

SKETCHING A NEW TONALITY: A PRELIMINARY ASSESSMENT OF STEVE REICH'S

SKETCHES FOR *MUSIC FOR 18 MUSICIANS* IN TELLING THE STORY OF THIS WORK'S

APPROACH TO TONALITY

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INTRODUCTION

In 2000, I wrote that, from *Piano Phase* (1967) onward,

the considerable majority of Reich's compositions would begin with the establishment of a musical idea with a modal pitch profile. The implications of this then determine both the structure and the expressive qualities of the subsequent work. With the background and beliefs already described, the character of Reich's new modality comes as no surprise. There was at this time, indeed, he says, "an assumption that was pretty much the case with all of us" that diatonicism of some kind would form the basis for such music. (1)

But what exactly was that "diatonicism of some kind?" (2) How did Reich himself conceive it, and how has he then developed his concept and practice of it during the half-century in which he has since been composing? And what, for the music analyst, are the most appropriate ways to conceptualize that evolving approach to harmony, and to use these to find and then deploy analytical methodologies that will cast new light on how these compositions may best be understood – and listened to?

It should be added at this point that no comprehensive theory of Reichian tonal practice could avoid addressing further questions as well. How does the composer's harmonic language interact with the rhythmic repetition on which his approach to minimalism was founded? Does the balance between the importance of rhythm and the importance of pitch as compositional

determinants shift as Reich's output develops, and if so, in what kinds of ways and with what outcomes? No theory of harmony, arguably, can work in a vacuum, especially one seeking to understand music that, however far it subsequently moved from its origins, began with an approach that took not pitch structure but rhythmic structure as its "sine qua non."

These are just a few of the many questions that must be answered if a comprehensive theory of Reich's tonal practice is to be achieved. The present chapter does not aspire to such heights, but offers merely some glimpses of the sort of answers to a few of those questions that can be opened up by study of the composer's sketch materials for *Music for 18 Musicians* of 1974-6. Regarded – from the time of its first performances and, especially, its initial recording (issued in 1978) (3) right up to the present as Reich's *magnum opus* – *18 Musicians* seems the natural work with which to commence a fresh investigation into this composer's harmonic language now made possible by access to his extensive sketches. (4)

MODALITY AND TONALITY, MODES AND CHORDS

Twenty years ago, Jonathan Bernard implicated the idiosyncratic nature and extent of repetition to be found in minimalist music when he warned that

[t]he so-called “return to harmony” or even “return to tonality,” much remarked upon by critics, is (at least in the case of Reich and Adams) really an appropriation of harmony for purposes that are essentially new and not yet at all well understood. To assume that composers, by retrieving such superficially familiar sonorities as triads and major-minor seventh chords, have also taken on, whether intending to or not, the hierarchical nature of common-practice tonality (if not its specific structures) may be assuming far too much. (5)

Eight years after issuing this admonition, Bernard identified “four basic stages” (6) to “tell the story of what happened after [the] initial establishment of minimalism” in the 1960s. First,

- (1) Pieces became more complicated, which soon provoked
- (2) a greater concern with sonority in itself;

As a result of this, Bernard writes, the third and fourth “stages” of minimalist development ensued; and it is these that now clarify his original caution concerning “the return of tonality:”

(3) pieces began sounding more explicitly “harmonic”, that is, chordally oriented, though not, at this point, necessarily *tonal* in any sense. Eventually, however, (4) harmony of an ever more tonal (or neotonal, or quasi- tonal) aspect assumed primary control. . . . [T]he hallmark devices of minimalism . . . were pushed into the background, where they became stylistic objects. (7)

So it is clear, on the one hand, that the approach to pitch organization to be found in works such as *Piano Phase* – while lending itself to description as modulating through a sequence emphasizing different pitch centers in turn – is probably best summed up as “modal,” not “tonal.” This work’s manifest avoidance of chordal structures for its harmonic basis, as well as its espousal of melodic material readily capable of being described in terms of a scale, or “mode,” make such a conclusion uncontroversial.

On the other hand, it is far less clear that the approach to pitch organization to be found in, say, *Music for 18 Musicians*, is best summed up as “tonal.” All published accounts of this work’s pitch structure develop an argument for its basis in a sequence of chords (taking off from the composer’s own description in the program notes for its first performances and, in particular, his liner notes to the work’s first recording). (8) Yet in *18 Musicians* – and possibly also with Reich’s later music, for all some works’ stated conceptual basis in chordal structures of various kinds – I would question whether the

apparent umbilical cord between “tonal” and “chordal” is always meaningful either for the analyst of such music, or for its listeners.

Even if *Piano Phase* and *18 Musicians* are to be regarded as examples of two quite different stages in Reich’s compositional development, as they commonly are, both these stages in his output share another fundamental principle behind his harmonic practice: that of significant harmonic and tonal ambiguity. The outcomes of *Piano Phase*’s straightforwardly mode-derived approach, on the one hand, and those of *18 Musicians*’ more complex integration of modal and chordal concerns, on the other, may actually be argued as being strikingly different in certain respects, not least in the potential that the latter work’s more subtle methodology has for building large-scale structures that are varied and satisfying.

However, one thing that both works have in common is an equivocality concerning harmonies built from the bass upward. *Piano Phase* sidesteps such construction completely by the drastically simple method – common to every minimalist piece that Reich wrote before *Four Organs* of 1970 – of entirely avoiding all notes in the bass staff. No other mature work by Reich before *Music for Mallet Instruments, Voices, and Organ* of 1973 makes any use of the lower bass staff at all; in several of his notated, mature compositions written in the five years or so prior to *Four Organs*, Reich had used no note lower than middle C. The reason lay in his antipathy to the

functionality, which Reich thought inevitable, of the bass in determining and spelling out a tonal center and the relationships developed around this. In *Four Organs*, the composer considered that he had finally found a solution to the problem of handling the lower register in terms that had, for him, an acceptable level of ambiguity concerning what it said about the tonality of his music. Essentially, this conclusion revolves around the decision to treat the bass as the dominant, not the tonic, of his chordal vocabulary, and of the tonal grammar that he then proceeded to erect upon it.

At its most radically reductive, Reich's music can indeed be argued to question the theoretical frameworks previously devised for the kind of pitch vocabulary that he uses; and, similarly, to offer a range of what, in music-semiotic terms, might be referred to as "aesthetic" interpretations of the deployment of that pitch vocabulary in surprising contexts. *Four Organs* demonstrates that a triad-based chord in root position – here, in the form of what its composer calls a "single (dominant 11th) chord" (9) – can be used, as Ronald Woodley puts it, "to explore the inherent vertical (and implicitly, in real time, horizontal) tensions between the 'tonic-ness' and 'dominant-ness' of its harmonic components." (10) This work's subjection of such harmonic material to extended repetition for around fifteen minutes, with all changes effected only very gradually, begins the process of what Woodley has elsewhere called Reich's "interrogation of the Western classical tradition." (11)

Such a chordal approach deploying what appears to be a kind of functional harmony is then taken up again in the pairs of oscillating chords that underpin *Mallet*, completed three years after *Four Organs*. This is the first of Reich's mature compositions to engage, in a more obvious manner, with the notion of chordal progression itself, going beyond both the single basic modality behind each section of *Piano Phase* and the slowly changing versions of a single chord that articulate the unfolding of *Four Organs*. What Woodley calls the "quasi-augmentational expansion" of the latter composition is, in *Mallet*, put to work in a context more responsive to previous conventions of Western classical tonality. Here, the procedure takes its starting point from simple oscillations between pairs of chords able to function as repeating cadential figures, and even able to demonstrate a degree of functionality via their bass notes; not all the chordal vocabulary used, though, can always be easily described in the conventional terms of sevenths, ninths, and so on. The "putative tonal motion" (12) thus generated is then also enhanced by an approach to tonal modulation between the four sections of *Mallet*, thus rendering the work as a whole as quite significant in Reich's ongoing reconsideration of "diatonicism of some kind."

