



The Journey of Light and Darkness in Toby Twining's *Chrysalid Requiem*

by Bill Alves

"Chrysalid" is the adjective form of chrysalis, a clue that Toby Twining's requiem of that name approaches the subject of death as a transformation rather than as an end. Twining's a cappella work, newly recorded on a Cantaloupe CD,¹ is a journey in which such transformational processes are the focus, rather than points of departure or arrival. Like a butterfly, the listener flutters over boundless terrains of interval relationships, of kaleidoscopic textures, of durational proportions, of remarkable vocal techniques, in what is certainly an extraordinary work of Just Intonation.

Toby Twining studied with Ben Johnston at the University of Illinois in the 1980s before forming his own a cappella ensemble for contemporary music in New York City. His previous CD with that group, *Shaman* (1993) focused on engaging post-minimalist patterns with a touch of the jazzy hipness that characterized BMG's Catalyst label, on which it was released. Yet amid the entrancing textures and remarkable variety of vocal techniques (most prominently Mongolian overtone singing à la David Hykes) there was little development of these ideas or exploration of ways to extend them into larger forms.

An opportunity for such exploration came in 1998, when Bang On a Can, New York's vibrant new music

festival and organization, commissioned a new work from Twining. Twining's choice to set the Latin mass for the dead, surely a form with one of the most profound and hoary traditions in the Western canon, may seem a risky choice, if perhaps apt for the gravity of the times in which we live. Yet while the *Chrysalid Requiem* has an unrelenting seriousness and complexity, its mood is sometimes a distinctive blend of sonic optimism and textual gloom, a curiosity box of postmodern juxtapositions.

Computer technology makes possible Twining's voyages around the Just Intonation lattice. Twining recorded a synthesizer track containing all the pitches that he required, and to perform the piece, either live or in this studio recording, the twelve

*Like a butterfly, the listener flutters
over boundless terrains of interval
relationships, of kaleidoscopic
textures, of durational proportions, of
remarkable vocal techniques, in what
is certainly an extraordinary work of
Just Intonation.*

singers of his ensemble must don headphones and tune to the synth track reference, though the audience never hears the synthesizer itself.² While Ben Johnston, in such works as his *Sonnets of Desolation*, was able to depend on the intonational expertise of the Swingle Singers to realize his a cappella Just Intonation, not even their sharp ears would allow his tonal centers to stray very far away on the lattice (nor would it have particularly served that text). Twining, though, through this technique, can range arbitrarily. He uses Johnston's system of accidentals to

(text continued on page 4)

mf *yodel* $\text{♩} = 147$

A3 Ky - ri - e

mp *quasi 7/8* *click* →

T2 Ky - ri - e Ky - ri - e e - le - i - son e - le - i - son

B1 *mf* Ky - ri - e e - le - i - son

B2 *mf* Ky - ri - e e - le - i - son

6

1 *f* Ky - ri - e e - le - i - son *p sub.*

2 *f* Ky - ri - e e - le - i - son *p sub.*

3 e - le - i - son

1 *f* Ky - ri - e e - le - i - son *p sub.*

2 Ky - ri - e e - le - i - son Ky - ri - e e - le - i - son *p sub.*

3 Ky - ri - e e - le - i - son

1 *f* Ky - ri - e e - le - i - son *p sub.*

2 Ky - ri - e e - le - i - son

3 Ky - ri - e e - le - i - son

Figure 1. The beginning of the Gradual. After the brief incipit (first measure), the meter consists of the equivalent of four half notes, followed by three half notes, followed by seven half notes. The next section consists of four dotted quarters, then three dotted quarters, and seven dotted quarters (not shown). Note that the relationship of the first sequence to the second is 4:3. Here and later the staves marked "synth" are for the reference of the singers. The audience does not hear these parts.

A=900
Emphatically
Tutti

16

SLOWER

* open dot adds 1/4 of previous value (Johnston)

Figure 2. "Evadare" from the Tract movement. The women's voices are arranged in a series of stacked 4:3s based on $A \times LLL+$, while the men also sing a series of 4:3s, but based on $G \times LLL+$.

(*Requiem*, continued from page 1)

notate his work, but the accidentals swiftly build up in his wanderings, so that it is not unusual for a note to be preceded by a combination of four or five sevens, pluses, or minuses.³

The first movement, the Introit, sets the familiar text "*Requiem æternam dona eis Domine et lux perpetua luceat eis*" ("Grant them eternal rest, oh Lord, and let perpetual light shine on them") first intoned by a solo bass. This incipit, which returns throughout the

The image shows a musical score for a piece titled 'Dies Irae'. It consists of six staves, labeled A3, nth, Tb, Br, B2, and B3 from top to bottom. The top staff (A3) has a tempo marking 'legato' and a tempo change from A=908.64 to A=900.4 (A#40). The notation includes various musical symbols such as notes, rests, and fingerings. The bass staves (B2 and B3) have 'ad lib poco sweep' markings. The notation for the bass parts is simplified by shifting 1/4 to the right.

