finger to move somewhat from its tonehole.<sup>95</sup>

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<sup>90</sup> Nercessian, 118; Gasparyan; *Learn the Art of Duduk Playing*.

<sup>91</sup> Nercessian, 18, 116.

<sup>92</sup> *Ibid.*, 46.

<sup>93</sup> Nercessian, 117-118; Vartan, 6; *Learn the Art of Duduk Playing*.

<sup>94</sup> Observation from *Learn the Art of Duduk Playing*.

<sup>95</sup> Nercessian, 117-118; Vartan, 6.

Table 9: Fingerings for basic scale, duduk in A. Holes below the first open hole may be kept closed to adjust pitch and tone if desired.

<p>RH shifts down; use LH little finger</p>									

Table 10: Fingerings for extended chromatic scale, duduk in A

<p>(use knee)</p>									
								<p>(lip up)</p>	

Duduk playing in Soviet Armenia was essentially diatonic and modeled on ideals of Western music. Djivan Gasparyan is credited with restoring the use of Pre-Soviet aspects of duduk playing in the subsequent years. These include traditional ornamentation, pitch slides between notes, and the use of chromatic notes.<sup>96</sup>

A pervasive traditional ornament is the *melism* (not to be confused with melisma in Western music, though the term seems to have been borrowed from the West). It resembles a brief and rapid trill or turn; Nercessian theorizes that the epiglottis is also involved, closing and reopening to articulate notes.<sup>97</sup> The pitches of the melism may or may not be clear to the listener, due to rapidity of execution, and due to use, in some cases, of sliding notes or microtones.<sup>98</sup>

The traditional accompanying drone is played with circular breathing, using the same technique employed by some Western wind players.<sup>99</sup> The puffed-cheek embouchure used in duduk playing may be an advantage for circular breathing. While circular breathing is standard practice for the drone player, it is rarely used in playing melodies.<sup>100</sup> In a recording situation, such as for film scores, both parts could be recorded by the same player.

Duduks are available in many sizes. They are given their pitch designation based on the note produced when the thumb hole and the first six finger holes are covered. The most commonly played duduk is the “A” instrument, followed by “B,” “H,” and “D,” according to the German pitch nomenclature used by most duduk makers; for North American musicians this

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<sup>96</sup> Nercessian, 40.

<sup>97</sup> *Ibid.*, 62-63.

<sup>98</sup> Additional discussion of the melism, including the problems of accurately describing it, can be found in Nercessian, 107-110.

<sup>99</sup> Nercessian, 75; Vartan, 6.

<sup>100</sup> Nercessian, 45-46; *Learn the Art of Duduk Playing*.

translates to A, B-flat, B, and D.<sup>101</sup> It should be noted that some current makers and retailers do refer to the six-hole B-flat instrument as a “B-flat” duduk, while retaining the German “H” for the B-natural instrument.

A neume system of notation called *khaz* was used in Armenian music in ancient times, and an updated version developed in the 19<sup>th</sup> century is still in limited use.<sup>102</sup> Modern duduk players, especially those with conservatory training, are more likely to read Western notation.<sup>103</sup> Western woodwind players may find it convenient to have parts transposed so that the six-finger note is always written as A<sub>3</sub>.

Professional-quality duduks and ghamishes are available through several makers and importers in North America. In many cases it is advisable to purchase ghamishes from the maker of the instrument, as they will be tuned and adjusted for compatibility with that maker’s instruments.

### Case Study

In the film *The Chronicles of Narnia: The Lion, the Witch, and the Wardrobe*, a pair of duduks is used in the musical score to provide the sound of a fictional on-screen instrument, a V-shaped double flute. The use of two duduks (presumably with both parts recorded by the same musician, using studio overdubbing), one playing a drone, is typical in Armenian music.

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<sup>101</sup> Nercessian, 116.

<sup>102</sup> Vartan, 4.

<sup>103</sup> Nercessian, 76.



"A Narnia Lullaby"  
0:00 ♩ = 94

duduk in B

**A Narnia Lullaby**  
 from Walt Disney Pictures' and Walden Media's **THE CHRONICLES OF NARNIA: THE  
 LION, THE WITCH AND THE WARDROBE**  
 Music by Harry Gregson-Williams  
 © 2005 Wonderland Music Company, Inc.  
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Example 3: Excerpt using duduk in film *The Chronicles of Narnia: The Lion, the Witch and the Wardrobe* (2005).<sup>104</sup> Transposed for duduk in B-natural; sounds major 2<sup>nd</sup> higher.

<sup>104</sup> *The Chronicles of Narnia: The Lion, the Witch, and the Wardrobe: Original Soundtrack* (Walt Disney Records, 2005).

The melody duduk's range reaches a sounding C<sub>5</sub>, higher than can be easily played on the standard duduk in A; the transcription has been transposed to be played on an instrument in B-natural (or H). This allows the melody to be played with only one half-holed note (a notated C-sharp<sub>4</sub>, as in measure 3), and requires lipping up to reach the high B-flat<sub>4</sub> (as in measure 7). It can also be played on the duduk in D, still with only one half-holed note, and without lipping up to reach the highest notes. Use of the D instrument does, however, require shifting the right hand downward to play the lowest note.

The melody is played once, then partially repeated (measures 11-15), then played again in its entirety (measures 16-24). With each repetition of the melody, the ornamentation and rhythmic details are varied somewhat, tending toward a slightly more ornate final statement. The style throughout is legato, with soft dynamics that swell and then recede at the final note of the first and partial melody statements, and swell into the orchestral crescendo at the end of the final statement. In the recording from which the transcription was made, the melody duduk player uses vibrato on longer notes.

Throughout the first melody statement and partial restatement, the drone duduk sustains a D<sub>4</sub> (assuming a B-natural instrument) with brief ornamental flourishes punctuating the melody. During the final melody statement, the drone is replaced by an orchestra and chorus, which are better suited to the dramatic crescendo at the end of the piece. The drone part is played using circular breathing, as is common practice for drone parts in traditional Armenian duduk music. Western musicians who circular breathe on their instruments will adapt their technique to the duduk without difficulty. No vibrato is used for the drone part.

## Bibliography

At'ayan, Robert. *The Armenian Neume System of Notation*, trans. Andy Nercessian. Richmond, England: Curzon, 1999.

At'ayan discusses the ancient *khaz* notation system used in some historical Armenian music.

Gasparyan, Djivan [credited as Jivan Gasparyan]. *Tribute to Innocent Souls Lost to World Atrocities*. Video recording. N.p.: Duduk.com, 2004.

Gasparyan plays in a trio setting with two other unnamed duduk players, presumably two of his students. The video recording is valuable for its up-close look at duduk playing technique.

Gilbert, Jerry. "Do the Duduk: Jerry Gilbert Meets Armenia's Djivan Gasparyan." *Folk Roots* 76 (1989): 29.

Gilbert profiles leading duduk player Gasparyan, with special attention to reception of duduk music by Western audiences.

*Learn the Art of Duduk Playing*. Pasadena, CA: dudukonline.com, n.d. Video recording.

This DVD includes demonstration of basic playing technique and instrument care. It also introduces the traditional way of playing the instrument in pairs and teaches some traditional repertoire. The presentation is by Shea A. J. Comfort with Albert Vardanyan.

McCollum, Jonathan, and Andy Nercessian. *Armenian Music: A Comprehensive Bibliography and Discography*. Lanham, MD: Scarecrow Press, 2004.

The section on musical instruments lists several sources related to the duduk.

Nercessian, Andy. *The Duduk and National Identity in Armenia*. Lanham, MD: Scarecrow Press, 2001.

Though much of the text is devoted to the duduk's place as a cultural symbol to Armenia, there is a great deal of information on technique, performance practice, and repertoire scattered throughout the book. Appendices include detailed transcriptions of duduk performances, descriptions of the instrument and playing technique, and even measurements used in making duduks.

Spottswood, Richard. *Ethnic Music on Records: A Discography of Ethnic Recordings Produced in the United States, 1893 to 1942*. Vol. 5, Mid-East, Far East, Scandinavian, English Language, American Indian, International. Urbana, IL: University of Chicago Press, 1990.

This is a reference for locating field recordings and early commercial recordings of Armenian music. No listings specifically indicate use of the duduk, but the prominence of the instrument in Armenian culture makes it likely that at least some of these recordings include it. This may be at least a useful starting point for locating recordings.

Vartan, John. *The Armenian Duduk: An Instructional Book for Beginners*, ed. Ara Topouzian. West Bloomfield, MI: American Recording Productions, 2000.

Topics in this work include basic technique, fingering, and care of the instrument and reed. It also includes an overview of Armenian history and Armenian music. No musical examples are provided.

#### Selected Recordings

Gasparian, Djivan. *Ask Me No Questions*. Traditional Crossroads, 1994.

Djivan Gasparian (b. 1928), recognized contemporary master of the duduk named “People’s Artist of Armenia” in 1973, plays pieces in the traditional style, accompanied by a drone.<sup>105</sup>

Gasparian, Djivan [credited as Jivan Gasparian]. *Tribute to Innocent Souls Lost to World Atrocities*. Video recording. N.p.: Duduk.com, 2004.

Gasparian plays in a trio setting with two other unnamed duduk players, presumably two of his students. The video recording is valuable for its up-close look at duduk playing technique.

Gasparian, Djivan, and Hossein Alizadeh. *Endless Vision: Persian and Armenian Songs*. World Village, 2005.

This is an example of the duduk used in a nontraditional context, with Iranian lute.

*The Chronicles of Narnia: The Lion, the Witch, and the Wardrobe: Original Soundtrack*. Harry Gregson-Williams, composer. Walt Disney Records, 2005.

*Gladiator: Music from the Motion Picture*. Hans Zimmer, composer. Decca, 2000.

These are examples of symphonic film scores with the duduk as a featured instrument.

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<sup>105</sup> Nercessian, 39.

## Organizations in North America

None known.

### d. Native American Flute

There are many Native American flute traditions, but the instrument commonly referred to as the “Native American flute” is that associated with the Lakota tribe, native to North and South Dakota.<sup>106</sup> Little is known about the ancient flute tradition; most of what is regarded as Native American flute music is no older than the 1970’s, when the Native American flute became a subject of renewed interest and enthusiasm.<sup>107</sup>

The Lakota-style flute (referred to hereafter as the Native American flute) is an endblown duct flute, held vertically by the player. It is traditionally made of cedar wood.<sup>108</sup> The player blows air into one end of the instrument that has been fashioned into a mouthpiece. The air enters a chamber of the instrument’s body, and then is diverted into a channel outside the instrument’s main body into a space enclosed by an external block, which directs the air against an edge, producing a tone.<sup>109</sup> This external block is known as a “bird” or “saddle” because it is often carved to resemble a bird or other animal, or takes another traditional abstract shape that somewhat resembles a horseback rider’s saddle.<sup>110</sup>

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<sup>106</sup> Baxter, 86.

<sup>107</sup> R. Carlos Nakai and James DeMars, *The Art of the Native American Flute* (Phoenix: Canyon Records Productions, 1996), 2.

<sup>108</sup> Baxter, 48.

<sup>109</sup> Ken Light, “The Renaissance of the Native American Flute,” *The Woodwind Quarterly*, no. 2 (1993): 55.

<sup>110</sup> Paula Thistle Conlon, “The Native American Flute: Convergence and Collaboration as Exemplified by R. Carlos Nakai,” *The World of Music* 44, no. 1 (2002): 62; Nakai and DeMars, 8.

Native American flutes have five or six fingered toneholes, and sometimes additional tuning holes at the instrument's bell end.<sup>111</sup> Traditionally, the dimensions of the flute are based on the player's anatomy. Measurements to be used in making the instrument are taken, for example, from the player's arm, hands, and fingers.<sup>112</sup> The toneholes are traditionally equal in size and equally spaced. The combination of personalized measurements and equal toneholes resulted in each flute playing a slightly different scale. Modern-made flutes are usually tuned to modern pitch standards, with hole size and spacing adjusted to suit this purpose. Fingerings have become somewhat standardized, though not rigidly so. Discussion and fingering charts in this section assume an instrument with the standard fingering.

As with modern woodwinds, good posture and abdominal breath support are essential to tone production.<sup>113</sup> The simple mouthpiece may be played easily without any special embouchure requirements. The mouthpiece should rest lightly against the lips. It is unnecessary to take the mouthpiece into the mouth to any significant extent.<sup>114</sup> Responsiveness varies from instrument to instrument, but most perform well with somewhat less air pressure than is required for modern woodwinds.<sup>115</sup> Carlos Nakai recommends blowing "gently but deliberately."<sup>116</sup>

The instrument is held in front of the body at a comfortable angle; the duct mouthpiece grants some leeway here for personal preference. Modern woodwind



Figure 4: A Native American flute.

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<sup>111</sup> Lew Paxton Price, *Creating and Using the Native American Love Flute* (Garden Valley, CA: El Dorado Press, 1993), 23-24.

<sup>112</sup> Conlon, 63; Baxter, 50-51; Nakai and DeMars, 10.

<sup>113</sup> Baxter, 102; Nakai and DeMars, 11; Price, *Love Flute*, 37-38.

<sup>114</sup> Borg, 8.

<sup>115</sup> *Ibid.*, 2-3.

<sup>116</sup> Nakai and DeMars, 11.

players will likely naturally hold the instrument at close to a 45-degree angle. Though either the left or right hand may be on top, woodwind players will be most comfortable with the left hand on top. This has become a de facto standard.<sup>117</sup> The thumbs support the instrument's weight and the little fingers help to stabilize it.<sup>118</sup>

Tongued articulation, similar to that used by modern woodwind players, is widely used.<sup>119</sup> Percussive, even aggressive articulation may be used, often resulting in chirping or chuff at the beginning of a note.<sup>120</sup> Breath accents are also commonly used.<sup>121</sup> Double tonguing may be used for effect on a single note, but is rarely used to articulate individual notes of rapid passages.<sup>122</sup>

Native American flutes are played in a wide range of sizes, named for their lowest note. The most popular flutes are those in F-sharp and G, with F-sharp<sub>4</sub> and G<sub>4</sub> as their lowest pitches. Five-holed flutes are popular instruments among musicians without formal training because their basic fingerings produce a mode of an improvisation-friendly pentatonic scale. Trained musicians will likely value the additional flexibility of the six-holed instrument, which has an additional pitch in its basic scale and has greater possibilities for cross-fingering. Many six-holed flutes may be played as five-holed instruments if the third tonehole is kept closed with a finger or has a leather strap tied over it.

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<sup>117</sup> Price, *Love Flute*, 37.

<sup>118</sup> Borg, 2.

<sup>119</sup> Baxter, 102; Ball and Whitten, 18.

<sup>120</sup> Baxter, 86-87.

<sup>121</sup> *Ibid.*, 102.

<sup>122</sup> Ball and Whitten, 23; Nakai and DeMars, 32.

Cross-fingerings may be used to approximate a chromatic scale, though some flutes will do this better than others.<sup>123</sup> Half-holing is a technical possibility but is rarely used other than for effect.<sup>124</sup>

Table 11: Fingerings for basic scale, five- or six-holed Native American flute in F-sharp<sup>125</sup>

6-hole							
5-hole					N/A		









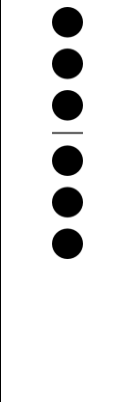
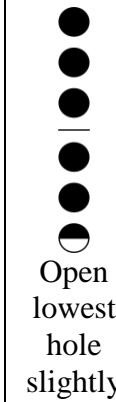
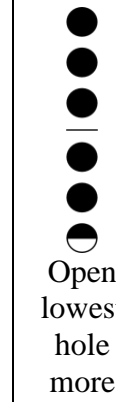
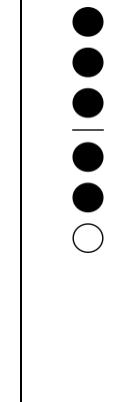
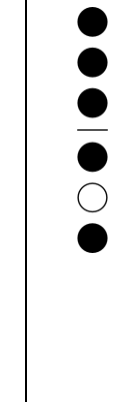
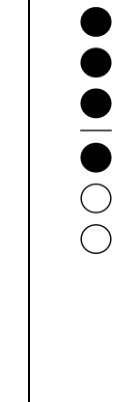
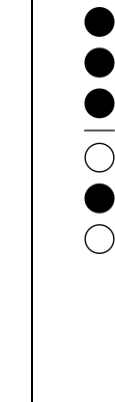
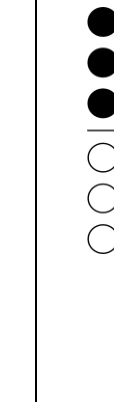




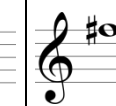



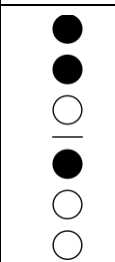
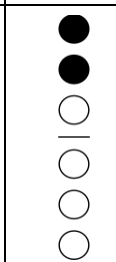
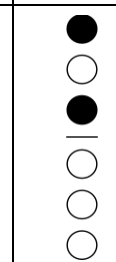
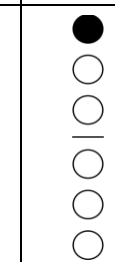
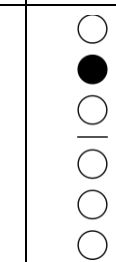
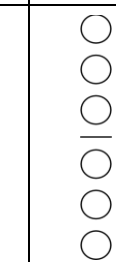
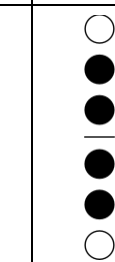
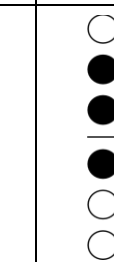
<sup>123</sup> Price, *Love Flute*, 39.

