

Non-Traditional Notation And Techniques

In Student Piano Repertoire

The year 2012 was the 50th anniversary of the premiere performance of George Crumb's *Five Pieces for Piano*, his first piece incorporating direct string manipulation and a milestone in the genre of extended techniques. In 1912, 50 years before *Five Pieces for Piano*, Henry Cowell was exploring unconventional sounds and techniques, and devising symbols to notate them. These American innovations have since developed into an entirely new language with its own vocabulary. Pianists today, from the very beginner to the artist-level performer, can enjoy a vast repertoire of non-traditional notation and techniques from composers worldwide.

This overview of student repertoire integrating non-traditional notation and unconventional playing techniques are arranged into the following topics: tone clusters, indeterminacy, unmeasured notation, sympathetic vibrations, inside-the-piano techniques and auxiliary sounds. Each topic is introduced by first illustrating notational practice in artist-level literature, followed by a comparison to notational

tendencies in student literature and their pedagogical worth. The reader will recognize some surprising similarities and differences, and hopefully become better acclimated to the signs and symbols of this language.

Tone Clusters

By far the most common symbol in non-traditional notation and techniques is the tone cluster. There are numerous examples through all performance levels, from the very beginning student to the advanced. The cluster is formed by simultaneously playing a number of adjacent steps on white keys, black keys or chromatically. Its range lies anywhere from a few keys played with a few fingers, to several keys played with the fist, palm or hand, to enormous blocks of sound with the entire forearm. The cluster is generally notated as a vertical bar representing rhythmic value, pitch range (approximate or exact) and quality (white keys, black keys or chromatic).

Henry Cowell's precise notation of rhythmic value, pitch range and cluster quality is evident in *Exultation*, composed in the early 1920s.¹



(a) *p*

(b) *mf* *Principal Melody in R.A.*

Example 1: Cowell, *Exultation*

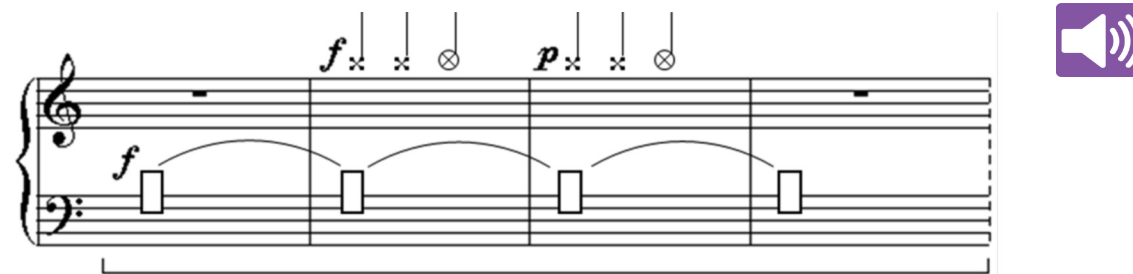
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In Example 1, two excerpts from *Exultation* show vertical bars forming two-octave clusters. The range is clearly notated and the sharps above the cluster indicate black keys only. Two contrasting cluster functions are represented here: short, percussive clusters accompanying a melody (a) and legato clusters forming a melody (b).

Student Repertoire

In Stephen Chatman's collection of *Amusements*, both *Nose Dive* and *Soaring High* integrate chromatic clusters in extreme ranges of the piano.² The clusters in *Nose Dive* occur in the final measure as the result of pitches descending across the entire keyboard. The opposite takes place in *Soaring High*, where the ascending pitches culminate in a cluster in the highest register. In both pieces, the hands play the chromatic clusters with flattened palms—one hand on the black keys and the other on the white keys. *Nose Dive* and *Soaring High* are excellent examples for the very young student to successfully read and perform cluster notation.