Figure 3. From the Dies Irae, showing the growling bass subharmonics as well as an example of shifting $\frac{1}{4}$ to simplify the notation

movement and the requiem as a whole, sometimes in inversion, sets out the tuning relationships on which the movement is based, principally the 3 and 7 identities. Harmonically, these are most often presented in chords of stacked thirds, familiar in the a cappella jazz repertory and the gospel choirs of Twining's own East Texas heritage. The vocal style, here and throughout, is a rather "pop" sound in that it (thankfully) avoids tremendous vibratos and bel canto tones that could obscure the beautiful harmonies.

Here the thirds are 7:6s, 5:4s, and 9:7s arranged alternately in otonal and utonal relationships, giving the harmonic basis of the movement a sense of duality—of teetering between the darkness of death and the light of divine grace—that appears throughout the requiem. Sometimes these relationships are expressed through overtone singing, either by holding the fundamental constant and creating (otonal) melodies in the harmonics, or by holding a harmonic constant and changing (utonally) the fundamental—a device also used by David Hykes. The relationships of three and seven, so

important symbolically in the Christian tradition, are found not only in the tuning, but also in the meter and large-scale form of the arch-like movement.

Delineating the form through these durational proportions is taken much further in the following Kyrie movement, which is based on the sequence 4-3-7 (Figure 1—see p. 2). These proportions create the form from the level of individual beats up to the tripartite structure of the whole movement. Mark Johnson, a singer in the recording and the producer of the *Chrysalid* CD, has published an analysis of the Kyrie movement showing the rather medievalist complexity of Twining's structural plan, as well as how this symbolism is also reflected in the journey through tonal centers mostly by descending 4:3s alternating with ascending 7:6s.⁴

The Gradual and Tract, which follow in a single movement, again reflect these ideals of proportions, but now often in the rhythm of individual parts. The canons and other polyphonic layers (again featuring the opening theme of the requiem) that open the movement recall the similar plays with proportions of Ben Johnston, as

Figure 4. Excerpt from the Offertory, showing the polyrhythms in the proportions 4, 3, and 7

in his *String Quartet #4*, for example, and again depend largely on the 4:3 ratios within meters of seven. With the text of the Tract, the lines converge into a powerful chordal style that leads up to dramatic word painting on the text “*evadere*” (escape, see Figure 2). Here Twining escapes the bonds of tonality through polytonal arrays of fourths split between men and women before settling comfortably in the ending section, based largely on sweeps through the harmonic series as the soul bathes in “*lux perpetua*” (eternal light).

The heart of the requiem, both in terms of length and placement, comes with the following three-movement setting of the famous *Dies irae* Sequence. In his 1888 Requiem, Gabriel Fauré broke with tradition by deleting the dramatic fire-and-brimstone evocation of the day of judgment in the *Dies irae*, thus replacing medieval terror with consolation in the face of tragedy, a path other composers of requiems have followed. While Twining retains the full text of the *Dies irae*, we are presented with none of the romantic drama for which the Sequence is best known, but rather a prayer from the darkness.

While Twining cannot resist more word painting in this evocative text, he has not divided the movement up into small illustrative segments as have most composers since Mozart. His division is simply tripartite (like so many of the other movements, and, with the Sequence as the middle, the requiem as a whole). This text is another journey, a continual transformation, and the music rarely has a chance to look back, so to speak, but mostly forward, towards paradise.

The day of judgment is first represented by darkly growling basses who resonate harmonics as they slide nearly chromatically through various tonal centers (more on that below) (see Figure 3). In the second movement, the women represent the lonely voice of entreaties, the emotion reflected in “chromatic” transformations of just harmonies and culminating in astonishing stacked chords of fourths, seconds, or thirds. In the third part, a solo baritone becomes the voice of the supplicant, surrounded by the harmonics of overtone singing and stacked thirds, ending with a 4:5:6:7 chord that casts this prayer in a (historically uncharacteristic) optimistic tone.

Libera me - 3

The image shows a musical score for a piece titled "Libera me - 3". The score is written for multiple voices and instruments, with parts labeled S (Soprano), A (Alto), B (Bass), and an unlabeled part. The notation includes various musical symbols such as notes, rests, and accidentals. The lyrics "tre- men- da" are repeated across several staves. The score is characterized by stacked thirds and seconds, which are highlighted by the caption. The tempo/mood is marked "dim. molto" at the end. The key signature is indicated by a sharp sign (#) on the F line of the bass clef.

Figure 5. Chords of stacked thirds and seconds from the *Libera me* movement

This continual transformation of these movements is nowhere more in evidence than in the kaleidoscopic journey through tonal centers. The end of the previous movement took us to G^7 ,⁵ the seventh harmonic of which, F^{77+} , became the fulcrum of stacks of fourths between the men and women. Twining then takes this pitch as the tonic for the beginning of the *Dies irae* (though these ratios are relative to $A440$, which Twining labels as 900 cents). However, as Twining's counterpoint takes him farther and farther afield in the lattice, the Johnston accidentals begin to pile up. Within fifty measures we find ourselves in the tonal center of $G^{*}LLLL-$, and that's hardly the end of it. The unwieldy result can be glimpsed in the score excerpt shown in inside cover art of the *Chrysalid Requiem* jewel case.