<sup>124</sup> Jeffrey K Ball and Bruce A. Whitten, *Trailhead of the American Indian Courting Flute* (Lafayette, CO: Red Feather Music, 2001), 23; Odell Borg, *Introduction to the Native American Style Flute* (N.p.: High Spirits, n.d.), 7.

<sup>125</sup> Based on Nakai and DeMars, 18; Borg, 16.



Table 12: Fingerings for extended chromatic scale, six-holed Native American flute in F-sharp<sup>126</sup>

The Native American flute is thought to have been used traditionally by young men in courting, and to have been played largely in an improvisatory manner.<sup>127</sup> Because the instrument is associated with improvisation and because so little is known about the ancient flute tradition, contemporary players have been free to develop a new tradition for the instrument. Published tutors tend to emphasize individuality and personal taste over adherence to any codified performance practice, though some common practices have emerged.

<sup>126</sup> Based on Nakai and DeMars, 22.

<sup>127</sup> Light, 60-61.

Ornamentation is based largely on nature sounds, especially birdsong.<sup>128</sup> Jeffrey K. Ball describes two specifically nature-inspired sounds: a cricket-like chirp produced by flutter tonguing or a “wobble” of the uvula, and a loon call produced by using a special fingering (Ball suggests using the index and middle fingers of the right hand) and playing a low-high-low series of whistle-like notes in the instrument’s upper partials.<sup>129</sup> Another very common bird-like effect is a chirp at the end of a note, produced by raising one or more fingers while giving an abrupt burst of air.<sup>130</sup>

Other characteristic sounds include trills and tremolos (including microtonal or otherwise non-equal-tempered intervals), abrupt staccato notes, overblown notes, turns or mordents (using the instrument’s basic scale, so sometimes the intervals involved are different from the Western classical tradition), bent pitches, and portamenti between notes (produced by rolling or sliding the fingers over toneholes).<sup>131</sup> Grace notes are also common, especially a pattern of two rapid grace notes, descending the instrument’s basic scale to a third note.<sup>132</sup> Vibrato, used flexibly and variably, is produced with pulses of air. As with the modern Western flute, there is some disagreement about whether these pulses are generated by the diaphragm, the throat, or some other mechanism; Ball also suggests that the cheek muscles may be used.<sup>133</sup>

The bird or saddle is usually tied to the flute with a leather strip, and its position can be adjusted, affecting tone and volume. Ball suggests that the bird can be moved toward the mouthpiece end of the flute for less volume, or toward the bell end for greater volume and better

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<sup>128</sup> Baxter, 80-81.

<sup>129</sup> Ball and Whitten, 20.

<sup>130</sup> Baxter, 108; Ball and Whitten, 17, 22; Price, *Love Flute*, 39.

<sup>131</sup> Conlon, 66; Nakai and DeMars, 30-31; Borg, 7; Ball and Whitten, 13, 15; Baxter, 80.

<sup>132</sup> Baxter, 79-80.

<sup>133</sup> Price, *Love Flute*, 38; Ball, 21.

low note response.<sup>134</sup> In most cases, woodwind players will favor a position that gives greater volume and clarity, and can manipulate the airstream to obtain softer dynamics when needed. Flute maker Ken Light indicates that the flute should sound “clear voiced, without an unnecessary and annoying ‘hiss’ and the resultant quiet, fuzzy tones.”<sup>135</sup> Moisture that collects in the duct can interfere with playing, and is removed by shaking the instrument, by blowing sharply into the mouthpiece with a finger over the blowing edge, or by removing the bird and drying the duct with absorbent material.<sup>136</sup>

The ancient Native American flute tradition had no notation system (or, at least, none that is known today).<sup>137</sup> Many modern Native American flute players have adopted a system proposed by Nakai.<sup>138</sup> The Nakai system is a tablature system that allows for flutes of different tunings to be notated in a consistent way, using the symbols of Western notation but using notes’ positions on the staff to indicate fingerings rather than actual sounding pitches. The staff positions used, if combined with a key signature of four sharps, coincide with the sounding pitches of the most popular modern-tuned flutes in F-sharp. Thus, in the case of an F-sharp flute, the tablature system and notation of sounding pitch are interchangeable. For players of modern woodwinds, the F-sharp flute may be considered a concert-pitch instrument, and flutes of other sizes are best notated so that their lowest notes are transposed to F-sharp<sub>4</sub>.

The Native American flute is traditionally played either as a solo instrument or accompanied by a drum; the drum plays a repeating rhythm, and the flute does not necessarily

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<sup>134</sup> Ball and Whitten, 10.

<sup>135</sup> Light, 58.

<sup>136</sup> Nakai and DeMars, 11-12.

<sup>137</sup> Borg, 1, 4.

<sup>138</sup> Nakai and DeMars, 16-18.

play in time with it.<sup>139</sup> Many modern Native American flute players use electronic delay in their live and recorded performances to simulate the sound of the flute echoing off canyon walls.<sup>140</sup> Some flute makers offer double flutes, which usually have one tube with fingered toneholes, and an additional drone tube.<sup>141</sup>

Because Native American flutes are popular souvenir items, care must be taken to obtain performance-quality instruments capable of playing at the expected pitch level. Six-hole instruments adhering to the most common fingering system are recommended.

### Case Study

The animated film *Pocahontas* uses the Native American flute as an added tone color to a texture predominated by modern Western instruments. It is used in combination with a symphonic orchestra for music cues in the score, and also used in a pop version of the song “Colors of the Wind” that is used during the film’s end credits and was released as a single in 1995.

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<sup>139</sup> Baxter, 88-90.

<sup>140</sup> Ball and Whitten, 7.

<sup>141</sup> Borg, 9-10.

"Listen with Your Heart I"  
 0:00 Native American flute in G minor  
 ♩ = 68

"Listen with Your Heart II"  
 2:17 ♩ = 68

"Colors of the Wind (End Title)"  
 0:14 ♩ = 84

0:45 1:10

1:31

**Listen With Your Heart**  
 from Walt Disney's POCAHONTAS  
 Music by Alan Menken  
 Lyrics by Stephen Schwartz  
 © 1995 Wonderland Music Company, Inc. and Walt  
 Disney Music Company  
 This arrangement © 2009 Wonderland Music  
 Company, Inc. and Walt Disney Music Company  
 All Rights Reserved Used by Permission

**Colors Of The Wind**  
 from Walt Disney's POCAHONTAS  
 Music by Alan Menken  
 Lyrics by Stephen Schwartz  
 © 1995 Wonderland Music Company, Inc. and Walt  
 Disney Music Company  
 This arrangement © 2009 Wonderland Music  
 Company, Inc. and Walt Disney Music Company  
 All Rights Reserved Used by Permission

Example 4: Excerpts using Native American flute in film *Pocahontas* (1995).<sup>168</sup> Notated in Nakai tablature for Native American flute in G; sounds minor 2<sup>nd</sup> higher if read as Western notation.

<sup>168</sup> *Pocahontas: An Original Walt Disney Records Soundtrack* (Walt Disney Records, 1995).

In the first two excerpts, the Native American flute is played in a birdsong-like style, with frequent staccato articulation and some use of pitch bends. Some subtle vibrato is used. The excerpts are easily played on a standard instrument in G, except for the notated E in measures 8 and 9, which falls below the instrument's standard range. For an instrument with tuning holes at the distal end, it may be possible to play the low E by covering one or more tuning holes with the knees; for instruments without tuning holes it may be possible to partially stop the end of the instrument with the knee, though this is imprecise at best and may be unsatisfactory in terms of both pitch and tone. A third possibility is to select a larger flute that includes the lowest pitch in its standard range; this may result in the need for extensive cross fingerings or half holing to play the remainder of the phrase.

The excerpts from "Colors of the Wind" use a legato style with vibrato, suitable to the pop setting of the song. A particular challenge in this setting is playing a non-tunable instrument in tune with accompanying keyboards.

### Bibliography

Ashmore, Renita Freeman. "The Native American Flute." M.A. thesis, California State University-Dominguez Hills, 2000.

This is primarily a study of the flute's role in Native American cultures. The most useful portions are the appendices, which include a diagram showing the Lakota-style instrument's construction and fingering charts for 5- and 6-hole flutes.

Ball, Jeffrey K. and Bruce A. Whitten. *Trailhead of the American Indian Courting Flute*. Lafayette, CO: Red Feather Music, 2001.

This is a beginning method for the Native American flute, suitable for aspiring players who do not read musical notation. Includes compact disc with musical examples.

Baxter, Marsha Lynne. "The Chinese Dizi, the Native American Courting Flute, and the Andean Panpipes: An Investigation of Pedagogy and Musical Practice." D.Ed. diss., Columbia University, 2001.

Baxter's dissertation describes her Native American flute studies with teacher and performer Frank Menusan in New York City. It explores performance practice and technique according to several Native American musical traditions, including ornamentation, structure and form, and other stylistic features. It also includes extensive musical examples in both Western and tablature-style notation.

Borg, Odell. *Introduction to the Native American Style Flute*. N.p.: High Spirits, n.d.

This brief text is a flute owner's manual and method book by Borg, a well-known flute maker. It includes information on instrument care, basic technique, and fingering for 5- and 6-hole flutes. It is suitable for aspiring players who do not read musical notation.

Conlon, Paula Thistle. "The Native American Flute: Convergence and Collaboration as Exemplified by R. Carlos Nakai." *The World of Music* 44, no. 1 (2002): 61-74.

This article discusses Nakai's solo performances and collaborative performances with musicians outside the Native American musical tradition, with a selected discography. It also includes a brief overview of history and organology; a unique inclusion is a table showing which tribal groups have traditions of playing flutes with external blocks (such as the Lakota-style flute).

Hermann, Henry R. *Enjoying the Native American-Style Flute*. Happy Camp, CA: Naturegraph, 2004.

Hermann provides a beginning method for the Native American flute, suitable for aspiring players who do not read musical notation. This text also contains information on history and culture, as well as extensive text on flutemaking and contemporary flute makers. Appendices include a directory of flute makers and a listing of Internet resources.

Joyce, Kathleen Ann. "The Native American Flute in the Southwestern United States: Past and Present." D.M.A. diss., University of Arizona, 1996.

Joyce includes information on history, performance practice, and repertoire. Notable features are a case for including applied Native American flute studies in college music curricula, and information on non-Lakota-style Native American flutes, especially end-blown varieties.

Light, Ken. "The Renaissance of the Native American Flute," *The Woodwind Quarterly*, no. 2 (1993): 54-66.

Light discusses the Native American-style flute revival since the mid-1980s. Light is a well-known flute maker. He includes information about the flutemaking process, and about the tuning system used in modern Native American-style flutes.

Nakai, R. Carlos, and James DeMars. *The Art of the Native American Flute*. Phoenix: Canyon Records Productions, 1996.

This important work is a beginning method for playing the Lakota-style Native American flute by the leading contemporary exponent of the instrument. It introduces Nakai's "tablature" system of notation. It also includes discussion of extended techniques, history and cultural background, and transcriptions of flute music as recorded by Nakai.

Nettl, Bruno, and Victoria Lindsay Levine. "Aerophones." In "Amerindian Music" in *The New Grove Dictionary of Music and Musicians*, ed. Stanley Sadie, 1:500-501. London: Macmillan, 2001.

This *New Grove Dictionary* entry is a broad overview of the types and uses of flutes characteristic of the music of American Indian societies.

Oborksy, Robert Francis. "Acoustic Impedance Measurement of the Plains Indian Flute." M.S. diss., Central State University [Oklahoma], 1984.

Oborsky discusses physical parameters of the Lakota-style flute's bore and their effect on sound production. This may be prohibitively dense reading for non-scientists.

Payne, Richard W. *The Native American Plains Flute*. Oklahoma City, OK: Toubat Trails Publishing, 1999.

Payne provides a detailed look, with photographs, at extant specimens of Native American flutes of the Plains region, as well as modern-made flutes based on traditional Plains flutes.

Price, Lew Paxton. *Creating and Using the Native American Love Flute*. Garden Valley, CA: El Dorado Press, 1993.

\_\_\_\_\_. *Creating and Using the Native American Concert Flute*. Garden Valley, CA: El Dorado Press, 1996.

\_\_\_\_\_. *Creating and Using the Largest Native American Flutes*. Garden Valley, CA: El Dorado Press, 1998.

These volumes discuss issues involved with making and playing Lakota-style flutes, including applicable acoustical theory and formulae. The *Love Flute* book deals with simple,



traditional instruments; the *Concert Flute* book deals with advanced topics, including various means of enhancing tone and playability, as well as special tunings.

Spottswood, Richard. *Ethnic Music on Records: A Discography of Ethnic Recordings Produced in the United States, 1893 to 1942*. Vol. 5, Mid-East, Far East, Scandinavian, English Language, American Indian, International. Urbana, IL: University of Chicago Press, 1990.

This is a reference for locating field recordings and early commercial recordings of Native American music. Some listings indicate the use of a flute or flutes, but it is unclear whether this refers to Lakota-style flutes, other Native American flutes, or even Western Boehm-style flutes.

#### Selected Recordings

Nakai, R. Carlos. *Changes*. Canyon Records, 1983.  
\_\_\_\_\_. *Fourth World*. Canyon Records, 2002.  
\_\_\_\_\_. *People of Peace*. Canyon Records, 2005.  
\_\_\_\_\_. *Sanctuary*. Canyon Records, 2003.

R. Carlos Nakai (b. 1946) is the leading figure in the Native American flute revival. *Changes* and *Sanctuary* feature the Native American flute played unaccompanied, in a traditional style, with *Sanctuary* exploring the possibilities of flutes in various sizes. *Fourth World* uses the Native American flute as a solo instrument in a Western orchestral setting. *People of Peace* effectively combines the Native American flute with other ethnic instruments and a jazz-fusion rhythm section.

*Pocahontas: An Original Walt Disney Records Soundtrack*. Alan Menken, composer. Walt Disney Records, 1995.

This symphonic orchestral score uses the Native American flute sparingly but effectively.

## Organizations in North America

International Native American Flute Association  
757 538-0468  
3351 Mintonville Point Dr.  
Suffolk, VA 23435  
<http://worldflutes.org>

INAFa publishes a quarterly journal, *Voice of the Wind*, and maintains listings of local flute circles (social flute-playing groups) and instructors.

### e. Panflute

The panflute (or “panpipes”) is a collection of end-blown tubes, each producing a single pitch. The tubes are blown across at the ends, in pop-bottle fashion. Panflutes may be made from natural tubes, such as bamboo, or from man-made tubes, such as those made of wood, clay, or plastic.

Panflute traditions have been identified on all six of the inhabited continents, with current active traditions in Romania, South America, and the Solomon Islands.<sup>169</sup> Panflutes associated with Romanian and South American (specifically Andean) music will be discussed here.

The classical Romanian panflute, or *nai*, has 20 pipes, ranging from B<sub>3</sub> to G<sub>6</sub> and having pitch-class content corresponding to G major.<sup>170</sup> Some contemporary classical panflutists prefer a 22-pipe variant with the low range extended to G<sub>3</sub>.<sup>171</sup> Alternate tunings, configurations, and pipe

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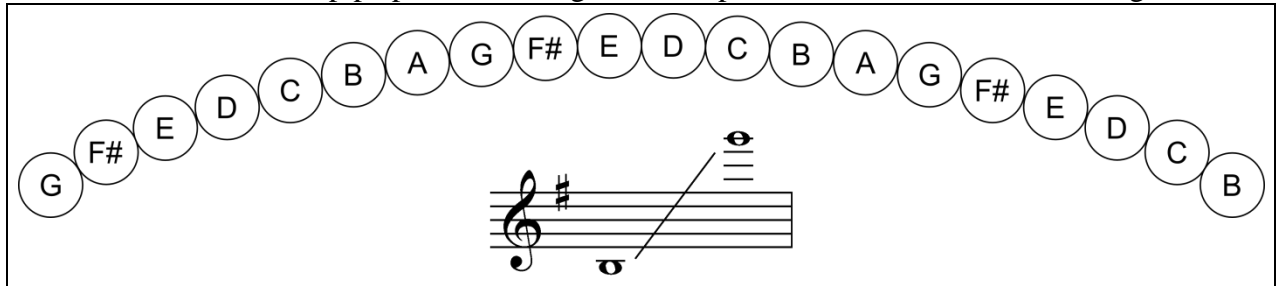
<sup>169</sup> Valeriu Apan, “The Panpipe (Nai) in Contemporary Romanian Folk Music,” Ph.D. diss., University of California, Los Angeles, 1994, 3-4.