Unsurprisingly, this then becomes one of the models for *18 Musicians*, on which work

commenced around one year after the premiere performance of *Mallet* in May 1973.

(13) However, on April 8, 1974, early on in his sketches for *18 Musicians*, Reich diagnosed that his “Problem is to avoid re-writing Music for Mallet Inst. V & O again.”

(14) Clearly intending that his ambitious new conception, then scarcely begun, must break new ground, he writes that the “Solution” to this problem “is to concentrate now on new aspects of [the] piece.” These he identifies as particularly the ones exploring layered textures to produce a “double layer of augmentation.”

MUSIC FOR 18 MUSICIANS: NEW LIGHT ON THE NATURE OF ITS TONALITY AND THE ROLE OF THE “CYCLE OF 11 CHORDS”

How, then, might the groundwork now start to be laid to describe a Reichian theory of harmony? In 1978, while experimenting with the (then just-released) LP of *18 Musicians* in order “to figure out how the piece worked harmonically,” (15) and to do this entirely from listening, (16) the American composer and critic Tom Johnson decided that the work “is in a special kind of D major.” Suggesting that such music, and much else that he here labels “the new tonality,” “doesn’t have much to do with chord progressions” – though he later clarifies that he is fully aware of *18 Musicians’* chordal basis, as described in Reich’s program notes – Johnson goes on:

Instead, you hear, basically, a scale, and the chords and melodies that arise may be any combination of notes from this scale. As there is no concern for the chord progressions that propelled traditional European music and that continue to propel most pop and folk music as well, there is no need for a strong bass line to carry the progressions. There is often, if not always, a tonal center, but this is usually just the note that comes up most often and at the most important points. It does not have much sense of finality. And when this tonal center changes or modulates, it is usually just a question of shifting the emphasis from one note

to another, rather than bringing in a whole new set of chord progressions, as Beethoven would have done.

Johnson's thoughtful account of the "new tonality" that he finds in *18 Musicians* – which includes a perceptive interpretation of how "Reich shifts the tonal center frequently and quite craftily" in this work that casts interesting light on how scalar/chordal, or modal/tonal, distinctions might be said to operate here – is particularly notable for the way in which it draws attention to the ambiguity central to this and all of Reich's other compositions. Such a reaction can now be used as a springboard to attempt a fuller account of the nature and function of harmony, and of the nature and role of tonal processes embodied by that harmony, in *18 Musicians*, including as represented by the composer's sketchbooks.

Others besides Johnson have previously questioned the nature of *18 Musicians'* tonal grammar, and specifically the degree to which what Bernard called a "chordally oriented" approach is responsible for how this music unfolds for its listeners. Yet the "cycle of 11 chords played at the very beginning of the piece and repeated at the end," (17) using only a key signature of three sharps, on which Reich stated that the whole work was based, has long passed into the common currency of the discourse around what has become, for many, the key composition in Reich's output. After all, *18*

Musicians opens, and closes, with a statement of the complete sequence of eleven chords, which Reich labels “Pulse” in the final score, articulated as pulsing chords using both treble and bass notes, and with the entries of the instruments staggered, each rising to and falling away from *forte* in a dynamic arch: what the composer called “the rhythm of the human breath in the voices and wind instruments . . . gradually washing up like waves against the constant rhythm of the pianos and mallet instruments;” the resulting *crescendi* and *diminuendi* are one of the work’s most characteristic sounds.

In between these “book-ending” statements, sections based on each chord in turn are unfolded. As the composer puts it, describing the first stage of the main portion of the work, “[w]hile this pulsing chord is held for about five minutes a small piece is constructed on it.” This procedure then continues for all eleven chords, “[stretching] out . . . the basic pulsing harmony” of each one in a manner that Reich compares to the deployment of a *cantus firmus* in twelfth-century *organum*.

This chord cycle is given, in the form familiar from its publication in a number of secondary sources, as Example 1:

**Example 1, February 1 1989: untitled sketch for *Music for 18 Musicians*,
recopying of “cycle of 11 chords,” dated “2/1/89,” Sketchbook [39], whole page
(Steve Reich Collection, PSS).**

The image shows a handwritten musical score on a page with a date '2/1/89' written at the top. The score is written on three systems of two staves each. The first system shows the beginning of the piece with a treble clef, a key signature of one sharp (F#), and a common time signature. The second system contains eight measures, each with a circled number from 1 to 8 above the first staff. The third system contains three measures, each with a circled number from 9 to 11 above the first staff. The notation consists of chords and stems with flags, indicating a specific rhythmic pattern. The handwriting is in black ink on a white background.

One significant element should be noted at once about this sketch: its date. This is the only instance so far found, in the entire collection of the composer’s sketchbooks, of the basic chord cycle for *18 Musicians* written out in exactly the form in which it has been familiar from other published sources since 1982. (18) Yet Example 1 was copied out on

February 1, 1989, around thirteen years after the work on which it is based was completed and premiered.

There are, in fact, a few differences between Example 1 and the versions of the cycle of eleven chords already familiar from secondary sources. Besides occasional variations regarding the details of how these chords are notated – including their labeling (many published versions use Roman numerals), the basic note value used, and “stacking” arrangement and beaming – these differences are confined to changes to their voicing; in no case is there any difference in the actual pitch classes themselves. (19)

Why should Reich have returned to this chord sequence following completion of *Different Trains* (1987-88) and just as he was beginning to sketch ideas for *The Cave* (1989-93)? The answer seems to lie in the words on the previous page of this sketchbook. Trying out some simple melodic and harmonic material (the chord with notes in the bass staff moving in parallel fifths at the top of Example 1, prior to the statement of the *18 Musicians* cycle of eleven chords, is another instance of this), he decides that what he presently needs for his new composition are “Equanimious [sic] Harmonies that move.” (20)

In apparent search of these, he decides to “Look at Music for 18 – again.”

As already noted, the composer’s original program and liner notes of 1976-8 underline the significance of thinking in chords, and of harmonic directionality. We must, though, be careful to note that Reich’s crucial statement here refers only to the work’s opening “Pulse,” and not to *18 Musicians* as a whole:

There is more harmonic movement in the first five minutes of *Music for 18 Musicians* than in any other complete work of mine to this date. (21)

We should, in beginning any attempt to interrogate the role of the cycle of eleven chords in the complete composition, additionally note the following further quotation from the same source:

Although the movement from chord to chord is often just a revoicing, inversion, or relative minor or major of a previous chord, usually staying within the key signature of three sharps at all times, nevertheless, within these limits, harmonic movement plays a more important role here than in any of my earlier pieces.

The relatively modest scope of the variety of chord types involved evidently places self-imposed limitations not only upon the chordal vocabulary itself but also upon the

extent to which it can generate harmonic motion. Treating the combination of treble and bass as a single entity, it is nevertheless possible not only to attempt a brief description at this point of the nature of those chord types, but also to demonstrate a degree of tonal progression behind this sequence of chords as a whole.