A single white-key cluster separates two phrases in *Spooky Moor*.³ Shown in Example 2, the cluster is played forte and held with pedal, while the right hand improvises on any black keys in the high register. Notice the cluster's approximate range of a fifth or sixth (probably an open-hand cluster for a child) and its placement in the upper range of the bass clef.



f *p*

Example 2: Daxböck et al., *Spooky Moor*

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Non-Traditional Notation And Techniques

The execution of *Spooky Moor* is effective and quite easy for the beginning student. In the opening antecedent phrase, marked *piano*, alternating quarter notes in the right hand (E and F) provide an accompaniment for the left-hand melody. The hands are reversed in the consequent phrase, which follows the cluster interruption. The resulting three-part construction is made very clear with its contrasting register, dynamics and rhythm. In addition, the middle section is texturally set apart with the thick cluster and use of damper pedal. *Spooky Moor* provides an opportunity for the instructor to discuss form in terms of sound and texture.

Harald Boje creates a novel treatment of cluster shapes in *Melody in the Fog*.⁴ Six very short segments of notated pitches alternate with six graphic representations of cluster patterns. Black and white shapes, representing black- and white-key clusters, appear in groups without a staff. The clusters are non-pitched and played with the fist. Their individual range is relative to each other, and their register as a group is dependent on their relative placement to the notated sections.



Example 3: Boje, *Melody in the Fog*

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In Example 3, the cluster placement indicates they are played in the area around middle C. Within the cluster group (a), the general movement on the keys is represented as ascending and descending boxes. The length of the final white-key cluster designates its relative length in time. Boje's notation for damper pedal can be seen below the staff (b). In this excerpt, the pedal has already been depressed and is released at the beginning of the notated section. The pedal is depressed again at the C-sharp in the fourth measure.

Although not aleatoric, *Melody in the Fog* consists of small, disconnected systems that appear to float on the page in this beautiful score. The student reads back and forth from graphic symbols, free in meter and pitch, to notated pitch and rhythm. Coordinating the eyes and hands between the two textures allows for the eventual ability to successfully approach aleatoric scores, and to "hear" the shapes and textures they see.

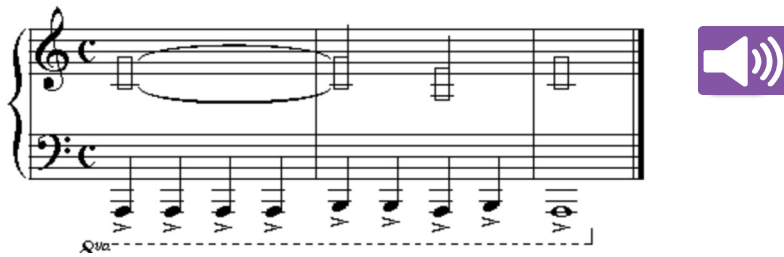
Waterfall introduces a graphic representation of arpeggiated clusters, executed by rolling the fist over a group of keys. The symbols are black or white, in reference to key color and appear as shapes illustrated in Example 4. The shapes descend through the five-line staff as approximations of register. *Waterfall* is very accessible to beginning students, and works beautifully to extend their physical range across the keyboard while incorporating a technique easy to execute.



Example 4: Daxböck et al., *Waterfall*

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Also for the beginning student, there are several pieces expanding both cluster range and keyboard range from Ross Lee Finney.⁵ *5 White-Note Clusters*, *Everything Everywhere* and *Seashore* all exploit the highest and lowest registers of the piano and are accompanied by clusters. In *5 White-Note Clusters*, the right hand plays clusters moving in thirds. The left hand plays only the lowest A and B on the keyboard. The composition effectively introduces the young student to extreme low ledger-line reading in combination with moving cluster symbols. Example 5 shows the final three bars of this short nine-measure work.