<sup>170</sup> Valeriu Apan, *How to Play Romanian Panpipe*, 2<sup>nd</sup> edition (Santa Monica, CA: Fuge Imaginea Press, 1995), 4, 9. Note that Apan indicates a pitch range of “b’ to g<sup>4</sup>” in his description of the instrument on page 4; his figure 4-a on page 9 clarifies which pitches are meant. “”

<sup>171</sup> Costel Puscoiu, *New Method for Panpipes*, vol. 1 (Delft, Netherlands: Costel Puscoiu, 1994), 15.

counts are also available; typical pipe counts range from 20 to 30, with the larger sets adding lower- or higher-pitched tubes or both to the standard 20-pipe configuration.<sup>172</sup>

Table 13: Romanian 20-pipe panflute configuration, top view with lowest note at the right.<sup>173</sup>



A nai's pipes are made of bamboo, reed, or wood, and plugged at one end with wood or cork. The unplugged ends are beveled for the player's comfort and to aid in tone production. The pipes are arranged in a single row from lowest to highest, typically in a curved configuration, with the lowest note usually at the panflutist's right.

<sup>172</sup> Ibid.

<sup>173</sup> Based on Puscoiu, *New Method*, 14.

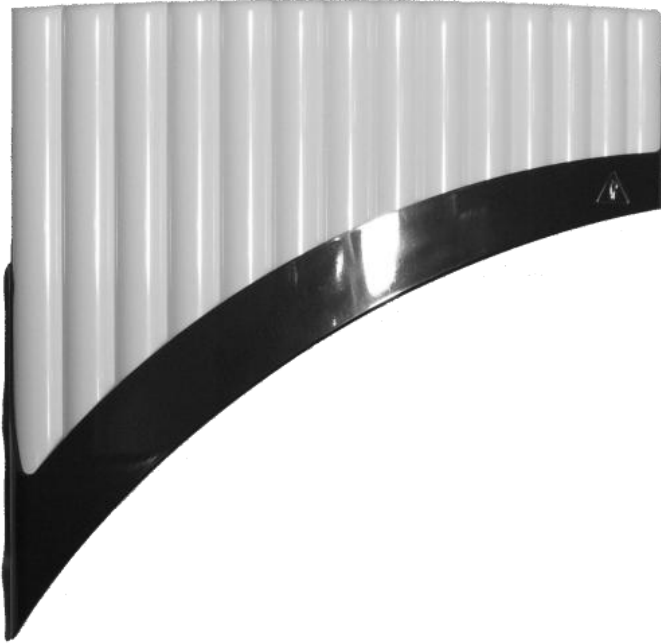


Figure 5: A Romanian-style panflute. Front view, with longest tube at audience's left. This specimen has only 14 tubes.

Although most sources agree that the longest tube should be at the player's right, Valeriu Apan's method allows for holding the instrument the opposite way if the player is left-handed. It should be noted that this would require a specially-made left-handed instrument, with the curve reversed.<sup>174</sup> Costel Puscoiu gives the most detailed description of the panflutist's grip: the right hand middle, ring, and little fingers wrap around the tip of the instrument, with the index finger and thumb extended in an "L" shape to support the front and side of the instrument; the left thumb rests on the back of the lower rim with the middle finger extended along the front of the pipes, the other left-hand fingers falling naturally upon the instrument.<sup>175</sup>

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<sup>174</sup> Ibid., 8. It is surprising that Apan fails to mention this, especially since the photo on p. 9 demonstrating left-handed playing clearly shows the same musician (presumably Apan) and instrument as in the right-handed photo; the left-handed photo has been printed backwards to simulate the left-handed position.

<sup>175</sup> Costel Puscoiu, *You Can Teach Yourself Pan Flute* (Pacific, MO: Mel Bay, 1997), 17-18.

Apan and Puscoiu agree on the basic method of tone production.<sup>176</sup> Posture should be upright but relaxed. The instrument should be held with the pipes vertical, the edge of a pipe contacting a place either at or below the edge of the lower lip. The lips should be stretched horizontally and slightly tense, leaving a small aperture. A narrow airstream, sustained by firm abdominal support, is directed at the far edge of the pipe. The panflute is moved left or right, bringing the desired pipe to the embouchure; Puscoiu accepts some “auxiliary movement of the head” when necessary, particularly in fast passages.<sup>177</sup> The pitch of each pipe may be lowered by tilting the bottom of the panflute away from the player’s body; this method is used to obtain all the pitches of a fully chromatic scale.

Notes are articulated with the tip of the tongue touching the inner part of the lips, interrupting the airstream.<sup>178</sup> Double and triple tonguing are essential to the classical panflutist’s technique and are regarded as hallmarks of virtuosity. Apan describes the technique of double tonguing as being similar to pronouncing the consonants “T-L.” For triple tonguing, he gives “T-L-T” as a possible approach, but acknowledges that multiple tonguing patterns vary from player to player.<sup>179</sup>

Individual tubes may be tuned higher by a process of filling the plugged end with small amounts of beeswax; pitches that have been previously raised in this manner may be lowered again by the removal of wax. The wax is applied by dropping small pellets into the tube and using a dowel to flatten them against the plugged end.<sup>180</sup>

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<sup>176</sup> See Apan, *How to Play*, 7, 13-14, and Puscoiu, *You Can Teach Yourself*, 19-21, 31.

<sup>177</sup> Puscoiu, *You Can Teach Yourself*, 21.

<sup>178</sup> Ibid.

<sup>179</sup> Apan, *The Panpipe*, 227-228.

<sup>180</sup> Apan, *How to Play*, 4-6.

Music for Romanian panflute is typically transcribed in standard Western notation, written at sounding pitch. Apan's tutor combines this conventional notation with a system of numbering the pipes, but it appears that this is meant only as an aid to beginning panflutists.<sup>181</sup> Apan briefly describes additional techniques associated with the Romanian panflute tradition. These are portamento (smooth transitions between pitches, played on a single pipe, by tilting the instrument), glissando (sliding the instrument past the embouchure, briefly sounding each pipe in sequence), vibrato (obtained by a "controlled irregularity in the air supply"), tremolo (rapid rearticulation of a single note using "diaphragm movements;" Apan prefers this effect on the longer, lower pipes), flutter tonguing, overblowing to obtain higher harmonics, singing while playing, and trill (fast alternation between two notes by movement of the head).<sup>182</sup>

The panflutes of the Andes, known as *zampoña* or *siku*, have two rows of pipes, each row arranged in thirds so that a diatonic scale (corresponding to G major) can be played by alternating between rows. The row closest to the panflutist has six pipes and is called the *ira*, and the farther row, with seven pipes, is the *arca*.<sup>183</sup> The rows are usually not attached to each other, but are held together in the player's hands. Zampoñas are traditionally made in four sizes, each pitched an octave apart. The primary melody instrument is the *malta*, which ranges in pitch from D<sub>4</sub> to B<sub>5</sub>. The *chulli* or *ika* is pitched one octave higher. The *zanca* sounds one octave below the *malta*, and serves to "complement the Malta, either to lead a melody or as a second voice to the Malta."<sup>184</sup> The lowest is the *toyo*, two octaves below the *malta*, and serves as a bass voice "but is capable of playing very haunting mysterious melodies."<sup>185</sup>

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<sup>181</sup> Ibid., 9. See also the usage of this method of notation in the exercises on pages 17-24.

<sup>182</sup> Apan, *The Panpipe*, 234-237; *How to Play*, 14.

<sup>183</sup> Alvaro Graña, *How to Make and Play Pan-Pipes* (Coventry, England: Condor Books, 1995), 9-10.

<sup>184</sup> Ibid., 10.

<sup>185</sup> Ibid.

The essential technique of playing the zampoña is the same as that of the Romanian nai. Alvaro Graña's tutor echoes much of what is found in the Romanian-style texts, especially with regard to breath support and articulation.<sup>186</sup> Graña adds a point about embouchure, which may be of value in playing pipes of either style: the distance from the aperture of the lips to the edge of the pipe must vary slightly with the diameter of the pipe, with smaller-diameter pipes being closer and larger pipes being farther away. Marsha Lynne Baxter's dissertation stresses that the pipes are held vertically (or perhaps with the bottom of the instrument tilted forward slightly), no matter which row of pipes is in use, rather than tilting the panflute to access either row.<sup>187</sup>

Andean panflutes are held by the instrument's sides, with the thumbs on the inside (closer to the player's body) and the remaining fingers resting on the front of the instrument.<sup>188</sup> Unlike the Romanian pipes, the Andean pipes can be held with the longer pipes either to the left or the right; the flat raft-style arrangement of the pipes and the straight ends (not beveled like the Romanian panflute) make them equally playable from either side, although the side intended to face the audience is often decorated. Holding the panflute with the longer pipes to the player's right is associated with the Bolivian tradition, and the longer pipes to the left is associated with the Ecuadorian tradition; in either case the shorter ira row is held closer to the player.<sup>189</sup> Graña refers to the longer pipes on the right as the "traditional" way, but suggests that longer pipes on the left is natural and appropriate for modern Western musicians who are acquainted with the piano keyboard.<sup>190</sup> Panflutes with separate rows can be oriented in either direction; panflutes with the rows attached to each other must be oriented with the shorter ira row toward the player.

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<sup>186</sup> Ibid., 20-22.

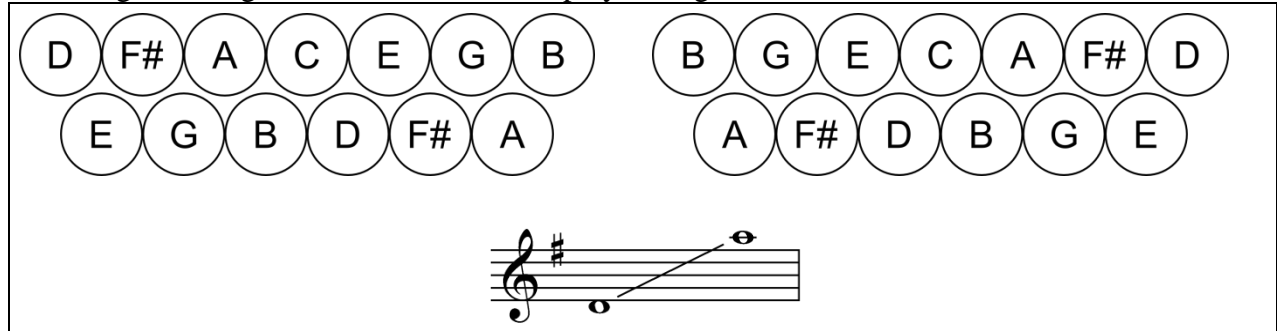
<sup>187</sup> Baxter, 135, 159-60.

<sup>188</sup> Maurice Dela, *Learning to Play the Panpipe* (Richelieu, Quebec, Canada: Musantiqua, n.d.), 3.

<sup>189</sup> Baxter, 128.

<sup>190</sup> Graña, 19.

Table 14: Zampoña malta configuration, top view. Diagram at left shows lowest note at player's left, diagram at right shows lowest note at player's right.<sup>191</sup>



Baxter's text and an instructional video recording by musical group Sukay both explain a technique of varying tone color from a soft, breathy sound to a full, clear sound, by varying the pressure of the lip against the pipe. A common practice is to play a melody first in a breathy manner and then again with a clear sound.<sup>192</sup> Baxter describes a technique of "pitch slide" that seems to correspond to Puscoiu's portamento, and a technique of articulating some notes with air pulses rather than the tongue. The air pulse technique can be used to articulate single notes, or may be used as a measured vibrato.<sup>193</sup> The Sukay video recording shows a technique like Puscoiu's glissando, although the effect is not identical because the Andean pipes produce an arpeggio of diatonic thirds rather than a diatonic scale.<sup>194</sup>

One traditional practice, known as *trenzado* or *sicuri*, involves separating the rows, with one musician playing one row and a second musician playing the other.<sup>195</sup> This practice seems unlikely to be of particular interest to the musician working in film and theater music, except perhaps in circumstances that call for imitation of authentic Andean sounds; in a recording

<sup>191</sup> Based on Graña, 10.

<sup>192</sup> Baxter, 138; *How to Play Flutes of the Andes: Taught by Sukay*, video recording (Woodstock, NY: Homespun Tapes, 1987).

<sup>193</sup> Baxter, 138, 143, 150, 160.

<sup>194</sup> *How to Play Flutes of the Andes*.

<sup>195</sup> Graña uses "trenzado;" see page 9. Baxter uses "sicuri;" see page 128.



situation, the same musician might record both parts, with, for example, stereo separation used to emphasize the distinct parts.

For a woodwind doubler who is already familiar with the Romanian panflute tradition, or who wishes to use both Romanian and Andean panflutes with a minimum of complication, it may be possible to unbind a set of zampoña and rebind them in a single row, like a nai. Graña's text gives instructions for "threading" the pipes (binding them together with thread) into ira and arca rows; these instructions could easily be adapted to a long single row of pipes.<sup>196</sup>

Since the zampoña tradition is essentially an aural one, without an established method of notation, panflute parts written for contemporary woodwind players are probably best notated according to the Romanian panflute convention, using Western notation written at sounding pitch. Marsha Lynne Baxter's dissertation describes an alternate system using numbers to represent the pipes; this is likely of little use to musicians in film and theater situations because it is unfamiliar and because, as Baxter points out, it indicates a sequence of pitches but no particular rhythm.<sup>197</sup>

Note that zampoña are popular souvenir items, but souvenir flutes may not be of suitable quality for professional musicians. High-quality zampoña are available from a few North American importers. Romanian-style panflutes are more easily obtained, available from North American makers and importers and available for purchase directly from some European makers.

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<sup>196</sup> See Graña, 14.

<sup>197</sup> Baxter, 130-31.

## Case Study

The score to the film *The Alamo* uses panflutes to evoke a Latin American sound. The score segment entitled “El Bexareno” uses two panflutes, possibly performed in the recording studio by the same musician with overdubbing, playing a duet. Though the style of the music suggests that zampoña are an appropriate choice, the transcribed excerpt does not lend itself well to the zampoña and would be better played on the Romanian nai.

"El Bexareno"  
0:00 ♩ = 114

The musical score for "El Bexareno" is presented in three systems on a single staff. The first system begins with a treble clef, a 3/4 time signature, and a tempo marking of ♩ = 114. The music consists of a series of chords and melodic lines. The second system starts at measure 6 and continues the piece. The third system starts at measure 12 and concludes with a final chord. The notation includes various note values, rests, and articulation marks.

### El Bexareno

Words and Music by Carter Burwell  
© 2004 Touchstone Pictures and Songs  
This arrangement © 2004 Touchstone Pictures and Songs  
All Rights Reserved Used by Permission

Example 5: Excerpt using panflute in film *The Alamo* (2004).<sup>198</sup> Notated at sounding pitch, suitable for playing on the standard Romanian panflute.

The key of C major is slightly awkward for either Andean or Romanian flutes, due to the presence of the F-natural. To play this excerpt easily, a non-standard instrument is required,

<sup>198</sup> *The Alamo: Original Score* (Hollywood Records, 2004).

tuned to C major rather than G major. The F-natural may be achieved on a G major flute by using the F-sharp tube and tilting the instrument away from the body to lower the pitch; this requires some skill in order to play the pitch accurately. The upper glissando in measure 12 terminates with an F<sub>6</sub>, adding to the difficulty of using a G major instrument.

The range of the upper part fits within the range of the zampoña chulli (or zampoña ika), but the lower part does not fit within the range of any standard zampoña. Both parts fit easily within the nai's range, however.

A final piece of evidence supporting the use of the nai rather than the zampoña is the glissando in measure 13. On the transcribed recording, the glissando can be clearly heard as incorporating the notes D<sub>6</sub>-E<sub>6</sub>-F<sub>6</sub> in the upper part and B<sub>6</sub>-C<sub>6</sub>-D<sub>6</sub> in the lower part. These rapid sequences of notes cannot be played on an unaltered zampoña because the notes are divided between two rows; the glissando effect would be lost, sounding as just D<sub>6</sub>-F<sub>6</sub> in the upper part and B<sub>5</sub>-D<sub>6</sub> in the lower. The nai's single row is perfectly suited to diatonic glissandi.