I have elsewhere described the cycle of eleven chords of *18 Musicians* as being constructed on the principle of “stacked” fourths and fifths already familiar from Reich’s earlier music and derived, in part, from his enthusiasm for jazz. The three pitch classes of Chord 1’s treble part, for example, are most readily labeled as D9, piling the notes D, A, and E into a “short stack” of perfect fifths. The two additional bass pitches, though, seem to ask the question as to whether Chord 1 as a whole is not, in fact, more meaningfully to be regarded as based on B. Its pitches can be conceptually regarded as continuing the “stacking” of the treble pitches, extending the sequence of perfect fifths above E with B and F sharp. However, the emphasis of the tonic and dominant of B that the new total of five pitches also suggests (even though any chord of B would be a second version, since F sharp is the lowest note) allows this aggregate to be arranged in thirds, to give the label B-minor 11 (B, D, F sharp, A, and E as the highest pitch in this conceptualization, which lacks the ninth ^{that} C sharp would have provided). Second-inversion chords of various kinds are characteristic (five chords in the cycle of eleven chords can be so construed). Such tonal evasiveness, measured by music theory as

derived from Western classical music, is typical of Reich's approach, which probably draws its principles, ultimately, more from those to be found in various areas of jazz.

The composer's frequent recourse to labeling his harmonic materials modally – Dorian, Phrygian, and so on – doubtless derives, in significant part, from this source. Though I have not sought to use such labels as a resource here, this is a subject that would benefit from more research in the future. (22)

Thus, even a chord containing only five pitch classes can convey a considerable degree of ambiguity, even about its individual identity, never mind its function in any sequence of chords. All eleven chords in the cycle have only four, five, or six different pitch classes. Even those with four can yield ambiguities: the treble pitches of Chord 3, for example, the first of these, strongly suggests an A-based tonality, but the addition of C sharp and F sharp in the bass makes the total aggregate an F-sharp-minor 7 chord. The chords with six pitch classes (Chords 5, 6, and 9) are capable both of greater ambiguity taken separately and of functioning in quite subtle and complex ways to help create any tonal context.

“Local” revoicings and inversions – for instance, the way in which the E appearing only in the upper octave of Chord 1's treble part is then added to the lower octave of Chord 2 as well, both aggregates arguably being eleventh chords on B (with Chord 1 a second

inversion and Chord 2 a root position) – make clear how subtle the “motion” from one chord to another can be. If, however, we regard Chords 1 and 2 as offering different voicings of a IV chord in F-sharp minor, then we can begin to make sense of the cycle of eleven chords as a whole in terms of harmonic movement. The B minor of Chords 1 and 2 thus leads to the F-sharp minor of Chords 3 and 4. Up to this point, the number of pitch classes in each chord has been either four (Chord 3) or five (Chords 1, 2, and 4). Chords 5 and 6 increase the number of pitch classes to six, beginning the ambiguous harmonic movement in the direction of A major (or even the D major heard by Johnson) that will characterize the remainder of the sequence. F-sharp minor is seemingly regained in Chords 7 and 8 (four and five pitch classes, respectively), but another expansion to six pitch classes in Chord 9 is the start of a final three-chord tendency to A major (or, again, even to D major). Since there are no accidentals in any of these chords (though pitches contradicting the key signature of three sharps are occasionally introduced into some sections of *18 Musicians* itself, as immediately occurs with the G naturals in the oscillating chords of the middle part of Section I), all eleven chords taken together could be interpreted as being in F-sharp minor. Yet, as we have seen, the potential for a functionality that moves from F-sharp minor (Chords 1-4) to A major or D major (Chords 5-11) is at least latent in this sequence. (23)

When Reich suggested, as quoted previously, that “harmonic movement plays a more

important role here than in any of my earlier pieces,” did he, then, refer exclusively to the statements of the “Pulse” that frame the main body of the work? Or did he intend at least to infer that the whole composition was involved? On the one hand, the use of the word “here,” and the context of this passage in a paragraph beginning with a reference to “the first five minutes” of *18 Musicians*, suggest the former. On the other, Reich’s reference, later in this program note, to the “opening 11-chord cycle” as “a kind of pulsing cantus for the entire piece” (24) at least raises the issue of how far the “harmonic movement” of the “Pulse” may be inferred, and even perhaps aurally detected, in the composition as a whole. Meanwhile, the mention, towards the end of this note, of the “play of changing harmonic rhythm against constant melodic pattern” as “one of the basic techniques of this piece” clarifies the importance, for the composer himself, of a sense of harmony shifting in interesting new ways, even if this passage is clearly a description of the outcome of placing the kind of oscillating chords already mentioned, originally devised for *Mallet*, into fresh contexts with an effect that is evidently intended to be different from that found in the earlier work.

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Before we can proceed any further with an argument about the nature of harmony and tonality in *18 Musicians*, we must address the obvious objection to the kind of harmonic

analysis of Example 1 indulged in earlier. The pitches in the treble staff and those in the bass were in fact conceived somewhat separately, and with a significant degree of independence. This has been known since some of the earliest commentaries on *18 Musicians*: K. Robert Schwarz, for example, stated in 1982 that the bass line – that is, the sequence of the lowest notes of each chord, strung together in imitation of the more familiar harmonic conventions of Western classical music – is in reality “no more than decorative.” (25) Nearly twenty years later, the present author – basing my comments on, among other sources, personal interviews with the composer – suggested that “[t]he independence of treble and bass, and the greater importance of the former over the latter, is maintained throughout [the work].” (26) It appears, also, that what began as a “treble-dominated” approach typical of Reich’s earlier manner was modified only at a subsequent stage of *18 Musicians’* evolution by the suggestion, made by one of the players during initial rehearsals, to add a bass clarinet to the work’s still-undecided instrumentation; thus causing lower pitches to be added to the opening “Pulse.”

SOME FURTHER EVIDENCE FROM REICH’S SKETCHBOOKS CONCERNING THE EVOLUTION OF THE CYCLE OF ELEVEN CHORDS

The sketchbooks, not available for inspection at the time that either Schwarz or I was writing, tell this story in much greater detail. These now provide evidence for some of what could only

previously be gleaned from the composer directly and from perusal of what versions of the score were available at the time. (27) They also now permit a much more nuanced interpretation of the nature and significance of Reich's evolving harmonic language for *Music for 18 Musicians*, giving us much more information to be able to assess more rigorously the nature and significance in this story of the separation of treble and bass pitches to which reference was made earlier in the chapter. In addition, these sketches may make it possible to establish the position occupied by oscillating chords derived from the example of *Mallet* in an account of the evolution of the cycle of eleven chords in the later work. Space precludes a comprehensive account of these issues here, which must be confined to a few glimpses of how any fuller story of the conception and realization of tonal harmony in *18 Musicians*, and its perception by listeners, might be narrated.

If harmonic motion were indeed to take a significant step forward in Reich's practice via the struggle to achieve a new kind of tonal thinking, then the chords of Example 1 might be expected to play the originally determining and overall controlling role in the evolution of the compositional process as represented by Reich's extensive sketches for this work. Extrapolating from this hypothesis, the first problem that the composer would have to solve might logically be expected to be the establishment of the details of the harmonic vocabulary appropriate to the demands of such a new grammar of goal-directed harmonic motion. His second problem would logically then be to compose out the details of how the grammar of such a harmonic motion

unfold via a chord-by chord application of this sequence itself.

However, the early pages of sketches for *18 Musicians* provide clear evidence that the starting points for the work were neither specifically chordal, nor more than tangentially about pitch in any way, but predominantly textural and timbral, and then to some degree rhythmic/metric. No pitch material of any kind, chordal or melodic, occurs in the initial draft of ideas for the work.