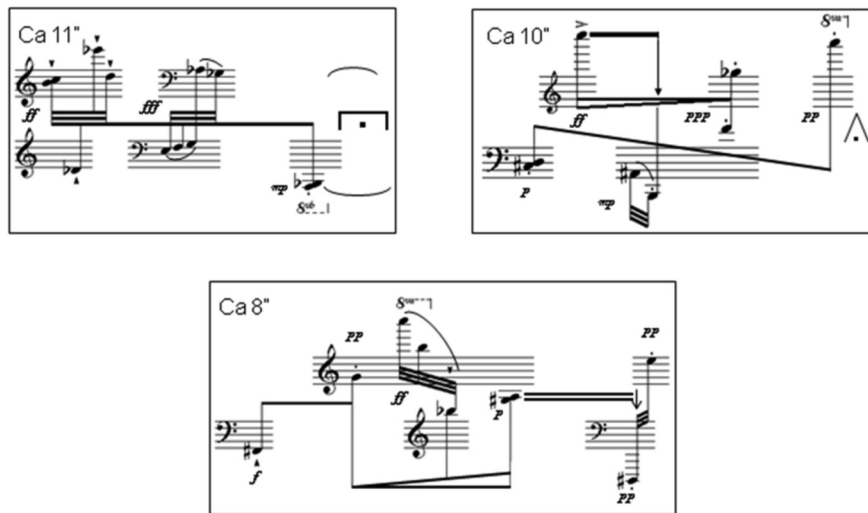
Example 5: Finney, *5 White-Note Clusters*
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Three elements make up *Everything Everywhere*: thirds, three-note clusters and single pitches. Both the thirds and the clusters move stepwise symmetrically with the thumbs meeting on middle C. The two single pitches, on the highest and lowest keys of the keyboard, alternate throughout the piece and provide an excellent exercise in huge leaps. *Seashore* includes five-note clusters on white keys in combination with single pitches in extreme registers. The young student can successfully perform both *Everything Everywhere* and *Seashore* since the leaps are consistently to the highest or lowest key, and the rhythmic scheme allows for ample time to execute them. In addition, the use of the damper pedal combines the clusters with the single pitches and, especially in this extreme range, requires careful listening to balance sonorities.

Comic Answers by Samuel Adler is a good introduction to cluster notation for the early-advanced student.⁶ This quick piece, marked “fast and happy,” includes several different articulation symbols and is played mostly in traditional fashion. Rhythmically notated clusters appear in either hand as vertical bars and are only approximate in pitch range. Adler indicates for the performer to merely “hit as many notes as possible with the entire hand approximately where the cluster is placed on the staff.”⁷ The left hand plays a total of four clusters and each is placed just underneath the staff system. They consistently function as short, syncopated and percussive interjections. The right hand plays three quarter-note clusters in a row and each ascends in pitch range. The cluster treatment in *Comic Answers* clarifies the phrase organization and its overall three-part (ABA') form. Extremely low clusters sound in parts A and A' as punctuations defining the 1:1:2 proportioned phrase structure. High-range clusters, contrasting to those in part A, characterize part B.

Indeterminacy

Indeterminacy refers to music based on chance or choice, regarding compositional and/or performance techniques. The most common form is that which allows the performer to choose certain events and play any or all of them in any order. These aleatoric works are represented as disconnected staves or graphic symbols.



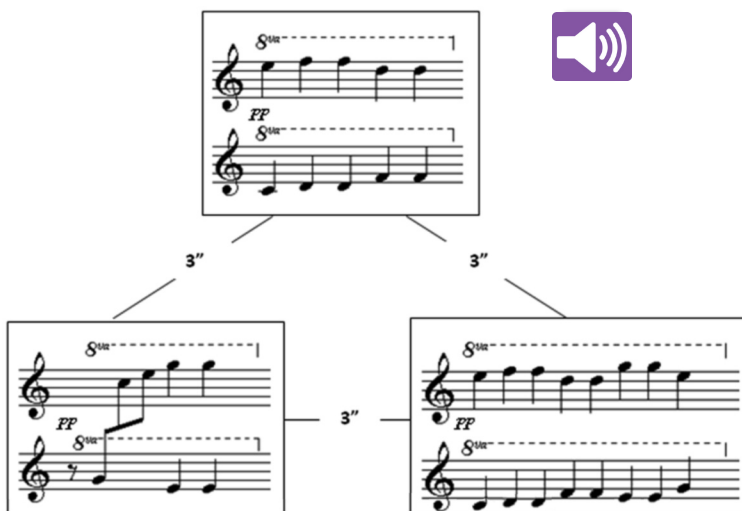
Example 6: Serocki, *A Piacere*

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Example 6 presents an excerpt from *A Piacere* by Kazimierz Serocki.⁸ The score consists of three sections with each containing 10 disconnected segments enclosed in a box. The three sections are performed in order, but the performer chooses the order of boxes within each section. Each segment must be played and can be played only once. The approximate duration of each segment is given in seconds, and blank spaces represent relative periods of silence.