The panflutists (or panflutist) on the soundtrack recording play in a detached style, with vibrato used on the longer notes.

### Bibliography

Apan, Valeriu. *How to Play Romanian Panpipe*. 2<sup>nd</sup> edition. Santa Monica, CA: Fuge Imaginea Press, 1995.

An audiocassette is included. The text covers history, instrument maintenance, and basic technique; 84 musical exercises are also included.

\_\_\_\_\_. "The Panpipe (Nai) in Contemporary Romanian Folk Music." Ph.D. diss., University of California, Los Angeles, 1994.

This is an exhaustive treatise on the panflute, including panflutes outside the Romanian tradition. It includes some discussion of technique and repertoire.

Dela, Maurice. *Learning to Play the Panpipe*. Richelieu, Quebec, Canada: Musantiqua, n.d.

This is a beginning method for panflute, geared toward those with previous musical training. It acknowledges differences in technique between Romanian and South American instruments.

Graña, Alvaro. *How to Make and Play Pan-Pipes*. Coventry, England: Condor Books, 1995.

Graña gives background on Andean panflutes, including a very useful guide to the various sizes, their ranges, and their sometimes-confusing nomenclature. He also provides information on playing technique, instrument making, and a tablature system of notation (as well as traditional Western notation).

*How to Play Flutes of the Andes: Taught by Sukay*. Woodstock, NY: Homespun Tapes, 1987.  
Video recording.

Members of South American musical group Sukay discuss and demonstrate the techniques and repertoire of the various Andean panflutes, as well as the *quena*.

Puscoiu, Costel. *New Method for Panpipes*. 3<sup>rd</sup> ed. 3 vols. Delft, Netherlands: Costel Puscoiu, 1994.

This is a comprehensive method for the Romanian panflute, for study independently or with a teacher. Extensive technical exercises are provided. The book includes audio recording.

Puscoiu, Costel. *You Can Teach Yourself Pan Flute*. Pacific, MO: Mel Bay, 1997.

This is a very basic introduction to the panflute, including basics of general music notation; the bulk of the publication is simple etudes and melodies. There is brief but valuable discussion of panflute technique.

### Selected Recordings

Sukay. *Encuentros*. Sukay, 2007.

\_\_\_\_\_. *Music of the Andes*. Flying Fish, 1978.

*How to Play Flutes of the Andes: Taught by Sukay*. Woodstock, NY: Homespun Tapes, 1987.  
Video recording.

Andean group Sukay features extensive use of zampona played in duets.

Zamfir, Gheorghe. *The Lonely Shepherd*. Mercury, 1984.

This recording features popular melodies from classical music, film, and Broadway, played on the Romanian Panflute with orchestral accompaniment. Zamfir (b. 1941) is popularly known as the “Master of the Pan Flute.”

*The Alamo: Original Score*. Carter Burwell, composer. Hollywood Records, 2004.

This soundtrack recording uses panflutes in duet, with a South American style.

### Organizations in North America

None known.

### f. Pennywhistle

The pennywhistle, also known as the tin whistle or Irish whistle, is an endblown fipple flute best known for its use in Irish traditional music, though it is also the most important instrument in *kwela*, an urban South African popular music from the 1950's.<sup>199</sup>

The pennywhistle, true to its name, can be had for very little money (perhaps even for as little as the cost of a saxophone reed). The least expensive pennywhistles are of two varieties. The original design is a sheet of tin or other metal rolled into a tube, with a simple mouthpiece formed by minor bending and cutting of one end and insertion of a wooden block. These are still widely available, but an updated design has become even more ubiquitous: a piece of metal tubing with a molded plastic mouthpiece affixed. Because of the mass-produced nature of both types, they can be of somewhat inconsistent quality (with regard to tone, intonation, and

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<sup>199</sup> Lara Allen, “Kwela: The Structure and Sound of Pennywhistle Music,” in *Composing the Music of Africa: Composition, Interpretation, and Realisation*, ed. Malcolm Floyd, Ashgate Studies in Ethnomusicology (Aldershot, England: Ashgate, 1999), 227; Larsen, 59.

response). Still, carefully-selected specimens are the instruments of choice for many top players of Irish traditional music, due to their traditional sound.

Finely-made (and more expensive) pennywhistles are also available, made in a variety of metals, woods, and plastics. Because these usually involve at least some degree of hand-finishing (some are entirely handmade), they are of more consistent quality and may even be custom made to a player's specifications. Some seek to imitate the traditional breathy tone of the inexpensive pennywhistles, while improving pitch, consistency, and playability, while others pursue different tone ideals.

In Irish traditional music, the pennywhistle typically serves as a piccolo voice in the largely monophonic texture, playing a melody in octaves with some combination of fiddle, uilleann pipes (a bellows-blown set of bagpipes), wooden flute, and concertina, perhaps accompanied by guitar and frame drum. Much of the pennywhistle's performance practice (as well as that of the "Irish" flute) is derived from the older bagpiping tradition.

The most common size of pennywhistle in Irish music is the whistle with a lowest note of D<sub>5</sub>, referred to as a "D" whistle. This should not be confused with the modern nomenclature of an instrument "in D," which would indicate a transposing instrument. The D whistle is so named for its lowest note and basic scale, though it plays one octave above concert pitch.<sup>200</sup> The slightly larger C whistle is also common. Since the 1970's, larger pennywhistles have rapidly gained popularity,



Figure 6: A pennywhistle, of the plastic-mouthpiece type.

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<sup>200</sup> Larsen, 27; Thomas F. Johnston, "The Social Context of Irish Folk Instruments," *International Review of the Aesthetics and Sociology of Music* 26, no. 1 (1995): 37.

with the “low D” whistle, pitched one octave below the common D whistle, being most popular for its ability to play easily in traditional keys (usually D major, G major, or a mode thereof).

Pennywhistles pitched from a lowest note of A<sub>4</sub> or lower are considered to be “low” whistles.<sup>201</sup>

The pennywhistle may be played with either the right or left hand on top; woodwind players will likely be most comfortable with the left hand on top. This has become the most common practice (and is assumed in the following text).<sup>202</sup> The index, middle, and ring fingers of each hand are used to open and close the six toneholes. The instrument is supported by the thumbs and lips, and may be stabilized with the right hand little finger.<sup>203</sup> The instrument should be held at a relaxed and comfortable angle that avoids forcing the airstream to turn any sharp corners; usually an angle of approximately 45 degrees is suitable.<sup>204</sup> Upright and relaxed posture is essential and allows for proper abdominal support of the airstream.<sup>205</sup>

For most of the non-“low” whistles, the pads of the distal joints of the fingers are used to close the toneholes. The fingers should be relaxed and naturally curved, and should remain close to the toneholes.<sup>206</sup> For instruments that are too large to play comfortably in this way, the “piper’s grip” may be employed, using the pads of the distal joints of the ring fingers, and allowing the index and middle fingers to fall naturally upon the holes in a comfortable position, often with the pads of the middle joints of these fingers closing the holes.<sup>207</sup> For the largest pennywhistles, hand size may be an issue for some players; some pennywhistle makers select

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<sup>201</sup> Steáfán Ledsam David Hannigan, *The Low Whistle Book* (Loughborough, Leics, U.K.: Sin É Publications, 2000), 7.

<sup>202</sup> L. E. McCullough, *The Complete Irish Tinwhistle Tutor* (Pittsburgh: Silver Spear Publications, 1976), 10-11; Larsen, 64.

<sup>203</sup> McCullough, *Tinwhistle Tutor*, 11; Larsen, 66.

<sup>204</sup> Larsen, 70.

<sup>205</sup> Larsen, 63, 74; Hannigan, 28.

<sup>206</sup> Larsen, 65.

<sup>207</sup> Hannigan, 9.

hole sizes and spacing to allow for a comfortable reach with small hands, but others arrange the toneholes based more on a desired tone ideal.<sup>208</sup>

Some pennywhistles have a windway that is rectangular in cross-section, while others, especially more expensive pennywhistles, have a curved windway (frown-shaped to the player's perspective). Curved windways may affect tone in some way (opinions vary on this matter), and are also thought to be less prone to clogging with moisture because the condensation can drain off to the sides. In the event that a pennywhistle's windway does become clogged, the moisture may be removed by a firm shake, or by blowing sharply into the mouthpiece while covering the duct window with a finger.

The embouchure is formed simply by allowing the lips to form an airtight seal around the tip of the mouthpiece. Little of the mouthpiece need be taken into the mouth (Grey Larsen suggests approximately ¼ inch).<sup>209</sup> L. E. McCullough recommends a "good strong" airstream, but both McCullough and Larsen warn that blowing too hard will cause accidental overblowing to higher partials.<sup>210</sup> To achieve the higher octave, McCullough suggests "tightening" the embouchure.<sup>211</sup> Larsen clarifies this somewhat by explaining that the oral cavity and lip aperture may be narrowed, the lips effectively blocking the opening of the windway to a small extent, increasing the speed of the airstream.<sup>212</sup>

Because of the pennywhistle's duct-type mouthpiece, the player is limited as to how the airstream can be successfully manipulated. Increasing the airflow increases volume but also raises pitch and contributes to shrillness; decreasing the airflow decreases volume, lowers pitch,

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<sup>208</sup> Ibid., 99.

<sup>209</sup> Larsen, 67-68.

<sup>210</sup> McCullough, *Tinwhistle Tutor*, 12; Larsen, 74.

<sup>211</sup> McCullough, *Tinwhistle Tutor*, 12.

<sup>212</sup> Ibid.



and can degrade tone and response.<sup>213</sup> Air requirements, volume, balance between upper and lower octaves, tone, and responsiveness depend heavily on the design of the windway and blowing edge.

Articulation may be accomplished by tonguing in the manner of the Boehm flute, with the tongue momentarily interrupting the flow of air in the manner of pronouncing the letters “T” or “D.” This method will be comfortable and natural for woodwind players and is recommended by McCullough.<sup>214</sup> Larsen and Steáfán Ledsam David Hannigan also favor this method but allow for glottal articulation, or “throating,” as in pronouncing the letter “K.”<sup>215</sup> Double and triple tonguing are also possible, using the techniques familiar to modern woodwind players (especially flutists).<sup>216</sup>

Some pennywhistles are tunable by means of a tuning slide or movable mouthpiece, but some inexpensive pennywhistles are sold with their plastic mouthpieces glued in place.<sup>217</sup> Pennywhistle players commonly immerse the mouthpiece end of these whistles in hot water to soften and remove the glue, enabling the mouthpiece to be moved up or down on the tube for tuning purposes.<sup>218</sup>

Pennywhistles use simple-system fingering, having six fingered toneholes that produce a major scale. Most pennywhistles are not well suited to extensive cross fingering, so half-holing is used when chromatic notes are desired.<sup>219</sup> An exception is the lowered seventh in the lowest octave, which can often be cross-fingered as indicated in Table 16 (written C<sub>5</sub>). Sometimes

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<sup>213</sup> McCullough, *Tinwhistle Tutor*, 12; Hannigan, 29.

<sup>214</sup> McCullough, *Tinwhistle Tutor*, 15.

<sup>215</sup> Larsen, 274; Hannigan, 29.

<sup>216</sup> McCullough, *Tinwhistle Tutor*, 15; Larsen 276-7.

<sup>217</sup> Larsen, 74.

<sup>218</sup> McCullough, *Tinwhistle Tutor*, 10; Larsen, 75.

<sup>219</sup> McCullough, *Tinwhistle Tutor*, 13.

fingers of the right hand can be added to improve pitch; however, a slightly sharp lowered seventh is characteristic of Irish traditional music.<sup>220</sup>

Table 15: Fingerings for basic scale, pennywhistle in D. Sounds 8va.<sup>221</sup>

	(also 8va)	(also 8va)	(also 8va)	(also 8va)	(also 8va)	(also 8va)	(also 8va)
● ● ● — ● ● ●	● ● ● — ● ● ○	● ● ● — ● ○ ○	● ● ● — ○ ○ ○	● ● ○ — ○ ○ ○	● ○ ○ — ○ ○ ○	○ ○ ○ — ○ ○ ○	○ ● ● — ● ● ●

<sup>220</sup> Larsen, 27.

<sup>221</sup> Based on Larsen, 452-453.

Table 16: Fingerings for extended chromatic scale, pennywhistle in D. Sounds 8va.<sup>222</sup>


<sup>222</sup> Based on Larsen, 452-453.

Vibrato is used only as an ornament in Irish traditional music, and, when used, it is most often fingered vibrato.<sup>223</sup> For this technique, a microtonal trill is produced by rapidly opening and closing a tonehole, usually the second open tonehole after the last closed one. Vibrato produced by a pulsation of the airstream is also a technical possibility, but, because of the instrument's low resistance and backpressure compared to modern woodwinds, may be difficult to control.<sup>224</sup>

Ornamentation is crucial to the authentic Irish sound. The pennywhistle inherits its performance practice largely from the uilleann pipes, an instrument that cannot quickly start and stop its airstream. Thus pipers are unable to rearticulate repeated notes in the manner of modern woodwind instrumentalists. Instead, the piping tradition has developed a vocabulary of quick, almost percussive ornaments that serve as articulations. These ornaments, overlaid on an essentially legato style, have permeated the musical tradition and are imitated by fiddlers, whistlers, and flutists in Irish music.<sup>225</sup>

These ornaments have long defied accurate representation in Western notation, often being shown as grace notes. Larsen has developed a method of notating the ornaments that represents them as articulation markings, rather than added notes, which better characterizes their purpose and sound. This method is described in detail in his *Essential Guide to Irish Flute and Tin Whistle*.<sup>226</sup>

The most basic Irish ornaments are *cuts* and *strikes*. The cut is achieved by rapidly—almost instantaneously—lifting and replacing a finger. Larsen recommends using the finger above the lowest closed hole (for example, if the three highest toneholes are closed, the second

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<sup>223</sup> Larsen, 246-249.

<sup>224</sup> McCullough, *Tinwhistle Tutor*, 16.

<sup>225</sup> Larsen, 40.

<sup>226</sup> *Ibid.*, 113, 115.

finger will be used).<sup>227</sup> Strikes are played by rapidly closing and reopening the first open hole (for example, if the three highest toneholes are closed, the fourth finger will be used).<sup>228</sup> These ornaments should be executed with such speed as to avoid discernible “pitch, duration, or rhythmic identity.”<sup>229</sup>

More complex ornaments such as *cranns* and *rolls* are made up of sequences of two to four cuts and strikes.<sup>230</sup> Larsen identifies and explains various “short,” “long,” and “condensed” versions of rolls and cranns, totaling thirteen distinct complex ornaments.<sup>231</sup>

*Slides* are a common pitch inflection, produced by gradual opening or closing of toneholes.<sup>232</sup> Trills are also possible, but used only rarely in Irish traditional music.<sup>233</sup>

The kwela tradition of South Africa takes an idiosyncratic and distinctive approach to the pennywhistle. In kwela, the pennywhistle serves as the lead instrument (in later kwela, sometimes replaced by the saxophone). It is accompanied by the guitar, perhaps also with bass and drums. Sometimes this texture is augmented by an additional chorus of pennywhistles, playing accompanimental figures in harmony.<sup>234</sup> Pennywhistles in B-flat and high G are most common in kwela, and are typically of the kind made of a metal sheet; with the metal pennywhistles, the blowing edge can be bent down slightly for more volume and robustness of tone.<sup>235</sup> More recent styles of pennywhistles with plastic mouthpieces cannot be altered in this way, and tend to have a longer beak which is unsuitable for the specialized kwela embouchure.

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<sup>227</sup> Ibid., 115-117.

<sup>228</sup> Ibid., 138.

<sup>229</sup> Ibid., 115.

<sup>230</sup> Larsen, 162.

<sup>231</sup> Ibid., 244-245.

<sup>232</sup> Ibid., 154.

<sup>233</sup> Ibid. 251-252.

<sup>234</sup> Allen, 229-231.

<sup>235</sup> Ibid., 243-245.

The kwela embouchure involves taking the mouthpiece deeply into the mouth, so that the lips partially cover the duct window. To facilitate this, the pennywhistle is rotated 45 degrees in one direction, and the head tilted 45 degrees in the opposite direction, so that the mouthpiece essentially enters the mouth turned 90 degrees from the “normal” position. Partially covering the window allows more air to be used without overblowing, and also lowers the pitch, so that in some cases a B-flat whistle, for example, might sound in A. A rich, “buzzy” sound is produced.<sup>236</sup> The lips can also be used to vary the amount of window that is covered, altering the pitch and allowing for effects such as pitch bends. The large amount of mouthpiece inside the mouth makes tongued articulation difficult, so kwela players tend to use a glottal (“K”) articulation.<sup>237</sup>

Kwela fingering uses something similar to the “piper’s grip” used by Irish pennywhistlers on larger whistles. In kwela, this grip is used for pennywhistles of all sizes because it facilitates half-holing; the tips of the fingers are raised, slightly opening the toneholes beneath the pads of the middle joints of the fingers. This technique is used to produce chromatic notes, and for the pitch bends that are ubiquitous in kwela.<sup>238</sup> Growls produced in the throat, breath accents, and trills are also commonly used.<sup>239</sup>

Pennywhistles are widely available in the Western world and mass-produced models may even be available in local music stores. These pennywhistles, if carefully selected, may be suitable for situations that call for a traditional Irish sound, but may also suffer from poor intonation and other problems. A few specialty shops stock fine handmade pennywhistles, but many pennywhistle players prefer to buy these more expensive pennywhistles directly from

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<sup>236</sup> Ibid., 246.

