weight, or impulse, you can give such life to your music with changes in the qualities of your breath. Just as a fiddler can "lean into" the bow, you can "lean into" the breath.

I elaborate upon this in Chapter 10, in the sections *Rhythmic Emphasis Within the Long Roll* and *It's Alive—It Has a Pulse* which appear on pp. 173-174. I suggest that you work your way through the book to that point before delving into this aspect of breath and embouchure control.

HEAVY BREATH PULSING

Heavy breath pulsing appears to come from a relatively old style of loud playing that emphasizes forceful and driving rhythm over smooth lyricism. It is a style that is great for dancing, and makes one think of the days before amplification when flute players in céilí bands had to work hard to be heard alongside the accordion, pipes, banjo, drums, and other louder instruments.

In its extreme, the breath pulses have a strong pronounced attack. Players such as Eddie Cahill and Kevin Henry, who use breath pulses almost continuously and rarely slur notes together, make little use of fingered articulations and ornaments. For more on this subject see p. 292 in Chapter 21.

THE HARD D

Uilleann pipers sometimes give the bottom note of the chanter, the low D, a hard, loud, ringing sound by forcing more than the usual amount of air through the chanter. This *hard* D is a sound dear to the hearts of Irish flute players as well. On the flute, the hard D is very loud and sometimes has a harsh edge to it. It is produced by blowing a very fast stream of air through a very small aperture, leaning hard into the note with your breath. You can hear examples in the recordings of Matt Molloy, Conal Ó Gráda, John McKenna, and many others. Some feel that it is easiest to produce a fine, ringing, hard D on simple-system flutes that have D as their lowest note.

If you have trouble getting a good hard D, check to make sure that your flute's keys have pads that are sealing tightly. The cut of the embouchure hole also plays an important part in this. If the embouchure hole is very large, it may be more difficult to get a good hard D.

A FINAL THOUGHT ON TONE PRODUCTION AND EMBOUCHURE

The subtleties of tone production and embouchure must be learned by feel over a long period of time, as a result of much conscious practice, and a lot of unselfconscious playing. If you can imagine the sound you want, you are more than halfway there. It is as if just holding your desired sound in your mind's ear will awaken an inner ability and wisdom that will eventually carry out the necessary physical changes to produce the sound. Training your muscles and mind in these ways takes a lot of time. Be patient and gentle with yourself.

ⁱ Richard Shepherd Rockstro, A Treatise on the Construction, the History, and the Practise of The Flute, Including a Sketch of the Elements of Acoustics and Critical Notices of Sixty Celebrated Flute Players (Buren, the Netherlands: 1986, Frits Knuf), Part III, p. 420–424.

ii Johann Georg Tromlitz, Ausführlicher und gründlicher Unterricht die Flöte zu spielen (Leipzig: Adam Friedrich Böhme, 1791); trans. and ed. Ardal Powell as The Virtuoso Flute Player (Cambridge: Cambridge University Press, 1991), p. 52.

iii Walfrid Kujala, *The Flutist's Progress* (Evanston, Illinois: Progress Press, 1970).

iv Walfrid Kujala, p. 13.

^v Walfrid Kujala, p. 13.

vi Walfrid Kujala.

vii Walfrid Kujala, p. 71.

viii Walfrid Kujala, p. 72.

ix Trevor Wye, A Trevor Wye Practice Book for Flute, 6 vols. (Kent: Novello & Co. Ltd., 1981), pp. 1:5–21.

x Nancy Toff, *The Flute Book* (Oxford: Oxford University Press, 1996), p.84–5.

xi S. C. Hamilton, *The Irish Flute Players Handbook* (Coolea, Ireland: Breac Publications, 1990), pp. 202–5.