Student Repertoire

Stephen Chatman notates *Broken Music Box* exactly as Serocki in presenting aleatoric music to the beginning student.⁹ The score consists of six independent phrases, arranged in boxes, to be played in any order. Three of the six segments are illustrated in Example 7. The player chooses the order and may repeat any event as often as desired but must play each at least once. The pedal is held throughout, and three seconds separate each event.



Example 7: Chatman, *Broken Music Box*

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The boxes vary in length and differ in the quality of the final sound. Four of them end on tonic and two end on the dominant seventh. Hence, the student experiments with slightly differing characters in each box, discovering how each functions in terms of following or preceding others.

The duets *Tic-Tac-Toe* and *Balloons* are similar in their appearance as disconnected staves, but are executed somewhat differently than *Broken Music Box*.¹⁰ *Tic-Tac-Toe* consists of three rows of three one-measure phrases. The performers take turns playing a box trying to get three in a row, like the game tic-tac-toe. To retain the common meter throughout, each event must immediately follow the preceding one and this provides an excellent sight-reading exercise. *Balloons* has both performers playing simultaneously. Each player sees five balloons containing a two-measure phrase: the phrases may be played in any order but only once. *Balloons* is composed on a black-key pentatonic scale, allowing any combination of balloons to work. The piece concludes with a final “balloon” notated in each part.

Jigsaw Puzzle is a set of seven short moods (labeled A–G) to be played in any order with the exception of segment G, which is played at the conclusion.¹¹ Every segment, except G, must be played at least twice. Idioms of 20th-century composition are represented both in traditional and non-traditional forms of notation and include mixed meter, polytonality, unmeasured notation and graphically notated clusters.

The image displays three segments of musical notation from the piece *Jigsaw Puzzle*. Segment A is a piano piece with two staves, labeled 'A Unmeasured and unmeasured; play as you like'. It contains two phrases: '1. Angrily (f)' and '2. Pleadingly (p)'. Segment C is a piano piece with two staves, labeled 'C'. It features a series of notes with dynamic markings *p*, *f*, and *p* indicating a crescendo and decrescendo. Segment G is a piano piece with two staves, labeled 'G Ending unmeasured'. It includes the instruction 'open palm' and a *pp* dynamic marking, with a graphic of a hand positioned over the keyboard.

Example 8: Noona, *Jigsaw Puzzle*

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Example 8 shows three segments from *Jigsaw Puzzle*. Non-traditional notation is evident in all three segments in their aleatoric form, the use of unmeasured notation and, in segments C and G, tone clusters. The spacing in segment C instructs the performer to accelerate and slow down.

The segments in *Jigsaw Puzzle* vary texturally from single tones to thick chords, and rhythmically, from very strict to quite free. Noona also encourages the performer to play the same segment with an entirely different mood, even in another register, when introducing it the second time. The composer suggests, for example, to play segment A “Angrily (*forte*)” initially and “Pleadingly (*piano*)” upon its return. The performance results in an unusual series of sounds and is only effective when the unique characteristics of each segment are well communicated.

1-4-2 (Primo) and 2-4-1 (Secondo) are two pieces written by two different composers, Carol S. Wickham and Duane Kramer, as an aleatoric duet for advanced students.¹² Both Wickham and Kramer agreed on a seven-tone row and a time span of exactly one minute. The two parts were composed independently and do not coordinate rhythmically.

Each performer reads a score consisting of five disconnected staves with a starting time indication for each segment. For example, a segment with the indication 0:31 means the player begins that segment 31 seconds into the piece. In 2-4-1, the first segment begins at 0:00, the second at 0:18, continuing with 0:25, 0:31 and 0:40. Three segments of 2-4-1 are illustrated in Example 9.