<sup>237</sup> Ibid., 246.

<sup>238</sup> Ibid., 245.

<sup>239</sup> Ibid., 246-247.

pennywhistle makers. A benefit of working directly with a pennywhistle maker is that in some cases the pennywhistles can be made or adjusted to suit to the player's preferences. A possible option for woodwind doublers is to consider all-plastic instruments from any of several makers, which have the benefits of good intonation, consistent tone, availability in many keys, and relatively low cost.

### Case Study

The film *The Lord of the Rings: The Fellowship of the Ring* uses the pennywhistle to evoke a peaceful, pastoral setting. Style and ornamentation resembling those used in Irish traditional music are employed. The following excerpts are transcribed from the soundtrack recording and use ornament notation borrowed from the Larsen method, as well as grace notes indicating ornamental figures that are played slowly enough to make individual notes clear.

"Concerning Hobbits"  
 0:00 Pennywhistle in D  
 ♩ = 104

5

9

2:15

13 ♩ = 76

16

19

**CONCERNING HOBBITS**  
 By HOWARD SHORE  
 © 2001 NEW LINE TUNES  
 All Rights Administered by WB MUSIC CORP.  
 All Rights Reserved Used By Permission

Example 6: Excerpts using pennywhistle in film *The Lord of the Rings: The Fellowship of the Ring* (2001).<sup>240</sup> Transposed for pennywhistle in D; sounds one octave higher.

<sup>240</sup> *The Lord of the Rings: The Fellowship of the Ring: Original Motion Picture Soundtrack* (Reprise, 2001).



The style of the excerpts as played on the soundtrack recording is essentially legato, with emphasis given to certain notes through ornamentation or inflection. The marking placed above the F-sharp<sub>4</sub> in measure 4, and used throughout the excerpts, is that recommended by Larsen to indicate a cut.

A few specific cuts are worth examining as examples of how to perform the cuts throughout the excerpts. The cut in measure 4 is performed by fingering the preceding D<sub>4</sub> (six toneholes closed), then proceeding to an altered version of the F-sharp<sub>4</sub> fingering, with the first, second, and fourth toneholes closed, the third tonehole being open briefly to execute the cut. This fingering is used for the briefest possible moment before closing the third tonehole to produce a clear F-sharp<sub>4</sub>. The cut on the E<sub>4</sub> in measure 6, preceded by a higher note, is played by playing the preceding F-sharp<sub>4</sub> with its normal fingering (four toneholes closed), then simultaneously closing the fifth tonehole and opening the fourth. The fourth tonehole remains open for only an instant before closing again; this appears to be a momentary flick of the right index finger at the onset of the E. The cut on the F-sharp<sub>4</sub> in measure 6, approached by descending leap, is accomplished by a flick of the left hand middle finger at the beginning of the F-sharp<sub>4</sub>.

The curved markings, such as that above the B<sub>4</sub> in measure 5, indicate upward slides, performed by half-holing. The slides used here, mostly occurring in ascending stepwise motion, are performed with relative ease. A slide on a B<sub>4</sub>, preceded by an A<sub>4</sub>, is accomplished simply by uncovering the left middle finger's tonehole in a slow, smooth motion. A slide preceded by a leap, such as that in measure 17, is slightly more difficult to play, and may be best approached by moving the fingers that differ between the two notes in a synchronized smooth motion.

The pennywhistle player on the soundtrack recording uses a whistle with minor breathiness and a slight rasp on certain notes, with a generous breath vibrato.

## Bibliography

Allen, Lara. "Kwela: The Structure and Sound of Pennywhistle Music." In *Composing the Music of Africa: Composition, Interpretation, and Realisation*, ed. Malcolm Floyd. Ashgate Studies in Ethnomusicology. Aldershot, England: Ashgate, 1999.

This text includes discussion of South African kwela music, including extensive information on the types of pennywhistles used, common modifications to the instrument by kwela musicians, performance practice, and use of the "pennywhistle chorus" as an accompanying ensemble.

Conway, Pat. *Soodlum's Irish Tin Whistle Tutor*. Dublin: Soodlum Music Co., 1977.

This is primarily a collection of authentic repertoire and some popular non-authentic tunes, with brief text on playing technique. Notation is Western, with fingerings given beneath the staff for each note.

Dannatt, Norman. "The Clarke Pennywhistle." *The Woodwind Quarterly*, no. 12 (1996): 36-44.

Dannatt provides a brief history of the Clarke company and its whistles, widely regarded as the first pennywhistles.

\_\_\_\_\_. *The History of the Tinwhistle: The Story of Robert Clarke and His Famous Tinwhistle: 1843 to the Present Day*. Hythe, England: Corunna, 2005.

This is a comprehensive history of the Clarke company and its whistles. It includes profiles of contemporary pennywhistle players.

\_\_\_\_\_. "Tin whistle [whistle, pennywhistle, flageolet, Irish whistle]." In *The New Grove Dictionary of Music and Musicians*, ed. Stanley Sadie, 25:503-504. London: Macmillan, 2001.

\_\_\_\_\_. "Pennywhistle [tin whistle]." In *The New Grove Dictionary of Music and Musicians*, ed. Stanley Sadie, 19:314. London: Macmillan, 2001.

These articles discuss the history and organology of the pennywhistle. The presence of two separate articles seems to reflect the author's idea that "tin whistle" is a generic term, and that "pennywhistle" is appropriately applied only to whistles made by the Clarke company.

Hannigan, Steáfán Ledsam David. *The Low Whistle Book*. Loughborough, Leics, U.K.: Sin É Publications, 2000.

This is a unique method geared specifically toward the larger "low" whistles (pitched in A and lower). Most of the information here is applicable to pennywhistles of all sizes, but the

low-whistle-specific information is valuable. The book includes a compact disc with spoken word and musical examples.

Johnston, Thomas F. "The Social Context of Irish Folk Instruments." *International Review of the Aesthetics and Sociology of Music* 26, no. 1 (1995): 35-59.

This article includes discussion of pennywhistles, including whistle types, relationships with other traditional instruments, and performance practice.

Kubik, Gerhard. "Kwela." In *The New Grove Dictionary of Music and Musicians*, ed. Stanley Sadie, 14:63-66. London: Macmillan, 2001.

This *New Grove Dictionary* entry discusses the prominent role of the pennywhistle in South African kwela music, including aspects of performance practice.

Larsen, Grey. *The Essential Guide to Irish Flute and Tin Whistle*. Pacific, MO: Mel Bay Publications, 2003.

This is a comprehensive method for flute and pennywhistle in Irish traditional music. Larsen's emphasis is on style, especially ornamentation. The text introduces Larsen's methodical and clear approach to notating ornaments. Extensive exercises and authentic repertoire are included. A compact disc is also included, with musical examples, some of which are played on pennywhistle and some of which are played on flute. Chapters dedicated to the pennywhistle include information on types of whistles, proper technique, and performance practice.

Maguire, Tom. *An Irish Whistle Book: Complete Instruction Book for Learning the Irish Tin (or Penny) Whistle: Basics, Diagrams, Techniques, with Irish Song Airs and Dances*. Cork: Ossian, 1995.

This is a beginning method for the pennywhistle. It includes some basic music theory, an introduction to Western notation, and authentic repertoire (without ornamentation).

\_\_\_\_\_. *An Irish Whistle Tune Book: Suitable for Fiddle, Flute, Pipes, Concertina, Accordion, Mandolin, Etc.* Cork: Ossian, 1996.

This is a collection of traditional repertoire in Western notation, intended as a companion volume to Maguire's method book (listed above). It is also suitable for Irish flute. No ornamentation is provided.

\_\_\_\_\_. *The Tin Whistle Book*. Cork, Ireland: Ossian Publications, 1985.

This work is similar to *An Irish Whistle Book* by the same author (listed above). A notable feature of this volume is the illustrations of historical whistles, flageolets, and other related instruments, and facsimiles of historical advertisements from instrument makers.

McCullough, L. E. *The Complete Irish Tinwhistle Tunebook*. New York: Oak Publications, 2002.

The *Tunebook* contains 125 authentic Irish traditional tunes, listed by type in the table of contents. Some generic ornamentation markings are given. The book includes four compact discs with recordings of all the tunes played by McCullough, a highly-regarded pennywhistle player. This text is also suitable for Irish flute.

\_\_\_\_\_. *The Complete Irish Tinwhistle Tutor*. Pittsburgh: Silver Spear Publications, 1976.

*The Complete Irish Tinwhistle Tutor* is a well-known beginning method for the pennywhistle. It includes information on history and culture, selecting a pennywhistle, technique, and performance practice. It is sometimes criticized for a potentially misleading approach to notating ornamentation; Grey Larsen's method (listed above) sheds some light on this and offers an alternative scheme.

\_\_\_\_\_. "Style in Traditional Irish Music." *Ethnomusicology* 21, no. 1 (1977): 85-97.

This article includes discussion of phrasing, ornamentation, articulation, and other stylistic parameters, including comparison of regional styles.

Schultz, Glen [credited as "The Thin Weasel"]. "Pennywhistle." *The Woodwind Quarterly*, no. 8 (1995): 14-17.

This brief article features discussion of hand-making pennywhistles from wood, by the maker of the well-known "Thin Weasel" and "Water Weasel" whistles (the latter being made from PVC pipe). It includes measurements, techniques, and practical advice for whistlemaking.

Schaeffer, Deborah L. *Irish Folk Music: A Selected Discography*. Discographies, no. 31. New York: Greenwood Press, 1989.

This is an annotated discography of Irish traditional music. There is no indexing by instrument, but many (if not most) of the recordings listed indicate the use of pennywhistles. Recordings are indexed by musician and by tune name.

#### Selected Recordings

Bergin, Mary. *Feadóga Stáin*. Shanachie, 1979.

\_\_\_\_\_. *Feadóga Stáin 2*. Shanachie, 1993.

Bergin (b. 1949) is a recognized master of the Irish pennywhistle style.

Flook. *Rubai*. World Village, 2002.

Irish group Flook blends traditional Irish sounds—including virtuosic pennywhistle playing by Brian Finnegan—with contemporary influences.

Mashiyane, Johannes “Spokes.” *King Kwela*. Gallo, 1990.

Nkosi, West. *Rhythm of Healing: Supreme Sax and Penny Whistle*. Earthworks, 1993.

These are representative recordings by Mashiyane and Nkosi (1940 - 1998), two of the best known kwela pennywhistle players.

*The Alamo: Original Score*. Carter Burwell, composer. Hollywood Records, 2004.

*The Lord of the Rings: The Fellowship of the Ring: Original Motion Picture Soundtrack*.

Howard Shore, composer. Reprise, 2001.

*Titanic: Music from the Motion Picture*. James Horner, composer. Sony Classical, 1997.

These three film soundtracks make extensive use of the pennywhistle. *The Alamo* particularly features low whistles.

#### Organizations in North America

Alabama Celtic Association  
P.O. Box 724  
Trussville, AL 35173  
<http://www.celticalabama.net>

The Alabama Celtic Association maintains statewide listings of musicians and instructors, as well as Irish traditional music events.

Celtic Society of the Monterey Bay  
<http://www.celticsociety.org>

The Celtic Society of the Monterey Bay maintains listings of musicians, teachers, and music events in the Monterey Bay area of California.

Comhaltas Ceoltóirí Éireann North America  
<http://ccenorthamerica.infosaic12.com>

The Comhaltas Ceoltóirí Éireann (“Gathering of Musicians of Ireland”) is an organization based in Ireland with a strong North American arm. There are currently close to 50 local branches in the United States and Canada. CCÉ, or Comhaltas, offers instruction in Irish music (as well as language and dance), sponsors performances, conventions, and competitions, and supports scholarly work.

Irish American Heritage Center  
773 282-7035  
4626 North Knox Ave.  
Chicago, IL 60630  
<http://irish-american.org>

The Irish American Heritage Center sponsors a weekly traditional music session, and maintains listings of Chicago-area Irish music events.

Irish Music Association  
816 699-9950  
519 S Brookside Ave.  
Independence, MO 64053  
<http://www.irishmusicassociation.com>

The Irish Music Association maintains listings of musicians who play Irish traditional music, as well as related festivals and venues. In 2008 it held the first annual Irish Music Awards.

O'Flaherty Irish Music Retreat  
1320 Navaho Trail  
Richardson, TX 75080  
[www.oflahertyretreat.org](http://www.oflahertyretreat.org)

The O'Flaherty Irish Music Retreat offers three days of instruction in various Irish instruments, including the pennywhistle, in the fall.

Traditional Irish Music Education Society  
972 238-8724  
1320 Navaho Trail  
Richardson, TX 75080  
<http://www.irishtradmusic.org/>

The Traditional Irish Music Education Society supports Irish traditional music educational programs and performances. TIMES produces the annual O'Flaherty Irish Music Retreat (listed above) in Texas.

#### g. Recorder

The recorder, an endblown duct flute, is an instrument of the Western art music tradition. It is a period instrument in the sense that it reached a height of popularity in the Baroque period,

and then suffered a decline in the Classical and Romantic, during which time it was virtually replaced by the transverse flute.<sup>241</sup> It has experienced a revitalization since the 20<sup>th</sup> century, with renewed interest in its historical repertoire and performance practice, as well as active development of a modern repertoire.<sup>242</sup> The recorder's reputation has suffered somewhat due to its use by children in elementary school music curricula, though the instrument is a demanding one to play and capable of fine music making.

Recorders and their predecessors have existed since at least the Middle Ages. There are no complete extant specimens from this period, though plenty of documentary evidence exists.<sup>243</sup> Needless to say, any discussion of the instrument's performance practice in this period is largely speculative.

Recorders in the Renaissance were one-piece wide-bored instruments with large toneholes, and had a powerful, robust tone, especially in the lower octave.<sup>244</sup> Replicas of Renaissance instruments are available from a number of modern makers.<sup>245</sup>

Baroque instruments were made in three parts—headjoint, body, and footjoint—which allowed some adjustments for tuning and fingering comfort, and also facilitated fine adjustments to the bore by recorder makers. Baroque recorders feature a reverse conical bore, narrowing as it approaches the footjoint, which improves intonation and response. The alto (or “treble”) recorder rose to prominence as a solo instrument during the Baroque period, unlike its predecessors in the

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<sup>241</sup> Eve O'Kelly, *The Recorder Today* (Cambridge: Cambridge University Press, 1990), 31; Niall O'Loughlin, “The Recorder in 20th-Century Music,” *Early Music* 10, no. 1 (1982): 36.

<sup>242</sup> Hans-Martin Linde, *The Recorder Player's Handbook*, trans. Richard Deveson (London: Schott, 1991), 122-123; O'Kelly 1-10.

<sup>243</sup> Linde, 9.

<sup>244</sup> O'Kelly, 30; Linde, 3; Anthony Rowland-Jones, *Recorder Technique*, 2<sup>nd</sup> ed. (London: Oxford University Press, 1959), 13.

<sup>245</sup> Linde, 13.

Renaissance, which were rarely used as solo instruments.<sup>246</sup> The Baroque alto recorder inspired a large number of concerti, and was also used to great effect for obbligato parts in vocal music.<sup>247</sup> The recorder was also frequently used in consorts, chamber ensembles made up of recorders of various sizes.<sup>248</sup>

The recorders familiar to most people today are essentially Baroque recorders. Modern Baroque-style instruments are often slightly altered replicas of period recorders, adjusted to meet current pitch standards and to suit modern ideals of recorder tone.<sup>249</sup> A number of makers have also developed “modern” versions of the recorder, which seek to improve the instrument in various ways; the Baroque-style instrument remains predominant. Conservatory training on the recorder is available in the Western world, especially in schools with early music curricula.<sup>250</sup> The instrument’s modern repertoire includes works by composers as prominent as Paul Hindemith and Benjamin Britten.<sup>251</sup>

Recorders are traditionally made of dense hardwoods that are well suited to turning on a lathe.<sup>252</sup> The question of whether different woods produce different tone colors is a matter of some debate.<sup>253</sup> High-quality plastic instruments in all the common sizes are also available, which cost considerably less than comparable



Figure 7: A modern Baroque-style alto recorder.

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<sup>246</sup> Rowland-Jones, *Recorder Technique*, 13.