Dissatisfied with this state of affairs, Twining tried

rewriting the score with periodic shifts of the $1/1$ pitch. While this expedient definitely makes the score easier to comprehend, it comes with problems of its own—every so often the score reader is faced with equally difficult shifts in notation such as $D^{777b} = B\sharp^-$ —(that is, the pitch notated as D^{777b} in the old section is the same as the pitch notated as $B\sharp^-$ in the new section, meaning our $1/1$ pitch has shifted up 1 cent).

Yet through all these tonal shifts, which leave the listener floating on butterfly wings rather than pinned to the ground, we somehow find our way back to familiar territory every now and then. On the words "*judicanti responsura*" ("answer the judge"), which forms the climax of the first of the three Sequence movements, we are back to G^7 with a $1/1$ within 1 cent of our starting point.

otonal women and utonal men around a pivot center of A. They come joyously together in their praises of “hosanna” that, rather than the broad, romantic parting of the heavenly cloud, sound more like the cracking of a whip (or a chrysalis?).

The Responsory, which begins with the text “*Libera me, Domini, de morte aeterna*” (“Free me, oh Lord, from eternal death”), also features episodes of snappy polyphony, this time focusing on a new theme, which is so pervasive as to make the movement sound nearly fugal. However, the scaffolding that holds this texture together is not the traditional tertial harmony, but the 3×7 lattice. This imparts a logical unity to the sound whether the harmonies are based on thirds, fourths, or, in the harrowing setting of the words “*in die illa tremenda*” (“on that day of terror”), clusters of seconds (Figure 5). The “*Libera me*” text is a return to the terror of the *Dies irae* sequence, and, when words from the *Dies irae* return, they are treated with the same overtone singing that provided the dark opening to the sequence.

However, the last movement, the Antiphon In paradisum, dispels this darkness. The addition of this text, which is really from the burial service and not the mass itself, was another innovation of Fauré’s, and ends the work with a comforting vision of angels accompanying the soul to paradise. Twining cannot resist representing this ascension in pitches (Figure 6), culminating on an extraordinary high A in a soprano (that is, two octaves above A 440). But this movement is not the quiet prayer of Fauré. The multitudes of angels seem to be within the quasi-minimalist, quasi-medieval hocketing fragmentation of the opening theme of the requiem. Their voices form an animated backdrop to the extended declamations of the text in chords of thirds or (as in the depiction of the resurrected Lazarus) startling clusters.

Concluding an hour-long, emotionally draining work with such a lively image may seem puzzling, but this is not a vision of final rest in interment, but rather of a butterfly coming to life. If Twining’s expression of

that journey is at times eclectic and episodic, so are the times he reflects. And yet, just as Gothic composers and architects built grand edifices representing in symbolic form the glory of God, so Twining achieves a distinctive unity in his work through the power of number—through the Just Intonation lattice, durational proportions, and formal structures. Twining’s work reveals an extraordinary universe of just harmonies and modulations, not through digital timbres, but through his group’s remarkable expression of the most primal of instruments. With these otherworldly and yet most human of sounds, Twining has crafted a transformational passage into the light of life. **1/1**

Sound files from Toby Twining’s *Chrysalid Requiem*, courtesy of Canteloupe Records, are available at <http://www.justintonation.net/one-one.html#twining>

Notes:

1. Twining, Toby. *Chrysalid Requiem*, (Canteloupe Music CA21007) 2003. Available from the Just Intonation Store.
2. For the recording, nine different singers multitracked the twelve parts.
3. In Ben Johnston’s system of notation, the seven diatonic pitches represent a just scale derived from just major triads on C, F, and G (i.e., $1/1$, $9/8$, $5/4$, $4/3$, $3/2$, $5/3$, $15/8$). Accidentals then multiply that base ratio by another: \sharp/b multiply/divide by 25:24 (70.7 cents), $+/-$ by 81:80 (21.5 cents), $7/4$ by 36:35 (i.e., introducing prime factors of 7, 48.8 cents), $11/10$ by 33:32 (i.e., prime factors of 11, 53.3 cents), and $13/12$ by 65:64 (i.e., prime factors of 13, 30.4 cents). Twining uses all of these symbols, though identities of 11 and 13 are typically found only in passing overtone or undertone sweeps. For more information, see Fonville, John. “Ben Johnston’s Extended Just Intonation: A Guide for Interpreters,” *Perspectives of New Music*, 29/2 (Summer 1991), 106–137.
4. <http://www.panix.com/~mj/ttkyrie.html>
5. The symbol G^7 refers not to a chord (like in jazz notation) but to a pitch in Ben Johnston’s system of just intonation notation. See note 2 above.

ADDRESS CHANGES: A REMINDER

Whenever we mail an issue of 1/1, we get twenty or thirty copies back as undeliverable—some with forwarding addresses, others without. Remember:

1/1 is mailed in the U.S. by third-class bulk mail. The Post Office will not forward 1/1. To ensure that you receive all of the issues you pay for, please send address changes promptly, by post or email.