(28)

When, then, does the cycle of eleven chords of Example 1 make its first appearance in Reich's sketches for *18 Musicians*, and what role does it play in the work's germination as evidenced by this crucial source? A reasonable answer to the first question would read: not until December 15, 1974, when what has already been described here as the treble pulsing of the final eleven-chord cycle begins to show itself, in part, via short sequences marked "Piano Pulse" that will eventually yield the complete sequence. This is, already, around one year after the very first ideas that might be regarded as contributing to the evolution of *18 Musicians* were jotted down.

Any answer to the second question, concerning the role of the cycle of eleven chords in the evolution of the whole work, can usefully be prefaced by some further explanation; any full answer to this question must anyway be complex, and it can only be addressed in part in the present chapter. Sketchbook evidence of the evolution of harmonic ideas, and the extent of any

kind of coherent harmonic plan, reveals that two main kinds of material may be identified characterizing the earlier stages of work in this area. The first of these consists of pulsing chords or, sometimes, simply pulsing notes, usually high in the treble staff. The second consists of oscillating chords (establishing themselves in due course in pairs) that, from the outset, seem conceived to underpin the pulsing chords, or notes. These oscillating chords will immediately be familiar, to those who know Reich's music well, as deriving from the chordal oscillations in the already mentioned *Mallet*.

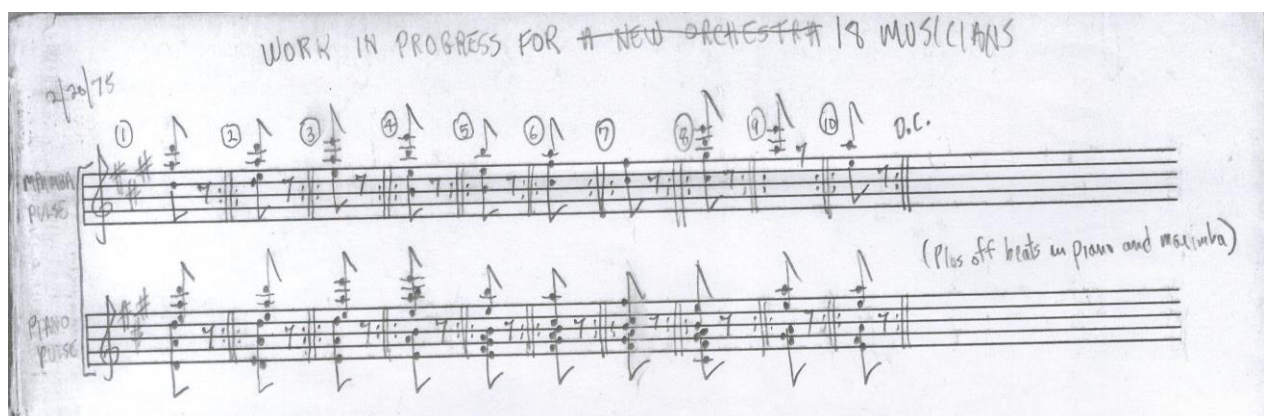
Though two more secondary types of material – what one might best call interlocking patterns and more clearly melodic material – also feature in the sketches working up the early ideas for *18 Musicians*, pulsing chords and oscillating chords are the most important generators of harmonic ideas and, eventually, of tonal planning in the work. The evolving relationship between them becomes a vital aspect of the story behind the tonal evolution of *18 Musicians*. But the question as to whether the dual harmonic “drivers” of pulsing chords and oscillating chords can be directly mapped onto the sequence of treble and bass pitches lined earlier has yet to be answered.

In the sketchbooks, the story behind *18 Musicians'* tonal evolution is a long one, taking its time, as already suggested, both to clarify the basic constituents of what only after considerable experimentation cohered as the cycle of elven chords and to identify the complete sequence as

the work's main underpinning structure. In these early sketches, such chordal materials are notable both for the extent to which they are conceived separately from the cycle of eleven chords itself and for the extent to which they are identified rhythmically and texturally as well as in terms of pitch.

Example 2 shows Reich on February 20, 1975, working on pulsing chords for the treble pulsings of the *18 Musicians* cycle. The significance of this moment in the work's evolution is pointed up by the heading: it is here, after more than nine months spent on composing *18 Musicians*, that Reich makes a decisive attempt toward its eventual title (even the quickly rejected "A New Orchestra" is quite telling).

Example 2, February 20, 1975: "Work in Progress for . . . 18 Musicians," ten pulsing chords, treble only, dated "2/20/75," Sketchbook [15], first two staves only (Steve Reich Collection, PSS).



A few examples of comparison between this and the treble line of the cycle of eleven chords of Example 1 show how the cycle itself and the composition as a whole might have developed from the version of February 20. (Note that, rhythmically, this sketch has in fact already established the continuous eighth-note pulsing of the final score; Reich makes this clear in his bracketed annotation.) In Chord 3, while moving the lowest treble note from D to E, Example 1 reduces the total number of pitch classes from the opening three (D, E, A) in Chords 1 and 2 to just two (E, A): reflected in both Section IIIA and IIIB of the final score, the only instance in which two “small piece[s],” (29) as Reich would have called them, are composed upon the same chord. The 1975 sketch makes the same move to low E but retains D an octave higher in the “Piano Pulse,” a solution not followed in the work’s final version.

As the chord sequence unfolds, the main differences between Example 1 and Example 2 continue to lie in the greater dissonance of the 1975 sketch, compared to the one of 1989. It will additionally be noted that Example 2 has only ten chords, not eleven. What is missing from the 1975 sketch is not the final chord of the sequence (E, F sharp, A – identical in both versions) but one of the chords with E as the lowest treble note. While the 1989 sketch, accurately reflecting the final score, offers four increasingly dissonant chords based on low E, the 1975 sketch has only three. This suggests that the process of increasing dissonance toward the center of the chord sequence – and thus toward the

center of the whole composition as well – was eventually deemed by Reich to require more space to expand than his 1975 attempt allows: an observation strengthened by noting his eventual decision to write two “pieces” built on Chord 3, as already seen.

Clearly, over the period of some two years during which *18 Musicians* was composed, many different versions of these pulsing chords were tried out; and some earlier, as well as later, attempts survived into the final score. Just one further example of these many versions can be illustrated here. With the partial performances of *18 Musicians* in May 1975 looming, (30) the only further sketch to feature a fuller version of the treble strand of the cycle of eleven chords is the one dated March 14 1975, reproduced here as

Example 3:

Example 3, March 14, 1975: "Opening Pulse - revision & expansion," dated "March 14," Sketchbook [15] (Steve Reich Collection, PSS).

The image shows a handwritten musical score on a page titled "OPENING PULSE - revision & expansion" with a date "MARCH 14" and a circled page number "3". The score is written in pencil and features a central rhythmic motif of a pulsing chord, repeated 11 times across the staves. The instruments listed on the left are: Mar I, Mar II, Piano I, Piano II, VOICES VIOLIN, and cello Bass Clar. The notation includes circled numbers 1 through 11 above the notes, indicating the sequence of the pulsing chords. The score concludes with "D.C." (Da Capo) markings. A handwritten note "quiet down?" is visible in the lower left area of the score.

This fills out a much fuller texture than did Example 2 – adding female voices, violin, cello and, possibly, bass clarinet – and, for the first time, supplying notes in the bass staff to accommodate the additional performers. The basic structure of the treble pulsing chords continues to be maintained by the two piano parts; marimbas, voices, and violin articulate other, mostly very closely related, voicings around this central layer. This, then, seems a significant moment when decisions about instrumentation,

and about how the “Opening Pulse” itself will be articulated, are being made, necessitating the addition of notes in the bass staff to the (by now) already quite well-established pulsing chords in the treble. A chord sequence with bass notes as well as treble ones is the natural, indeed inevitable, outcome of such decisions. Yet that chord sequence – now, with the full eleven chords, very close to the solution of the score’s complete cycle – is, in itself, a consequence of textural expansion using a cello and a bass clarinet, rather than one brought about specifically by prioritizing, during the compositional process, the creation of a complete cycle of eleven chords with bass as well as treble pitches, on which the whole composition will be built.