<sup>247</sup> Linde, 89, 91-92.

<sup>248</sup> *Ibid.*, 59.

<sup>249</sup> Rowland-Jones, *Recorder Technique*, 10.

<sup>250</sup> Linde, 124; O’Kelly, 17-18.

<sup>251</sup> O’Kelly, 40-46; O’Loughlin, 36-7.

<sup>252</sup> O’Kelly, 26.

<sup>253</sup> Rowland-Jones, *Recorder Technique*, 8.



wooden instruments and are not subject to cracking or warping.<sup>254</sup> Though the finest recorders are invariably made of wood, these plastic instruments may be suitable for many applications for woodwind doublers.

Modern instruments are most often tuned to A=440Hz (or close to it), but a number of true Baroque replica instruments are tuned to A=415Hz or another historical pitch standard.<sup>255</sup> Modern woodwind players will likely get the most use out of instruments at A=440Hz, unless playing with other Baroque replica instruments.

The most common modern sizes of recorder are sopranino, soprano (or “descant”), alto (“treble”), tenor, and bass.<sup>256</sup> Both smaller and larger sizes, as well as some intermediate sizes, also exist, but are rarely used. The common sizes are referred to, misleadingly, as being “in C” or “in F;” all play at concert pitch or an octave transposition thereof, and thus, in the nomenclature used by modern woodwind players, can all be considered to be in C. The C or F designations more accurately describe two parallel fingering systems; the C instruments (soprano and tenor) all play a C for their lowest note, while the F instruments (sopranino, alto, and bass) produce an F when the same fingering is employed.<sup>257</sup> The complete pattern of fingerings used on the C instruments applies to the F instruments as well, only transposed by a fourth.

The sopranino, soprano, and alto instruments in most cases have only fingered toneholes. The sopranino and even smaller recorders, such as the *garklein* in C, may present difficulties to some musicians due to the very closely-spaced toneholes; small fingers or very careful technique

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<sup>254</sup> O’Kelly, 19.

<sup>255</sup> Rowland-Jones, *Recorder Technique*, 10.

<sup>256</sup> Don Cowan, “More About Recorders,” *Music Educators Journal* 52, no. 1 (1965): 121; Carl F. Dolmetsch, “The Recorder or English Flute,” *Music & Letters* 22, no. 1 (1941): 68.

<sup>257</sup> O’Kelly, 10.

are required to play them fluently.<sup>258</sup> The tenor is large enough that it is often fitted with one or two keys to cover the lowest toneholes.<sup>259</sup> Two keys are preferable to one in that they allow playing both the low C and C-sharp, while single-keyed tenors cannot play the C-sharp. Bass recorders may have a number of keys, due to the very wide tonehole spacing.

Upright, relaxed posture is essential for good tone production.<sup>260</sup> The instrument should be held at a comfortable angle, usually 45 degrees or less from vertical.<sup>261</sup> The left hand is used to operate the higher toneholes; because the tonehole arrangement is not symmetrical, using the right hand on top is not practical. The weight of the instrument is supported by the lower lip and right thumb.<sup>262</sup> Larger instruments have thumbrests which aid in supporting the instrument, and some recorder players add thumbrests to their smaller instruments, as well. The footjoint may be rotated to facilitate the right little finger's reach.<sup>263</sup>

The bass recorder's size makes necessary a neckstrap or floor peg to support its weight.<sup>264</sup> Some basses have a crook or bocal, like that of a bassoon, to facilitate the instrument's large reach; other options are the direct-blow style (a straight endblown instrument with a mouthpiece like the smaller recorders) or the knick style (resembling a direct-blow instrument that has been bent to angle the mouthpiece toward the player).

The pads of the fingers' distal joints should be used to close the toneholes or to operate the keys.<sup>265</sup> The fingers should remain close to the toneholes or keys.<sup>266</sup> Most recorders use the

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<sup>258</sup> Rowland-Jones, *Recorder Technique*, 18.

<sup>259</sup> Rowland-Jones, *Recorder Technique*, 17.

<sup>260</sup> Linde, 28-29; Rowland-Jones, *Recorder Technique*, 25; Walter van Hauwe, *The Modern Recorder Player*, vol. 1 (London: Schott, 1984), 10.

<sup>261</sup> Linde, 29; Rowland-Jones, *Recorder Technique*, 25.

<sup>262</sup> Rowland-Jones, *Recorder Technique*, 26.

<sup>263</sup> *Ibid.*, 27.

<sup>264</sup> *Ibid.*, 18-20.

<sup>265</sup> Linde, 29; Rowland-Jones, *Recorder Technique*, 25.

<sup>266</sup> Linde, 29; Rowland-Jones, *Recorder Technique*, 25.

“Baroque” fingering system, also called the “English” system.<sup>267</sup> The “German” system is far less common, and unpopular with recorder players because its somewhat simpler fingering system is achieved at the expense of good intonation.<sup>268</sup> Cross fingerings are used extensively to give the recorder its full chromatic scale. Half-holing is a technical possibility but has not been a necessary part of the recorder tradition since the introduction of double holes for the right hand’s ring and little fingers.

The air requirements of the recorder are considerably less than those of the “modern” woodwinds, so fine breath control is required.<sup>269</sup> Abdominal breath support should be used, but the airstream should be neither too slack (causing flatness and unsatisfactory tone) nor too strong (causing shrillness, sharpness, and overblowing).<sup>270</sup>

Because of the recorder’s duct mouthpiece, the embouchure is rather less complex than that of the transverse flutes. The lips should seal completely around the tip of the mouthpiece, but without excess tension.<sup>271</sup> The tongue raises or lowers within the mouth to change the shape of the oral cavity, speeding or slowing the airstream as needed for register changes.<sup>272</sup> Linde recommends subvocalizing vowel sounds for the instrument’s different registers: “O” for the lowest notes, “A” for the middle range, and “Ü” for high notes.<sup>273</sup>

The recorder is distinguished from other duct flutes by the presence of a thumbhole.<sup>274</sup> The thumbhole serves its most important function when only partially opened, creating a vent to ease overblowing into the second octave. This allows the higher octave to be played with only

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<sup>267</sup> Linde, 31.

<sup>268</sup> Linde, 31; O’Kelly, 9-10; Cowan 120-1.

<sup>269</sup> Cowan, 122.

<sup>270</sup> Rowland-Jones, *Recorder Technique*, 28-31; Linde, 22-23; van Hauwe, vol. 1, 47.

<sup>271</sup> Linde, 29; Rowland-Jones, *Recorder Technique*, 37; van Hauwe, vol. 1, 16.

<sup>272</sup> Rowland-Jones, *Recorder Technique*, 85; van Hauwe, vol. 1, 29.

<sup>273</sup> Linde, 27.

<sup>274</sup> O’Kelly, 21-23.

minor adjustment to the airstream, so transitions between octaves are more agile and the octaves are better balanced in volume.<sup>275</sup> The technique of partially opening the thumbhole is a demanding one; the precise amount of opening affects pitch, tone, and response. The thumb must be kept very relaxed, and, as much as possible, the movement must be limited to the distal joint. The knuckle of the thumb is flexed, tilting the distal joint so that the thumbnail comes in contact, or near contact, with the edge of the thumbhole.<sup>276</sup> This allows for precise control of the opening of the thumbhole.

Breath pulse vibrato, produced according to the same technique used for the modern flute, oboe, and bassoon, is the most common vibrato technique used for the recorder.<sup>277</sup> A fingered vibrato technique, called *flattement*, was used in the Baroque period and has also been called for in 20<sup>th</sup>-century works.<sup>278</sup> Many period and modern tutors include detailed flattement instructions and fingerings.<sup>279</sup>

Tongued articulation, essentially identical in technique to that used on the modern flute, is standard practice for the recorder. The tip of the tongue touches the hard palate just behind the front teeth, blocking airflow, and releases the air to articulate notes.<sup>280</sup> This is similar to the tongue motion involved in pronouncing the letters “D” or “T.”<sup>281</sup> Double tonguing, using alternating “T” and “K” articulations, is also used.<sup>282</sup> The tongue is also frequently used to end

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<sup>275</sup> Rowland-Jones, *Recorder Technique*, 6.

<sup>276</sup> Rowland-Jones, *Recorder Technique*, 85; van Hauwe, vol. 1, 29.

<sup>277</sup> Rowland-Jones, *Recorder Technique*, 32; Cowan, 122; Linde, 27-28; van Hauwe, vol. 1, 64.

<sup>278</sup> Linde, 69-70; van Hauwe, vol. 1, 72-73.

<sup>279</sup> See Hotteterre, 83-85; van Hauwe, vol. 2, 72-75.

<sup>280</sup> Linde, 42.

<sup>281</sup> van Hauwe, vol. 1, 55-56; Rowland-Jones, *Recorder Technique*, 34.

<sup>282</sup> Rowland-Jones, 46.

notes, as a taper in the airflow may cause sagging pitch.<sup>283</sup> This must be done with the utmost delicacy to avoid abrupt note endings.

Recorders may be tuned to some extent by pulling in or pushing out at the headjoint and footjoint, though, as with modern woodwinds, this is a compromise at best.<sup>284</sup> Recorder intonation is tied closely to airflow, with a stronger breath driving pitch upward and a weaker one allowing it to drop. Individual notes may be humored in this way, but only so far as tone is not adversely affected. The pitch of individual notes may also be adjusted by the use of alternate fingerings.<sup>285</sup> Other options include shading (bringing the fingers close enough to open toneholes that the pitch is lowered somewhat) and what Anthony Rowland-Jones calls “slide-fingering,” slightly opening closed lower toneholes to raise the pitch.<sup>286</sup> The recorder’s sensitivity to airflow precludes dramatic dynamic contrasts; significant dynamic changes require special fingering techniques to compensate for changes in pitch.<sup>287</sup>

Recorder music uses Western notation. Parts for the bass and larger recorders are written in bass clef, and the tenor and higher instruments are written in treble clef.<sup>288</sup> The alto and tenor are written at actual sounding pitch. The soprano, sopranino, and bass sound one octave higher than written.<sup>289</sup>

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<sup>283</sup> Linde, 43; van Hauwe, vol. 1, 68.

<sup>284</sup> Rowland-Jones, *Recorder Technique*, 63.

<sup>285</sup> *Ibid.*, 61-62.

<sup>286</sup> *Ibid.*, 56-59.

<sup>287</sup> Rowland-Jones, *Recorder Technique*, 94-95; Cowan, 122.

<sup>288</sup> Rowland-Jones, *Recorder Technique*, 18-20.

<sup>289</sup> O’Kelly, 24-25.

Table 17: Recorder fingerings for chromatic scale. Notes shown indicate written pitch; soprano, soprano, and bass sound 8va.<sup>290</sup>

<b>Sopranino Alto</b>								
<b>Soprano Tenor</b>								
<b>Bass</b>								
<b>Sopranino Alto</b>								
<b>Soprano Tenor</b>								
<b>Bass</b>								

<sup>290</sup> Based on van Hauwe, vol. 1, 31.

Sopranino Alto								
Soprano Tenor								
Bass								
Sopranino Alto								
Soprano Tenor								
Bass								

Pre-Baroque ornamentation thought to be appropriate to the recorder includes trills and melismatic, improvisatory embellishments on longer notes.<sup>291</sup> Sacred music from these periods

<sup>291</sup> Linde, 68.

was likely performed with smooth, legato tonguing, while dance music would have been more detached.<sup>292</sup>

Baroque recorder style emphasized light, legato playing, with elegant articulation including portato and, for virtuosic flair, double-tonguing.<sup>293</sup> Baroque ornamentation practice will already be familiar to trained modern Western woodwind players, especially flutists, oboists, and bassoonists. Important ornaments include trills (starting from the upper note), appoggiaturas, double appoggiaturas (*Anschlag*, *Schleifer*), mordents, and turns. Flattened vibrato would have been used in the early Baroque, but breath vibrato gained in popularity throughout the Baroque period.<sup>294</sup>

The 20<sup>th</sup>-century recorder repertoire has explored possibilities including glissandi, multiphonics, microtones, extended range, alternate fingerings, and flutter tonguing.<sup>295</sup>

Recorders are widely available. Many local music stores stock inexpensive instruments for use in elementary school music curricula; professional woodwind players would be well advised to pay just a small amount more for finely-made plastic instruments. Inexpensive wooden recorders are also available, but rarely play as well as plastic instruments in the same price range. Fine wooden instruments are available at considerably higher cost, with a wide variety of options available for serious and committed recorder players.

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<sup>292</sup> Ibid., 63.

<sup>293</sup> Ibid., 101-104.

<sup>294</sup> Linde, 111-112; Rowland-Jones, 115-116.

<sup>295</sup> Linde, 127-8; O'Kelly, 51; the most complete discussion of 20<sup>th</sup>-century techniques is found in O'Kelly, 82-115.



## Case Study

The Broadway musical *Spamalot* uses the recorder for a Medieval sound. In the song “Brave Sir Robin,” the sopranino recorder is used as a solo and accompanimental instrument.

"Brave Sir Robin"  
 0:00  
 ♩ = 112  
*detached*

Example 7: Excerpt using recorder in Broadway show *Spamalot* (2004).<sup>296</sup> Transposed for soprano recorder; sounds one octave higher.

<sup>296</sup> Monty Python's *Spamalot: Original Broadway Cast Recording* (Decca Broadway, 2005).

On the recording from which the transcription was made, the sopranino recorder is played in a detached style, with no slurred notes anywhere in the excerpt. Breath vibrato is used on the longer notes.

Playing the smaller recorders requires fine breath control, especially if vibrato is used. The extensive use of the sopranino's upper range makes this excerpt especially hazardous. Musicians trained in modern woodwinds may instinctively try to improve the response of the upper notes by manipulation of the embouchure, but this can be counterproductive with the recorder. The venting of the thumb tonehole is key to successful playing in the upper register. To play the upper notes clearly and accurately, the left thumb must be kept relaxed and must open its tonehole to precisely the correct degree. The optimal size of the opening may vary from instrument to instrument and even from note to note, so some experimentation is in order to determine the best approach for the instrument and notes in question.

The sopranino recorder uses F-based fingerings, which may be somewhat unfamiliar to some woodwind musicians. The bassoon and the clarinet's lower register both use F fingerings, but neither is written in the range of this excerpt. A possibility for woodwind players who are less familiar with F recorder fingerings is to transpose the excerpt down a fourth and use C recorder fingerings, which will be more intuitive to flutists, oboists, saxophonists, clarinetists (at least in this register), and to those who got their first recorder training on the soprano instrument (in an elementary school music program, for example).

In measures 1-8, the recorder serves as a solo instrument. Throughout the remainder of the excerpt, it accompanies the vocal solo, playing strictly accompanimental material in measures 9-40, and then joining the vocal line in octaves through the end. The song ends abruptly (and humorously) after measure 47.

## Bibliography

Boeke, Kees. "Recorder Now." *Early Music* 10, no. 1 (1982): 6-9.

This article is a discussion of the recorder's role in the world of modern music, with pedagogical information including problems of technique, repertoire, and obtaining appropriate instruments.

Cowan, Don. "More About Recorders." *Music Educators Journal* 52, no. 1 (1965): 121-22.

Cowan gives an overview of the recorder family. The article includes some useful discussion of beginning recorder technique and some recommended recordings.

Dolmetsch, Carl F. "The Recorder or English Flute." *Music & Letters* 22, no. 1 (1941): 67-74.

Dolmetsch discusses the recorder and its revival in the twentieth century. He addresses performance issues of tone, intonation, and dynamics.

Griscom, Richard, and David Lasocki. *The Recorder: A Research and Information Guide*. Routledge Music Bibliographies, ed. Brad Eden. New York: Routledge, 2003.

This reference provides annotated bibliography entries on over 2,000 recorder-related sources, plus essays on obtaining recorder-related sources and on the future of recorder research.

Hotteterre le Romain, Jacques. *Principles of the Flute, Recorder, & Oboe*, trans. David Lasocki. New York: Frederick A. Praeger, 1968.

This is a modern translation of the early eighteenth-century treatise. It includes facsimiles of fingering charts from the original edition. This is a useful source for authentic historical performance practice.

Hunt, Edgar. "The Recorder and Its Music." *Proceedings of the Royal Musical Association* 75 (1948): 39-51.

Hunt discusses history, repertoire, and organology, especially the various sizes and keys of recorders and their use.

\_\_\_\_\_. *The Recorder and Its Music*. London: Herbert Jenkins Ltd., 1962.

This is a greatly expanded version (almost 200 pages) of the article listed above.

Juritz, J. W. F. "Recorder Fingerings." *The Galpin Society Journal* 13 (1960): 91-92.

Juritz provides suggestions for fingering the highest notes of the alto recorder, including his technique of using the knee or an added key to stop the bell of the instrument.

Lasocki, David. "Recorder." In *The New Grove Dictionary of Music and Musicians*, ed. Stanley Sadie, 21:37-53. London: Macmillan, 2001.

Lasocki discusses the recorder primarily from musicological and organological perspectives. This is useful as a starting point for locating authentic repertoire, and for an overview of performance practice in the Renaissance and Baroque periods, as well as recorder performance practice in contemporary music.

Linde, Hans-Martin. *The Recorder Player's Handbook*, trans. Richard Deveson. London: Schott, 1991.

Linde gives an overview of organology and technique. The text also includes detailed discussion of performance practice with regard to historical style periods and the twentieth century.

O'Kelly, Eve. *The Recorder Today*. Cambridge: Cambridge University Press, 1990.

O'Kelly provides a detailed history of the recorder since its revival around the turn of the twentieth century. Also included is thorough discussion of modern extended techniques with musical examples from the literature, including graphic notation, electronics, and more.

O'Loughlin, Niall. "The Recorder in 20th-Century Music." *Early Music* 10, no. 1 (1982): 36-37.

O'Loughlin discusses repertoire and techniques for the recorder in avant garde music.

Rigby, Fred Frankland. *Playing the Recorders*. New York: St. Martin's Press, n.d.

This text is notable for its discussion of various sizes of recorders and the issues unique to each, as well as discussion of consort playing.

Rowland-Jones, Anthony. *Playing Recorder Sonatas: Interpretation and Technique*. Oxford: Clarendon Press, 1992.

This work discusses performance practice with regard to Baroque style. It includes text related to specific major sonatas as well as general advice.

\_\_\_\_\_. *Recorder Technique: Intermediate to Advanced*. 2<sup>nd</sup> ed. London: Oxford University Press, 1986.

This text addresses aspects of recorder performance, including technique, practicing, and repertoire.

Thomson, John Mansfield, ed. *The Cambridge Companion to the Recorder*. Cambridge: Cambridge University Press, 1995.

This is a collection of in-depth essays by leading recorder experts, covering various aspects of history, repertoire, and more. It also includes an annotated bibliography of related reading.

van Hauwe, Walter. *The Modern Recorder Player*. 2 vols. London: Schott, 1984.

This is a serious, comprehensive recorder method. It is a beginning method in terms of technique, but assumes a strong musical background.

Waitzman, Daniel. *The Art of Playing the Recorder*. New York: AMS Press, 1978.

This is a thorough pedagogical treatise, with special attention given to types of recorders, keywork on larger instruments, and venting and half-holing techniques.

Wollitz, Kenneth. *The Recorder Book*. New York: Alfred A. Knopf, 1982.

Wollitz's comprehensive pedagogical text includes chapters on technique, historical performance practice, ensemble playing, selecting instruments, and repertoire.

### Selected Recordings

Brüggen, Frans. *Italian Recorder Concertos*.

Brüggen (b. 1934) performs Baroque concerti.

Linde, Hans-Martin. *Music for a bird*. Wergo, 1990.

German recorder virtuoso Linde (b. 1930) plays his own contemporary solo and chamber music for recorder, including extended techniques.

Little Consort Amsterdam. *Salve Regina*. Channel Classics, 1990.

This recording includes Medieval works by Machaut and anonymous composers, played by a recorder consort.

Van Hauwe, Walter. *Telemann*. Globe, 1989.

Van Hauwe plays works Baroque works for recorder alone and with continuo.

*Monty Python's Spamalot: Original Broadway Cast Recording*. John Du Prez and Eric Idle, composers. Decca Broadway, 2005.

This Broadway musical uses the recorder to evoke a Medieval setting.

### Organizations in North America

American Recorder Society  
800 491-9588  
1129 Ruth Dr.  
St. Louis, MO 63122-1019  
<http://www.americanrecorder.org>

The ARS publishes *American Recorder* magazine and a newsletter, supports recorder performances and educational projects, and maintains teacher listings. The ARS currently lists over 100 local chapters and consorts in the United States and Canada.

American Recorder Teachers Association  
<http://arta-recorder.org>

ARTA maintains listings of recorder teachers, and publishes the *Recorder Education Journal* and the *ARTAfacts* newsletter.

Early Music America  
888 SACKBUT (888 722-5288)  
2366 Eastlake Ave. E. #429  
Seattle, WA 98102  
<http://earlymusic.org>

EMA publishes *Early Music America Magazine* and maintains listings of teachers of recorder and other early music instruments.

### h. Shakuhachi

The shakuhachi is an endblown bamboo flute associated with traditional Japanese music.

The name of the instrument is actually a measurement; a *shaku* is an ancient Japanese unit of

length equivalent to about 30.3 centimeters (or 11.9 inches) and divided into ten *sun*. *Hachi* is the number eight. Thus, *shakuhachi* refers to a length of one shaku and eight sun, or 1.8 shaku.

Though the term *shakuhachi* can therefore only be applied precisely to an instrument of that length, it is also commonly understood to refer to an entire family of instruments, which may range in length from about 1.3 shaku to over 3 shaku. In English, sizes other than the common 1.8 shakuhachi are often referred to by their size, as in “1.6 shaku.” The term *shakuhachi* should be regarded in the following text as referring to an instrument of any size unless otherwise noted.

Table 18: Common sizes of shakuhachi, and their lowest basic pitches

Length (shaku)	Lowest basic pitch
1.6	E <sub>4</sub>
1.7	D-sharp <sub>4</sub>
1.8	D <sub>4</sub> (most common)
1.9	C-sharp <sub>4</sub>
2.0	C <sub>4</sub>

The shakuhachi is commonly made in two parts, with the bamboo piece divided between the third and fourth holes (between the left hand index and ring fingers). This makes the shakuhachi somewhat more portable, but the primary reason for the division into two joints seems to be that it facilitates adjustment of the bore in the shakuhachi making process.<sup>297</sup>

The *utaguchi*, or blowing edge, may be made simply by cutting the bamboo to a sharp angle, but fine shakuhachi usually have an inlaid edge of animal horn (usually water buffalo) or a synthetic substitute.<sup>298</sup> Inlaid edges are more durable and less prone to warping or cracking; they

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<sup>297</sup> Christopher Blasdel and Kamisango Yuko, *The Shakuhachi: A Manual for Learning; Learning to Play* (Tokyo: Ongaku no Tomo Sha, 1988), 3.

<sup>298</sup> Tanimura Ko, “The Shakuhachi,” *The Encyclopedia of Musical Instruments* (Tokyo: Tokyo Ongakusha, 1990), 86.



also lack the natural grain of the bamboo and may be better suited to making a smooth, precisely-shaped edge.

Though it is used in some traditional Japanese ensembles, the most recognizable shakuhachi music is the genre of *honkyoku*, meditative solo pieces that are characterized by highly flexible use of tone color, rhythm, pitch, and dynamics.

The instrument is held at approximately a 45-degree angle from vertical (except in the case of certain techniques to be discussed below).<sup>299</sup> As with Western woodwind instruments, good posture and deep, abdominal breathing are of vital importance to tone production.<sup>300</sup>

The embouchure, like that of the Western flute, is highly variable and personalized. Christopher Blasdel gives the following description of the shakuhachi embouchure:

First, make a small, concentrated opening with your lips, slightly pursed. Rest the shakuhachi lightly on your lips with the inserted blowing edge barely spaced from the lips. The edge of the bamboo opposite the mouthpiece insert should rest lightly but securely in the chin dimple below your lips. . . Blow across the mouthpiece insert as if you were blowing across a bottle top or a tightly held piece of cellophane.<sup>301</sup>

Masayuki Koga's instruction is more detailed and includes a number of photographs and illustrations. He stresses tongue position (keeping the tongue low in the mouth, and touching the backs of the lower front teeth), a small aperture, relaxed facial muscles, and wet lips; he also emphasizes that the jaw should be dropped and moved slightly



Figure 8: A shakuhachi.

<sup>299</sup> David Hughes, "Shakuhachi," in "Japan," in *The New Grove Dictionary of Music and Musicians*, ed. Stanley Sadie (London: Macmillan, 2001): 200.

<sup>300</sup> Blasdel and Kamisango, 21.

<sup>301</sup> Blasdel and Kamisango, 23.

forward to create space between the teeth and to align the upper and lower teeth vertically.<sup>302</sup>

Richard Keeling describes the embouchure as a “relaxed smile” with the center of the lips “focused and shaped.”<sup>303</sup> Ralph Samuelson indicates that “the lower lip must be stretched without losing the relaxation of the muscles.”<sup>304</sup>

Higher notes are achieved by overblowing to higher partials. Masayuki suggests pushing the tongue slightly forward and closing the jaw somewhat in order to overblow to the second octave.<sup>305</sup> Keeling recommends an aperture that is a “tight, narrow slit” for higher notes, as opposed to “looser and “more rounded” for notes in the lowest octave.<sup>306</sup>

The shakuhachi traditionally has five finger holes, one for the top hand’s thumb and four covered by the index and ring fingers; the middle fingers and right thumb, along with the chin, support the weight of the shakuhachi. The left hand is placed on top by most players; using the right hand on top is equally possible though less common.<sup>307</sup> Use of the left hand above the right will be assumed hereafter.

The holes are traditionally numbered from the bottom up, which may surprise musicians trained in the West: the hole nearest the bell end is the first hole, and the thumb hole, closest to the embouchure, is the fifth.<sup>308</sup> Shakuhachi with additional holes are also available; these may

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<sup>302</sup> Masayuki Koga, *Shakuhachi: Japanese Bamboo Flute* (Navarro, CA: Japanese Music Institute of America, 1978), 5-13.

<sup>303</sup> Richard Keeling, “Shakuhachi Music of the Kinko School: Techniques and Melodic Embellishment” (M.A. thesis, University of California-Los Angeles, 1975), 52.

<sup>304</sup> Ralph Samuelson, “Some Aspects of the Kinko Ryu Honkyoku, Including a Study of the Pattern-Units of *Kokû Reibo*” (M.A. thesis, Wesleyan University, 1971), 21.

<sup>305</sup> Masayuki, 76.

<sup>306</sup> Keeling, 52.







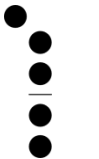
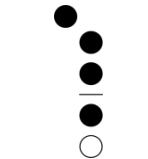
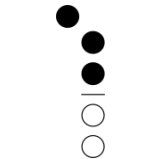
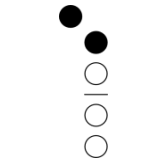
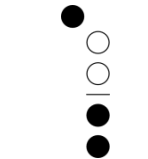
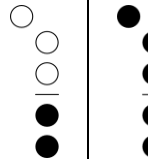
<sup>307</sup> Masayuki, 14; Samuelson, 20.

<sup>308</sup> Tanimura, 85; Blasdel and Kamisango, 18.

ease fingering of certain passages but are generally frowned upon by purists as lacking the characteristic sound of the five-hole instrument.<sup>309</sup>

The basic scale of the 1.8 shakuhachi corresponds approximately to a Western pentatonic scale: D<sub>4</sub>, F<sub>4</sub>, G<sub>4</sub>, A<sub>4</sub>, C<sub>5</sub>, D<sub>5</sub>. This pattern overblows at the octave, and skilled players use additional fingerings to proceed into a third octave.<sup>310</sup> Instruments of other sizes maintain the same interval pattern, though transposed.

Table 19: Fingerings for basic 1.8 shakuhachi scale<sup>311</sup>

(Also 8va) 	(Also 8va) 	(Also 8va) 	(Also 8va) 	(Also 8va) 	(Also 8va) 
					

The basic scale is expanded to a full chromatic scale (and even into microtones) through the techniques of *meri* and *kari*. Meri, lowering the pitch of a note, may be accomplished by the partial covering of an open hole with the fingers, by tilting the shakuhachi away from the body, by tilting the head downward, by using the embouchure to aim the airstream downward, by decreasing the speed of the airstream, or by combination of two or more of those techniques. The term *chû-meri* indicates lowering the pitch of a basic scale note by a small amount (a half step for most fingerings), and *meri* indicates lowering by a larger amount (a whole step for most fingerings). Kari, raising the pitch of a note, is accomplished by some combination of bringing the shakuhachi in close to the body, tilting the head slightly upward, using the embouchure to

<sup>309</sup> Tanimura, 123, 178.

<sup>310</sup> Blasdel and Kamisango, 37; Masayuki, 24.

<sup>311</sup> Based on Blasdel and Kamisango, 25.

aim the airstream upward, and increasing the speed of the airstream. Kari is more rarely used and the pitch change is often less than a half step. Both meri and kari affect the tone as well as the pitch of a note, and these variations in tone are considered essential to the characteristic sound of the shakuhachi.<sup>312</sup>

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<sup>312</sup> Blasdel and Kamisango, 39-42; Masayuki, 33, 84.

Table 20: Fingerings for expanded chromatic 1.8 shakuhachi scale.<sup>313</sup> Negative numbers below fingerings indicate how many half steps the fingered pitch must be lowered using meri techniques (-1 = chû-meri, -2 = meri).


Special techniques associated with the shakuhachi include a pitch vibrato accomplished by a nodding motion of the head (*tateyuri*), a loudness vibrato produced by shaking the head

<sup>313</sup> Based on Blasdel and Kamisango 40, Keeling 53-55, Masayuki 100-101, Tom W. Deaver, *Ichiyo Shakuhachi Manual*, vol. 1 (Nagano Ken, Japan: n.p., 1976), 10-11.

side-to-side (*yokoyuri*), microtonal and timbral trills, portamento, explosive breath attacks (*muraiki*), flutter-tonguing, and wide variations in tone color.<sup>314</sup>

A vocabulary of conventional ornamentations makes up an important part of the shakuhachi's performance practice. Full discussion of these is beyond the scope of this document; thorough descriptions of the ornamentation tradition can be found in Blasdel, Keeling, and Samuelson, or they may be learned aurally.<sup>315</sup> Some of the simpler ornaments include grace notes (approaching from either above or below a longer note) and pitch bends (up to the start of a note, down at the end of a note, or downward and then returning to pitch within the duration of a note).

The tongued articulation familiar to Western woodwind players is not traditionally used on the shakuhachi, though it is a technical possibility. Repeated tones played on the same exhalation are articulated with the fingers, by either striking an open hole (a technique called *utsu*) or by briefly opening and reclosing a hole (*osu* or *yuru*).<sup>316</sup>

The finest shakuhachi are virtually always made from bamboo, but more budget-conscious models made of wood or plastic are also available, and some of these may even be suitable for professional use by woodwind doublers.

Some bamboo instruments include part of the root section of the bamboo at the end of the lower joint. This is considered cosmetically desirable and increases the instrument's value, and may possibly affect its playing characteristics since the inner diameter of the bamboo generally narrows at the root; some players and makers believe that the presence or absence of the root end has no effect on sound. The root end may also be bent slightly outward by the shakuhachi maker

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<sup>314</sup> Tanimura, 107-108, Keeling, 51, 77-108.

<sup>315</sup> Blasdel and Kamisango, 45-51; Keeling, 77-111; Samuelson, 58-121.

<sup>316</sup> Tanimura, 108; Blasdel and Kamisango, 35, Masayuki, 28.

as an additional cosmetic touch. The color or natural markings of the bamboo are thought to be a matter of preference and do not affect sound.<sup>317</sup>

The inner bore of the shakuhachi may in some cases be reshaped by the application of a paste called *ji*. Instruments made with this paste (*jiari* shakuhachi) and those made without (*jinashi* shakuhachi) are often given a final coat of lacquer in the bore. This helps protect the bamboo from cracking due to moisture inside the instrument.<sup>318</sup>

Most readily available shakuhachi are made according to the requirements of the Kinko-ryu, or Kinko school of shakuhachi playing. Instruments of other schools may have very slight differences in bore geometry and playing characteristics. Kinko-style instruments may be identified by their trapezoid-shaped utaguchi. Shakuhachi can be purchased from a number of makers and dealers in North America. Some makers only make instruments to order; this may mean a delay of months or even years before the instrument is completed.

Traditional shakuhachi notation uses Japanese characters and is read in vertical columns from right to left. This system, being unfamiliar to Western musicians, is of little immediate use to most woodwind doublers. Shakuhachi music written for theater or film scores will, in most cases, be better written in Western notation, perhaps with additional written performance instructions where necessary. (At least one notable expert believes that authentic shakuhachi music cannot be adequately notated using the Western system.<sup>319</sup>) In cases where a size other than 1.8 shaku is desired, woodwind players may find it convenient if the music copyist treats these as transposing instruments (with the lowest basic note of the instrument notated as D<sub>4</sub>) rather than notating at concert pitch.

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<sup>317</sup> Tanimura, 98.

<sup>318</sup> Tanimura, 91-92.

<sup>319</sup> Dan E. Mayers, "The Unique Shakuhachi," *Early Music* 4, no. 4 (1976): 467.