In turning the ten-chord sequence of February 20 more closely into the eleven-chord sequence with which all listeners to *18 Musicians* are familiar, we may note that the sketch of March 14 demonstrates interesting changes of detail. Example 3, for instance, drops pitch class A from the treble staves of Chords 5 and 6. In Example 2, Chord 6 had marked the move of the lowest note of the treble strand from E to F sharp, giving just three treble chords with their lowest note as E (Chords 3-5), rather than the four of the eventual solutions of Examples 1 and 3. Starting in each case from Chord 5, the consecutive dissonances built up from these lowest notes are thus handled somewhat differently, as Reich shifts his harmonic thinking here. Example 2 moves from a cluster including all the pitches of the three-sharp key signature between E and B, to an F

sharp-C sharp cluster in Chords 6 and 7. Then, with the move to low C sharp in Chord 8, the cluster is gradually thinned back down to F-sharp-B; to F sharp-A in Chord 9 (where the lowest note is F sharp itself); and, finally, with Chord 10's further shift of lowest note back to E, dismantled altogether to give E, F sharp, and A. It should also be said that, in adding an extra chord to Example 2, Examples 1 and 3 only offer a completely "filled-in", five-pitch cluster at Chord 8 (F sharp-C sharp).

Let us now turn to look briefly at the new bass pitches. The bass notes of Example 3 supply the solutions that Reich will now retain right through the remaining year and more before the complete premiere of *18 Musicians* (note that on March 14 he is already considering placing the dyad of the opening chord an octave lower).

Interpretations of some of the possible kinds of harmonic movement discernable in the combination of treble and bass notes that go to make up the final cycle of eleven chords have already been offered earlier in this chapter. The pitches in the bass are, of course, crucial to any such interpretation.

Bass notes are also clearly of special significance both for the harmonic construction of the "wave-like" length-of-a-breath pulsings and for the other ways in which Reich also articulates harmonies in individual sections of *18 Musicians*. A comprehensive account of the ways in which all such harmonies are related to the cycle of eleven chords – and to

the compositional processes charted by the composer's sketchbooks – is beyond the scope of this chapter. It is, nevertheless, possible to give a preliminary account of their role here.

In the opening and concluding “Pulse,” the chords of this cycle feature, in exactly the form given in Examples 1 and 3. Length-of-a-breath pulsing chords in each individual section of the final score – occurring in every section (including both Sections IIIA and IIIB) – may be divided into two categories in terms of their deployment of the treble and bass pitches of the eleven-chord cycle. Six sections (Sections I, IIIA, IIIB, VI, VII, and VIII) use only treble pitches in pulsing chords lasting a fairly short time (two or at most three pages, as measured out in the final score; the way in which this material is notated makes giving measure numbers unhelpful). The other six sections (II, IV, V, IX, X, and XI) use pitches from both the treble and bass staves (at nine or ten pages in the final score, most of these are longer than those in the first category; though in Section V the pulsings run for only six pages, and in Section X for only three – but since the pulsings of this penultimate section run straight on from those of Section IX, this length is, musically speaking, not especially relevant).

In all these cases, the individual chords in the cycle of eleven chords act as a kind of departure point for similar types of harmony, but with different voicings. In the main

body of the work, the harmonies for these pulsings, and indeed the other chordally based textures involved, do not always deploy all the pitches of the chord in question; neither are they always derived from the expected “correct” chord. To give examples of the deployment of the cycle of eleven chords in length-of-a-breath pulsing chords from just the first two sections of *18 Musicians*: the pulsing chords of Section I themselves, played by two clarinets, merely alternate D-A and A-D dyads extracted from the treble pitches of Chord 1, ignoring not only the F sharp-B dyad in the bass staff but also the E in the treble. Meanwhile, the chordal underpinning that supplies the bass pitches – in the part of the texture performed by Voice 3 and the two strings – has by this point in the section modified the initial F sharp-B dyad of Chord 1 so far that it can now alternate chords with G natural and A in the bass.

In the longer exploration of pulsing chords to be found in Section II – beginning on a pair of bass clarinets plus violin and cello – the initial bass dyad of F sharp-B and treble dyad of D-A can be ascribed to Chord 2. But the next aggregate – a bass dyad of C sharp-F sharp and a treble dyad of E-A – may be presumed to derive from Chord 3, not Chord 2; though the treble pitches E and A also occur on both Chords 1 and 2, it is only in Chord 3 that the E-A dyad stands alone in the treble staff. These two initial pairs of dyads then proceed to operate as merely the first two in a long sequence of such dyads in Section II: some of them traceable to, for instance, the bass dyads of Chords 2, 4 and 5; others

apparently entirely unrelated directly to the cycle of eleven chords. This sequence eventually settles on a lengthy oscillation between bass dyads with the pitches E-B and F sharp-D (again, not clearly related to the cycle at all). Throughout the whole sequence, the dyads in the treble – D-A and E-A (interpretable as extracted from some combination of the cycle's Chords 1, 2 and 3) – have been alternating unchanged.

In the final work as a whole, indeed – and now broadening the topic to take in all the ways in which harmonies are articulated in individual sections of *18 Musicians* – Reich takes the harmonies of some sections so far from those suggested by the chord sequence that an attempt to argue for a tonal scheme such as the one proposed in my earlier discussion of Example 1 might be argued as making no reasonable sense. To give a single instance of the problems involved: I have already suggested that Chords 5 and 6 of the final cycle of eleven chords increase pitch density, and tension, as part of a move away from F-sharp minor, with both the bass line (D to A) and the bass-staff dyads (D-A succeeded by A-E) of this pair of chords implying that A major is now the key involved. In Example 3, Chords 5 and 6 are exactly the same as those of Example 1, now laid out for Reich's new ensemble. But in the score itself, we find more chromatic ideas overlaid around these two chords, even though the general tendency toward A major is still to some degree retained in the texture as well.

In Section V itself, there is a change of key signature to four sharps and a fairly strong suggestion of C-sharp minor as the tonal center, reinforced by the initial length-of-a-breath pulsings. This is followed, in the scherzo-like and also to some extent recapitulatory Section VI, by a return to a three-sharp key signature that “revisit[s] the root-position, F-sharp minor certainties” (31) of Section IIIA. The bass dyad, A-E, of Chord 6 is present in the relentless alternations of the lower piano parts here, but only as the third and seventh of an F-sharp minor 7 chord; and the cello’s oscillating dyads are grounded on D, as the submediant of F sharp, and remain squarely within three-sharp territory. (32)

OSCILLATING CHORDS

This now leaves us with the other main sides of the tonal story to tell: that of what I have chosen to call the oscillating chords derived from *Music for Mallet Instruments, Voices, and Organ*; and of what the relationship of these is, if any, to the cycle of eleven chords, perhaps particularly to the sequence of dyads in the bass staff that underpins the treble pulsing chords of Examples 1 and 3. In *Mallet*, what Reich calls the “process of augmenting or lengthening the repeating chord cadences in the women’s voices and organ” (33) is already at least putatively “directional,” to the extent that these chords

help to determine the music's overall tonal motion, positing an integration of such specifically "harmonic" thinking into textures that continue to develop around, and are of course also driven by, a pulse. As Reich puts it,

The first process of rhythmic construction in the marimbas and glockenspiels has the effect of creating more fast-moving activity, which then triggers the voices and organ into doubling, quadrupling, and further elongating the duration of the notes they sing and play.