## Case Study

In the musical score to the film *Jurassic Park*, the shakuhachi is used out of the context of Japanese traditional music, providing unusual effects combined with Western instruments. Composer John Williams is thought to have chosen the shakuhachi because it “sounds like a dinosaur’s cry.”<sup>320</sup> The range and pitch content of these excerpts is best suited to the common 1.8 shaku instrument.

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<sup>320</sup> Valerie J. Nelson, “Masakazu Yoshizawa, 57; played Japanese flute in films,” *Los Angeles Times*, November 16, 2007. Note that the article actually quotes Yoshizawa, not Williams.



"Opening Titles" 0:17  $\bullet = 36$

breath noise

"Dennis Steals the Embryo" 1:39  $\bullet = 116$

3 multiphonic timbre trill

6 multiphonic

9 breath noise

12 2:51

Example 8: Excerpts using shakuhachi in film *Jurassic Park* (1993).<sup>321</sup> Notated at sounding pitch for 1.8 shaku.

The first excerpt uses only three notes, two of which are part of the shakuhachi's basic scale. Meri technique, especially tilting of the head and/or instrument, is used for the pitch bend up to the  $F_5$  in measure 1. The use of this technique may in itself provide the additional breath noise heard on the soundtrack recording; additional breath noise can be achieved by increasing

<sup>321</sup> *Jurassic Park: Original Motion Picture Soundtrack*. (MCA, 1992).

the size of the aperture between the lips. The descending pitch bend at the end of the  $F_5$  may also be achieved with meri technique; the following  $C\text{-sharp}_5$  is articulated, so the pitch bend does not necessarily connect the two notes smoothly. The  $C\text{-sharp}_5$  may be played with either of the fingerings given in the extended fingering chart (Table 20, see page 122), or, on some instruments, may be played with the left hand index and ring finger toneholes closed (thumbhole open).

The multiphonic sound that begins the second excerpt in measure 3 can be accomplished by maintaining the proper embouchure for the  $F_4$ , and using a forceful airstream to overblow it to the partial an octave higher, allowing the higher note to be rather sharp, and ideally creating a split tone. The tremolo figure in the same measure may be executed by fingering the  $G_4$  normally and raising the left hand index finger to produce approximately a  $B\text{-flat}_4$  (the pitch need not be precise).

The timbre trill in measure 5 can be achieved by trilling the left hand ring finger against the edge of the tonehole, disrupting the airstream enough to be audible but not significantly affecting pitch.

The multiphonic sound in measure 6 can be accomplished by fingering the  $D_4$  and using a narrowed aperture and increased airflow to produce the higher partials. Rapid grace notes in measure 7 may be played by fingering the  $B\text{-flat}_4$  with the thumb and left ring finger, then simply adding the left index finger for the  $G_4$ . The  $A\text{-flat}_4$  is played using meri technique, possibly including shading of the left ring finger tonehole.

The breath noise in measure 11 may happen naturally as part of a dramatic crescendo, but can be increased by opening the aperture somewhat. The  $C$  grace notes in measure 12 can both

be played omitting the right hand for speed; the higher C can be produced by combining the altered fingering with a sudden burst of air.

Throughout, precision of rhythms and even pitches seems to be of secondary importance to overall mood; it is likely that some or all of the gestures were improvised by the shakuhachi player.

### Bibliography

Berger, Donald Paul. "The Shakuhachi and the Kinko Ryu Notation." *Asian Music* 1, no. 2 (1969): 32-72.

Berger gives an overview of history, organology, and performance practice, but the bulk of the text is dedicated to Kinko-ryu notation and a method of translation to and from Western notation.

Blasdel, Christopher. *The Single Tone: A Personal Journey into Shakuhachi Music*. Tokyo: Printed Matter Press, 2005.

This book is useful for its insights into the culture and philosophy surrounding the shakuhachi and its music, from the perspective of a native Westerner who has thoroughly absorbed Japanese culture.

Blasdel, Christopher, and Kamisango Yuko. *The Shakuhachi: A Manual for Learning; Learning to Play*. Tokyo: Ongaku no Tomo Sha, 1988.

This is a beginning method book for the shakuhachi. It uses primarily Western notation, with some Kinko-ryu provided as well. Especially useful are the discussion and examples of common ornamentation patterns and their proper execution. It also includes text on history and repertoire.

Deaver, Tom W. *Ichiyo Shakuhachi Manual*. Nagano Ken, Japan: n.p., 1976.

This is a beginning method book for the shakuhachi, in two volumes. The text is in English, liberally sprinkled with Japanese characters. Emphasis is given to tradition and cultural context. All of the notation is Kinko-ryu (explained in the text).

Grous, Robert. *Introductory Manual for Kinko Honkyoku*. Willits, CA: Chieh Publications, 1978.

Grous gives an overview of the Honkyoku shakuhachi tradition with cultural context. He includes basic playing technique and explanation of Kinko-ryu notation.

Hughes, David. "Shakuhachi." In "Japan," in *The New Grove Dictionary of Music and Musicians*, ed. Stanley Sadie, 12:831-6. London: Macmillan, 2001.

This article subsection is much more detailed than the standalone "Shakuhachi" *New Grove* article. It includes sections on instrument construction, notation, and performance practice, including differences between schools of shakuhachi playing.

Keeling, Richard. "Shakuhachi Music of the Kinko School: Techniques and Melodic Embellishment." M.A. thesis, University of California-Los Angeles, 1975.

Keeling makes an exhaustive examination of shakuhachi technique, including ornamentation and extended techniques. The text includes musical examples in Western notation, Kinko-ryu notation, and a graphical notation system devised by Keeling.

Osborne, Nigel, and Peter Nelson, eds. *Contemporary Music Review* 8, part 2, "Flute and Shakuhachi," issue ed. Kondo Jo and Joaquim Bernítez (1994).

This full issue of *Contemporary Music Review* is dedicated to the shakuhachi and its relationship to other flutes. It includes articles and interviews relevant to the shakuhachi and its music, especially contemporary music.

Lee, Riley Kelly. "Fu Ho U Vs. Do Re Mi: The Technology of Notation Systems and Implications of Change in the Shakuhachi Tradition of Japan." *Asian Music* 19, no. 2 (1988): 71-81.

This article describes the *fu ho u* system of shakuhachi notation, an ancient system predating Kinko-ryu and Western notation.

Lependorf, Jeffrey. "Contemporary Notation for the Shakuhachi: A Primer for Composers." *Perspectives of New Music* 27, no. 2 (1989): 232-51.

This is a practical guide to the sounds and techniques unique to the shakuhachi, and includes suggestions for indicating them in Western notation. A brief discography is also included. This text is useful as an introduction to the sound and repertoire of the instrument.

Masayuki Koga. *Shakuhachi: Japanese Bamboo Flute*. Navarro, CA: Japanese Music Institute of America, 1978.

This is a fairly comprehensive method for the shakuhachi. It includes extensive text and diagrams on embouchure, oral cavity formation, posture, and hand position. It introduces and uses Kinko-ryu notation.

Mayers, Dan E. "The Shakuhachi." *Early Music* 3, no. 3 (1975): 299.

Mayers writes a short letter to the editor with insightful comparisons between the shakuhachi and modern Boehm-style flute, especially as regards extended techniques. He urges further scholarly study of the instrument.

\_\_\_\_\_. "The Unique Shakuhachi." *Early Music* 4, no. 4 (1976): 467.

This short article is perhaps intended as a follow-up to Mayers's 1975 letter to the editor (listed above). Mayers gives general background on the instrument and its performance practice, geared toward an audience unfamiliar with Eastern aesthetics. He stresses the freedom and individual interpretative license characteristic of the instrument and its music.

Noll, William Henry. "Kinko-ryu Gaikyoku: The Shakuhachi as an Ensemble Instrument." M.A. thesis, University of Washington, 1977.

This thesis discusses issues relative to the use of the shakuhachi in ensemble situations, with transcriptions of chamber music performances using traditional Japanese instruments.

Samuelson, Ralph. "Some Aspects of the Kinko Ryu Honkyoku, Including a Study of the Pattern-Units of *Kokû Reibo*." M.A. thesis, Wesleyan University, 1971.

Samuelson takes a comprehensive look at Kinko-ryu notation, with an overview of the shakuhachi, its playing technique, and its history. *Kokû Reibo* is a repertoire piece; Samuelson examines several recordings of this piece to demonstrate how certain melodic fragments, common throughout the Honkyoko school's repertoire, are approached differently by various shakuhachi players.

Sadie, Stanley, ed. "Shakuhachi." In *The New Grove Dictionary of Music and Musicians*, 23:200. London: Macmillan, 2001.

This is a clear, concise overview of the shakuhachi's history and organology.

Tanimura Ko. "The Shakuhachi." *The Encyclopedia of Musical Instruments*. Tokyo: Tokyo Ongakusha, 1990.

Part 1 contains dozens of color photographs showing types of shakuhachi, the shakuhachi-making process, playing posture and hand position, and more. Part 2 (within the

same volume) contains dozens of short articles on history, organology, technique, repertoire, and more.

Umezaki Kojiro. "Matters: Integrating the Shakuhachi with Electronic Sound." M.A. thesis, Dartmouth College, 1993.

This text describes methods and implementation of an interactive music performance system using shakuhachi and electronic elements. It includes a chapter on the sound characteristics of the shakuhachi and thoughts on performance practice in contemporary music.

### Selected Recordings

Neptune, John Kaizan. *The Circle*. Denon, 1986.

Neptune, John Kaizan. *Tokyosphere*. JVC, 1988.

American shakuhachi virtuoso John Kaizan Neptune (b. 1951) has used the shakuhachi to great effect in music outside the traditional styles. ("Kaizan" is an honorary name bestowed upon Neptune for his mastery of the instrument.) Recordings such as these use the shakuhachi in a jazz-fusion style.

Yamaguchi Goro. *A Bell Ringing in the Empty Sky*. Nonesuch, 1969.

Yamaguchi Goro (1933-1999), dubbed a "Living National Treasure" by the Japanese emperor, released this landmark recording in the Kinko tradition while living in the United States. It was the first shakuhachi recording to be widely available in the Western world.

Yokoyama Katsuya. *Zen: Katsuya Yokoyama Plays Classical Shakuhachi Masterworks*. YVP, 1988.

Yokoyama Katsuya (b. 1934), an internationally recognized master trained in the Kinko school, plays several of the most popular compositions in the Kinko-ryu tradition on this two-disc set.

*Jurassic Park: Original Motion Picture Soundtrack*. John Williams, composer. MCA, 1992.

This film soundtrack uses the shakuhachi with orchestral instruments and synthesizers. The shakuhachi is used to suggest dinosaur roars (see footnote 320 on page 125).

*Pearl Harbor: Music from the Motion Picture*. Hans Zimmer, composer. Hollywood Records, 2001.

*Memoirs of a Geisha: Original Motion Picture Soundtrack*. John Williams, composer. Sony Classical, 2005.

These soundtrack albums use the shakuhachi both in combination with other Japanese instruments and as a color instrument within the Western orchestra. “Dr. Crab’s Prize,” from the *Memoirs of a Geisha* soundtrack, is a solo shakuhachi piece in the style of a honkyoku composition.

### Organizations in North America

The International Shakuhachi Society

<http://komuso.com>

The International Shakuhachi Society maintains a list of shakuhachi teachers, and publishes the *Annals of the International Shakuhachi Society*.

The Japanese Music Institute of America

415 621-2950

426 33rd Ave.

San Francisco, CA 94121

<http://www.jmia.org>

The Japanese Music Institute was founded in 1981 by shakuhachi master Masayuki Koga, who continues to direct the school and to teach shakuhachi there. The JMI offers instruction in shakuhachi and other Japanese instruments, and sponsors concerts and other events. There are additional locations in Sacramento and Davis, California, and Boulder, Colorado.

Ki Sui An Shakuhachi Dojo

917 207-6724

625 Greenwich St., Studio

New York, NY 10014

<http://www.nyogetsu.com>

The Ki Sui An Shakuhachi Dojo offers shakuhachi instruction and study retreats, and sponsors shakuhachi festivals. There are additional locations in Rochester and Syracuse, New York; Philadelphia, Pennsylvania; and Baltimore, Maryland.

Kyo Shin An Shakuhachi Dojo  
718 499-7793  
New York, NY  
<http://www.nyoraku.com>

The Kyo Shin An Shakuhachi Dojo offers private shakuhachi instruction and masterclasses.

The Shakuhachi Society of the Long River  
413 323-4793  
413 774-4858  
P.O. Box 644  
Belchertown, MA 01007-0644

The Shakuhachi Society of the Long River (named for the nearby Connecticut River) promotes shakuhachi study and offers performances, lectures, and a newsletter.



### Chapter 3: Conclusions and Future Research

Each of the instruments discussed here has a rich tradition with associated authentic repertoire and performance practice. Full discussion of playing these instruments in authentic contexts is beyond the scope of this document but has, in many cases, been thoroughly discussed elsewhere (see the bibliography at the end of each section of Chapter 2). Learning to play any one of these instruments in a genuinely authentic manner could involve many years of serious study. This type of study, while enriching and worthwhile, may be impractical for woodwind doublers working in film and theater music. Woodwind doublers would, however, be well-served by at least an informal background in these traditions and the ability to reproduce some of the more important and recognizable sounds associated with them.

Sources consulted and cited in preparation of this document are all in the English language. Additional sources are available in many other languages, and use of these in future research would likely provide additional insight.

Much of the fundamental technique of the instruments discussed here will already be familiar to players of modern Western woodwinds. The most basic elements of tone production, including upright posture, avoidance of unnecessary tension in the body, firm abdominal breath support, and careful control of the airstream are common to all of these. Basic fingering technique will also be generally familiar. Some of the instruments discussed here, such as the recorder and the simple-system instruments (pennywhistles and most bamboo flutes), use fingering systems that bear strong similarities to the fingering systems of modern woodwinds.

Woodwind players should use these similarities to their advantage, but, for best effect, should study the fingerings of new instruments carefully to avoid misapplication of fingerings.

For many of the instruments discussed here, their pedagogical traditions allow for some variations in technique that may be used to the modern Western woodwind player's advantage. For example, many of these instruments can be played with either the left hand above the right or vice-versa; woodwind players will immediately feel more at home by using the left hand on top. In many cases the transverse flutes may be played with the instrument supported at the base of the left index finger. This technique is familiar to modern Western flutists, but is not strictly necessary if no left-hand thumb tonehole or keywork exists.

A few particular technical pitfalls include the shakuhachi's difficult embouchure and meri technique, the duduk's puffed-cheeks embouchure and the shifting of the hands between two different fingering systems, the panflutes' arrangement of pipes, and the proper affixing of the dizi membrane.

Advanced woodwind doublers should have a variety of folk, ethnic, and period instrument sounds available to them. The instruments discussed in this document are currently some of the most commonly-heard and versatile. In many cases, composers or orchestrators may be unaware of the strengths and limitations of these instruments; this may mean that some collaboration between the orchestrator and woodwind player is in order.

While some situations in film and theater music may call for specific instruments, other situations may simply call for an "ethnic flute," for example, and the decision as to which instrument to use may be left to the woodwind player. In these situations, the woodwind player should be prepared to consider a number of factors in his or her decision. These might include any intended or implied cultural reference in the music, appropriate tone colors, key and scalar

material, pitch range, and any specified inflections or other requirements. Pennywhistles and bamboo flutes are useful because they are relatively easy to play and can be obtained inexpensively in an array of sizes. Recorders may be more suitable for passages that require precise chromatic playing, or for playing in keys for which the player does not have other instruments available. Panflutes, Native American flutes, and the shakuhachi are particularly flexible in terms of special effects and imitations of nature sounds.

As trends in film and theater scoring change, various ethnic instruments may increase or decline in popularity. Other instruments could be examined in future research. Some possible subjects are listed in Table 21.

Table 21: List of suggested instruments for future study

<b>Instrument</b>	<b>Type</b>	<b>Associated musical tradition</b>
Bawu	Single reed	Chinese
Didgeridu	Lip-reed instrument (perhaps technically not a woodwind instrument, though used by a number of ethnic woodwind players)	Australian
Fife	Transverse flute	American Colonial and Civil War periods
Fujara	Overtone duct flute	Slovakian
Ney	Endblown flute	Persian, Turkish, Egyptian
Ocarina	Vessel flute	Western, Chinese
Quena	Endblown flute	South American
Wooden flutes	Transverse flute	Irish, Cuban, others
Xiao	Endblown flute	Chinese
Various historical woodwinds	Predecessors of modern woodwinds (such as the Baroque flute), obsolete instruments (such as the crumhorn or shawm)	Western

This document benefits scholarly study of woodwind doubling by documenting the current trend of scoring for folk, ethnic, and period woodwinds in film and theater music. By examining eight woodwind instruments and situations in which they are used, this study provides a practical overview of each instrument, written with the perspective of the woodwind doubler in mind.