As in *18 Musicians*, these processes involved in *Mallet* interact upon one another; thus harmonic motion is closely related to the presence of pulse, and to the articulation and unfolding of a quite strict rhythmic process familiar from the composer's more obviously "process-driven" works such as *Drumming* (1970-71). Indeed, we have earlier noted that Reich was worried that *18 Musicians* would become merely a "re-writing [of *Mallet*]."

Oscillating chords for *18 Musicians* arrive even earlier in the sketchbooks than pulsing chords, with several sequences of them starting on April 14, 1974. As in the final score, and unlike in *Mallet*, these can sometimes occur in sequences of more than two chords, though the majority are chordal pairs. The first to be "composed out" in a manner resembling the way in which oscillating chords are treated in the final score was

sketched on April 28, with further elaboration on subsequent dates. This sketch, involving a complete texture of pulse, oscillating chords, and other material, is given here as Example 4:

Example 4, April 28, 1974: untitled sketch for pulse and oscillating chords, dated

“4/28,” Sketchbook [13], whole page (Steve Reich Collection, PSS).

Pulse = 0

4/19

1 2 3 4

5

4/29 Bar 4 Melodically =
marimba
or xylophone

Despite its notation in four flats – it takes Reich a surprisingly long while firmly and finally to establish the key signature of three sharps as his overall tonality – the significance of this Bb-minor7/F-minor9 pair of chords for the development of *18 Musicians* will already be clear from its kinship to the oscillating chords of this work's final score. As with several of the latter – including those articulated by the “paradiddling” of two pianos (the fast alternation of each pianist's hands that mimicks the rhythmic style of the treble pulsing chords and is first featured in Reich's output in *Phase Patterns* for four electric organs of 1970), as well as the sustained textures of female voices, violin, and cello, and (just once each) pairs of clarinets and bass clarinets – the chords in the sketch of April 28 articulate a tonic-dominant relationship using root-position harmonies: an approach quite different from that of the cycle of eleven chords.

The importance of the material first sketched on this occasion is potentially enhanced by the fact that it is recopied several times in the ensuing months. These include a sketch of May 2, 1974: seemingly part of the new plan, mentioned earlier, to use pulsing chords to effect harmonic changes. It is around this point in the sketches that the first hints are given of how Reich sees the possible link between the treble pulsing chords and any more purely sustained harmony involving bass as well as treble. On

May 5 – only one day after having written out quite explicitly, for only the third time, a texture including both treble pulsing chords and treble-and-bass oscillating chords (plus a melodic figure) – he writes “pulse + long tones,” simply as confirmation of this idea (without any musical notation to illustrate it).

The final score itself encompasses a wide range of approaches to the oscillating chords in every individual section of the work. These are presented most often in the form of simple chordal pairs as illustrated in Example 4, but can also be articulated as paradiddling in two of the parts for piano; sometimes both these types occur in the same section. Length-of-a-breath pulsings also participate in presenting sequences of chords within individual sections, and these tend to be longer than the simple chordal pairs found elsewhere; Sections II, V, IX, and X involve only length-of-a-breath oscillating chordal material. Voicing and the actual pitch content of these oscillating chords, too, are more varied and more complex than in Example 4, with several instances of first- and second-inversion chords and, as we have already seen, pitches outside the key signature of three sharps.

The first oscillating chords in the sketchbooks to be notated in *18 Musicians'* eventual key signature of three sharps – D (sharp 7)/F-sharp 11 – occur on May 8, 1974. Again,

these and subsequent examples are used to underpin experiments with elaborating fuller textures. On December 4, 1974, Reich notates Example 5, a full texture of pulsing chords (a cluster of all five pitch classes from D to A that does not feature in any other examples illustrated here) and other melodic and also more purely rhythmic patterns, including a quite elaborate extrapolation of a sequence of harmonic rhythms for these chords:

Example 5, December 4 1974: untitled sketch for a sequence of four-part chords, on page dated both "12/2" and "12/4," Sketchbook [14], whole page (Steve Reich Collection, PSS).

I go back to page 3 + work with
8 beat pattern + add
a metallophone melody

12/4 1500-1

xylb

12/2 2 (4) pke (6) pke

Pno pke

Mariimba pke

with off beats - plus xylb/mariimba + glock = 8 or 6? 1500-1

Mariimba melody

1 2 3 4 5 6 4

Pno Mariimba

5 Borian

harmony rhythm can be - 6123 45

612 345

3456 12

345 612

123456

2345 61

123 456

Voice ?

Voice ?

Stings

Vocals

Clar.

6

2 stings
2 voices
2 brass

given

given another
pattern than other
harmonic rhythms
are possible

This sketch is underpinned by a sequence of seven chords that takes off from the already much-used B-minor 7 and F-sharp-minor 9 harmonies and offers various alternatives to how this sequence will end, including two different options for concluding on E11. Such a sequence is evidently designed for oscillating use within a single section; though no part of it appears, at least without significant alteration, in the final score, several passages could be argued to draw on some part of this sequence for their underpinning chords. Section IV, for example, includes length-of-a-breath pulsings in the bass clarinets to provide a crucial part of the F-sharp-minor-9 harmony of the second chord at the bottom of Example 5; while three female voices, violin, and cello offer a more skeletal suggestion both of this chord and what is really B-minor 9 (held C sharps are a feature here). Such connections are, though, dangerously tenuous and suggest that a harmonic outline such as that provided by the chords in this sketch perhaps has only a tangential relationship to the final score itself.

Yet the basic oscillation of B minor and F-sharp minor, in particular – in a variety of chord positions and harmonic densities – remains a frequent occurrence in *18*

Musicians: right away, in Section I, the work's first oscillating chords outline B minor in a second inversion and F-sharp minor 7 in root position. It can also be said that the general approach to the vocabulary behind the chord building of Example 5 – seventh,

ninth, and eleventh chords, an emphasis on parallel fifths in the bass staff – will be familiar to anyone who has looked at the final score.

Curiously – and perhaps merely by accident, since these chords are fairly clearly designed for oscillating use on a local level – the progression that they outline, in the bass part in particular, bears some resemblance to the overall tonal shape behind the cycle of eleven chords when their pitches in the bass staff are supplied, as in Examples 1 and 3: a broad trajectory from B minor to F sharp (minor) to D major; then, more speculatively, a return to F-sharp minor. However, it seems unlikely that Reich would have consciously sought out and developed such a relationship between two such, on the face of it, quite different layers of his harmonic material in progress; and, of course, such basic tonal “moves,” involving a plethora of tonic and dominant chords of various kinds, will be part-and-parcel of any diatonicism that engages at all with chordal functionality. The full story of these oscillating chords as told by the composer’s sketches – including what balance they achieve between integration with the tonal and harmonic materials, and concerns, of the cycle of eleven chords and independence from it – is beyond the scope of the present chapter.

CONCLUSION

So what have we learned from this brief examination of the composer's sketch materials for *Music for 18 Musicians* about how Steve Reich conceived the "diatonicism of some kind" to which he evidently remained as committed in the mid-1970s as he had been in the late 1960s? Clearly, he wished to extend this diatonicism into fresh territory, at least fresh territory for him: not least in the quest to find new ways in which to construct a large-scale musical structure built less overtly than *Drumming* had been on rhythmic ideas. What do the composer's sketchbooks say about the manner in which this diatonicism evolved to fit, and indeed to shape, the new conditions of *18 Musicians* itself? And how might we move forward, as analysts or listeners, to take account of this new information? It is possible, I think, to say five things at this stage of research.

First, much, if not all, the pitch material of *18 Musicians* arises out of compositional concerns that are still based on pulse and rhythmic patterns, on melodic patterns, on polyphonic layering and unfolding of contrasting types of material, and on working out how these might be articulated by a new and, for Reich, larger-scale ensemble that, for the first time for him, included some of the more regular instruments of the Western orchestra. At no stage in the sketchbooks covering the years 1973 to 1976 does the cycle of eleven chords, with bass as well as treble pitches, occur, with the explicit focus of clarifying a harmonic scheme for the whole composition. Several attempts can be found in these sketches to determine the best sequence of pitches in the treble staff for what were, from the outset, seen as the pulsing chords that would

run right through the work. It is a long time, however, before these treble pulsing chords accumulate sufficiently even to begin to articulate any large-scale plan. In addition, the eventual sketch attempts that also include pitches in the bass staff appear to function not as sketches for determining the chord sequence itself in a finished state, but as versions of the well-known complete sequence explicitly “composed out” for use in the form in which it is heard in the work’s opening and closing stages.

Tonal and harmonic concerns thus did not, as might be inferred from previous commentary on the work – including the composer’s own – drive the compositional conception from the outset, giving such matters a pride of place in Reich’s methodology that they had never possessed before. Rather, they arose as a consequence of his efforts to devise musical materials for a work predicated, above all, on the integration of types of timbrally and texturally contrasting layers of musical materials that were new to the composer’s output at this time.

Second, how much does the tonality of *18 Musicians* depend on chordal structures for its conception – and also for its perception, for its listeners? Not as much as has been generally thought in the past, I would suggest. Oscillating chords, sometimes of a relatively conventional kind, lie behind individual sections of the work, and these have an element of functionality to them that derives in significant part from Reich’s willingness to accept root positions as well as his often preferred more altered versions of chords: in the sense both of inversions and of

deploying his favored ninth, eleventh, and even thirteenth chords, as well as sevenths; consecutive parallel voicing, especially with fifths in the bass, is another departure from “standard practice”.

The individual chords of the cycle of eleven chords, on the other hand, have rather different roles to play. Thus, my third point is that – as a consequence of the emphasis, during the compositional process itself as revealed by the composer’s sketchbooks, on other concerns, discussed earlier – the construction of this chord sequence was conceived by Reich much more via its treble notes than its bass ones. Bass notes were added only later; and compositionally, the treble pulsing chords seem to continue to have been regarded by Reich with a considerable degree of independence from the bass. This is the composer’s attempt to engage in new ways with a significant degree of ambiguity about what his harmonic materials “spell out,” a characteristic of all his early minimalist scores, as we have seen. Though, as quoted earlier, each of these eleven chords is indeed taken as the basis for “a small piece” (in the case of Chord 3, two “small pieces”), Reich is quite free with the way he handles each chord. A variety of treatments is allowed them; sometimes, especially with the anyway independently-generated oscillating chords, he is quite cavalier about changing notes, including, as we have already observed, the introduction of pitches foreign to the prevailing key(s) suggested by the key signature of three sharps; he even, for one section, changes the key signature of three sharps itself. And always, of course, he preserves a crucial ambiguity about what key the music is in,

especially with regard to the relative major or minor of his key signature.

The contrast between Reich's approach in *18 Musicians* and that of Philip Glass in his exactly contemporaneous *Einstein on the Beach* (1974-75; premiered, as was *18 Musicians*, in 1976) is telling. While Glass's large-scale music-theater work builds its harmonic foundations on chord progressions underpinned by functionally moving bass lines, for all the harmonic and other innovations that Glass's work employs, Reich's large-scale "[Music] For A New Orchestra" (as it was initially called in Example 2) is constructed around a more evasive approach to its chordal materials. In this approach, bass lines, and indeed all notes in the bass staff, are treated rather differently, in a manner arguably closer to that found in the jazz compositions or improvisations so beloved by the composer in his younger days, especially when the modal instincts and practices frequently found in many forms of jazz are involved. It can also now be noted that, to judge by his sketches for *18 Musicians*, Reich continued to be wary of the bass staff well into the 1970s: page after page of these sketches work with the treble staff alone. Even when some kind of functionality can be argued for the effects created by the cycle of eleven chords, the bass pitches of this sequence are, as it were, insinuated into the harmonic mechanisms that drive the work: sometimes achieving something beyond K. Robert Schwarz's already quoted characterization of "no more than decorative," but operating more by stealth than by more overt kinds of functionality.

As a consequence, listening to *18 Musicians* can provoke a wide range of perceptions about the nature of its tonality. Tom Johnson was surely not very wide of the mark to suggest, from his listening experience quoted earlier, that the work “doesn’t have much to do with chord progressions;” nor even – though the only departure in key signature that the final score makes from three sharps is to four sharps, not two – to say that it “is in a special kind of D major.”

Fourth, it would, of course, be wrong to ignore altogether the significance of the cycle of eleven chords, whether musicologically, analytically, or as a factor in how we experience the work as listeners. This applies not only in the opening and closing expositions of the cycle itself in the form that Reich labels “Pulse,” but also in the way in which we might understand, examine, and enjoy the gradual unfolding of the fifty or so minutes of music between these two bookending statements. The treble pulsing chords themselves help to hold *18 Musicians* together, and their impact can also be discerned, in particular, in the length-of-a-breath pulsing chords that permeate this music, as well as via the melodic and rhythmic materials assembled around the harmonic aggregate of each of the work’s individual sections. Meanwhile, the oscillating chords anchor the chordal dimension of *18 Musicians* even more firmly – if more locally, in the sections in which they occur – as an important factor in the work’s appreciation at all levels.

Fifth, and lastly, Reich’s sketches for *18 Musicians* should allow a great many details about how the work was composed – quite painstakingly over a long period of time, as is often the case

with him – to inform, and indeed help to shape, as may be desired, whatever analytical strategy is deemed appropriate for future work. Here, again, the positive aspects of ambiguity as a tonal and harmonic stance can be taken on board by the analyst, who is now faced with the complex and detailed working-out of music far from “minimalist,” at least by any limited, or pejorative, definition of the term. Any analyst must also confront decisions about whether – and, if so, how – the interface between poietic and aesthetic “information” will connect to, and affect the outcome of, further musical analysis of this *magnum opus* of American minimalism.

ENDNOTES

(1) Potter, Keith. 2000. *Four Musical Minimalists: La Monte Young, Terry Riley, Steve Reich, Philip Glass*. Cambridge University Press: 208.

(2) This description derives directly from interviews with the composer, conducted by the present author in 1986, from which the quotation itself is also taken. As referenced in the main text, it is quoted in Potter 2000: 188; the quotation at the end of the following paragraph comes from the same source.

(3) Steve Reich, *Music for 18 Musicians* (ECM 129, 2301 129).

(4) Steve Reich's archival materials, significant in particular for the collection of sketchbooks they include, were acquired by the Paul Sacher Foundation in Basel, Switzerland in 2009.

(5) Bernard, Jonathan. 1995. "Theory, Analysis, and the 'Problem' of Minimal Music." In *Concert Music, Rock, and Jazz since 1945: Essays and Analytical Studies*, ed. Elizabeth W. Marvin and Richard Hermann, 284. University of Rochester Press.

(6) Bernard, Jonathan. 2003. "Minimalism, Postminimalism, and the Resurgence of Tonality in Recent American Music." *American Music* 21, no. 1: 114.

(7) Ibid.

(8) Reich, Steve. 2002. "Four Organs – Program Note." In Reich, ed. Paul Hillier, *Writings on Music: 1965-2000*, Reich, ed. Paul Hillier, 50. All other quotations from the composer that are reprinted in this volume, all of which come from his own program or liner notes written at the time of the premiere performance or recording of individual works, are simply referenced to this source.

(9) Ibid. 9.

(10) This and the quotation in the following paragraph are taken from Ronald Woodley, 2007. "Steve Reich's *Proverb*, Canon, and a Little Wittgenstein." In eds. Kateljne Schiltz and Bonnie J. Blackburn, *Canons and Canonic Techniques, 14th-16th Centuries: Theory, Practice, and Reception History*, 462. Peeters.

(11) Woodley, Ronald. 1992. Entry on Steve Reich in ed. Brian Morton and Pamela Collins, *Contemporary Composers*, 768. St. James Press.

(12) Potter 2000: 230.

(13) *Music for Mallet Instruments, Voices and Organ* was completed in May 1973 and first performed on May 16 that year by Steve Reich and Musicians at the John Weber Gallery, New York City.

(14) This and the other quotations in this paragraph are taken from a note dated “April 8” [1974] in Sketchbook 13 (PSS, Basel). All other quotations from the composer’s sketchbooks will simply be dated – and, where appropriate, located in greater detail – in this chapter’s main text.

(15) All the quotations in this and the following paragraph are taken from Johnson, Tom. 1978. “The New Tonality.” *The Village Voice*, October 16, 1978. Reprinted in Battcock, Gregory. 1981. *Breaking the Sound Barrier: A Critical Anthology of the New Music*. Dutton; and also in Johnson. 1989. *The Voice of New Music: New York City 1972–1982*. Het Apollohuis.

(16) Johnson could at best, have had only a score of Sections I–VII of this work to hand and may not have seen any score at all. Reich began to write out a full score of *18 Musicians* during its composition, but completed this only as far as Section VII; this pencil MS is now in Basel. For rehearsal and performance purposes, only instrumental and vocal parts proved necessary. Sections of this incomplete score did pass into other hands during the early years of the work’s public exposure. But it was not until 1997 that a full score of *18 Musicians*, fully written out by Mark Mellits, under the composer’s supervision – was initially completed; a version of this was finally published by Boosey & Hawkes.

(17) All the quotations in this and the following paragraph are taken from Reich 2002: 87 and 89.

(18) The cycle of eleven chords seems to have received its first publication in a secondary source in Schwarz, K. Robert. 1982. “Steve Reich: Music as a Gradual Process,” Part II. *Perspectives of New Music* 20, no. 1: 247. This notates each chord as an eighth note. Later instances include Potter 2000: 234 and Reich 2002: 89; both these use whole notes.

(19) In Example 1, Chord 7 lacks the high C sharp to be found in the published versions;

Chord 9 lacks high G sharp, B and E; and Chord 10 lacks high E. With a single exception (the G sharp of Chord 9, played by the violin and sung, optionally, by Voice 1), these “missing” notes are supplied exclusively by the two marimba parts of the score itself, as eventually published in 1997.

(20) Reich, sketch dated “1/31/89,” Sketchbook 39 (the same source as for Example 1).

(21) This and the following quotation are taken from Reich, 2002: 87.

(22) In addition to the inevitable influence of John Coltrane, and probably Miles Davis, we might note that the drummer Kenny Clarke has frequently been named by Reich as an important influence, including specifically in *18 Musicians*; while the impact of a drummer can scarcely be said to be a harmonic one, Clarke worked with Dizzy Gillespie, Thelonious Monk, Bud Powell and many others who could in some way be behind the composer’s approach to harmony. Paul Hillier quotes Reich as saying that “Kenny Clarke produced a buoyant, floating sense of time which I think you can hear me trying to imitate in the ‘70s pieces like *Drumming* and *Music for 18 Musicians*,” see his Introduction to Reich 2002: 7. For a further discussion of the influence of jazz on Reich, see Potter 2000: 158-60. For a further discussion of Reich’s use of “stacked fifths” in the cycle of eleven chords in *18 Musicians*, see Potter 2000: 233-36, and elsewhere in the latter volume for broader commentary on this harmonic principle.

The modal jazz of John Coltrane was probably the most significant jazz influence here. For examples of the application of modal terminology to the analysis of Reich’s music, see Mark Stephen Bennett. 1993. *A Brief History of Minimalism: Its Aesthetic Concepts and Origins and a Detailed Analysis of Steve Reich’s The Desert Music (1984)*, doctoral thesis, University of Illinois at Urbana-Champaign; and Garton, Linda Ann. 2004. *Tonality and the Music of Steve Reich*, doctoral thesis, Northwestern University. An “altered-dominant” chordal vocabulary derived in important part from his study of jazz also plays a prominent role in some of Reich’s later compositions, in particular, as his sketchbooks help to testify. I have recently explored such chordal vocabulary, with particular reference to Reich’s *Triple Quartet* (1998-9), in Potter. 2017. “Harmonic Progressions as a Gradual Process: towards an understanding of the development of tonality in the music of Steve Reich.” In eds. Felix Woerner and Philip Rupprecht, *Tonality Since 1950*, 189-207. Franz Steiner Verlag.

(23) For the present author’s further discussion of tonality and harmony in *18*

Musicians, see Potter 2000: 233–45.

(24) These and the following quotations in this paragraph are taken from Reich 2002: 89 and 90.

(25) Schwarz 1982: 249.

(26) Potter 2000: 234; the anecdote about the significance of the bass clarinet in devising notes in the bass clef for the cycle of 11 chords may also be found on this page.

(27) K. Robert Schwarz probably had a copy of the full score of Sections I–VII, as mentioned above. Marc Mellits’s transcription of the complete score (see note 16) was still in progress while I was writing most of Chapter 3 of Potter 2000, and I had access to a pre-published version of this as well.

(28) Though the composer writes in his program note for the work that “The first sketches were made for it in May 1974” (Reich 2002: 87), the initial reference to the work actually occurs in Sketchbook [13] (“November 26, 1973 – October 10, 1974”), dated “12/6,” which indicates December 6, 1973. With the exception of material that appears to relate to his second period of study of Balinese gamelan music in Seattle in the summer of 1974, much, if not everything, in the sketchbooks from December 1973 to March 1976 almost certainly involves ideas connected to *18 Musicians*. In addition to the remainder of Sketchbook [13], this covers the whole of Sketchbook [14] (“October 11, 1974 – Feb. 19, 1975”) and Sketchbook [15] (“February 20, 1975 – March 20, 1978”) as far as, probably, March 1976 (the last dated sketch is January 6 1976, but sketches follow on the three pages after this, and Reich gives “3/76” on the front of the sketchbook for the completion of material for *18 Musicians*).

(29) Reich 2002: 89.

(30) The partial premiere of *Music for 18 Musicians*, performances of Sections I–VII, took place on Tuesday May 20, Wednesday May 21, Friday May 23 and Saturday May 24, at The Kitchen, New York City. See the entries “Concert – Work in Progress Kitchen” on these dates in the composer’s “Weekly-Minder” diary for 1975. The world premiere of the complete work took place on Saturday April 24, 1976; the composer’s 1976 diary entry reads “Music for 18 Musicians world premiere – Town Hall.” (These diaries are now also in Basel.)

(31) Potter 2000: 242.

(32) For another tonal interpretation of Sections V and VI, see Fink, Robert. 2005. *Repeating Ourselves: American Minimal Music as Cultural Practice*, especially 52-55. University of California Press.

(33) This and the following quotation are taken from Reich 2002: 76.

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