Slowly but swingy

(0:18)

(0:25)

(0:31)

Example 9: Kramer, 2-4-1

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The timed segments do not correspond to those in 1-4-2 and necessitates both performers to view a clock with a second hand. Three segments from 1-4-2 are shown in Example 10. The segments in both duet parts can be played once, followed by silence for the remainder of the time limit, or may be repeated as often as desired within the time limit.

Frisky
(0:30)

Gracefully
(0:40)

Very slowly
(0:53)

Example 10: Wickham, 1-4-2

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1-4-2 and 2-4-1 represent aleatoric music at its best. Each performance will differ in terms of sound, silence and synchronization, despite the strict order of events given. In addition to the aleatoric element, the duet includes additional contemporary idioms of tone-row writing with inversions, retrogrades and symmetry between the hands.

Unmeasured Notation

Unmeasured notation, also referred to as proportional notation, exists in many different forms through all grade levels. In its basic form, unmeasured notation lacks a time signature and barlines. The tempo is often left to the performer's discretion, and note values are free from the heavy and light stresses of meter. In other unmeasured forms, note values are eliminated altogether. Their rhythmic correlation is notated by placing note-heads in relation to one another spatially or by setting the note-heads in a system with approximations of length in seconds. Phrase structure is evident through visible note groupings and may be separated by a fermata or caesura. In some cases, the performer may choose phrase groupings as desired.

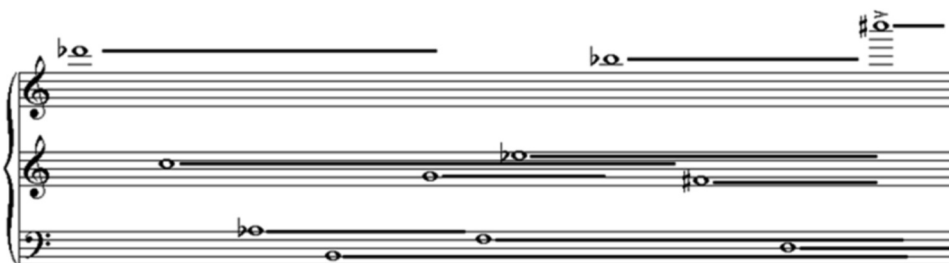
In the first of his *Last Pieces*, Morton Feldman assigns only a sequence of sound within a general framework regarding tempo (slow) and dynamics (soft).¹³ Example 11 presents this most free form of unmeasured notation. Vertically aligned pitches are played simultaneously but rhythmic patterns lie with the discretion of the performer.



Example 11: Feldman, *Last Pieces (I)*

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Günther Bialas indicates held tones in free meter with horizontal lines in *Marsch* (March), presented in Example 12.¹⁴ The score illustrates a graphic representation of overlapping sound.



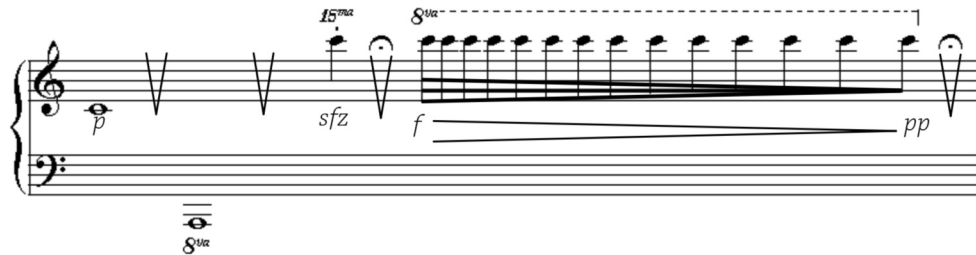
Example 12: Bialas, *Marsch*

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Student Repertoire

Ross Lee Finney's *Middle, Bottom, and Top* provides an opportunity for the beginning student to study proportional notation.¹⁵ Only three pitches are represented, A, C and D, and are simply placed in different registers. C occurs as C₄ (middle C), C₇ and C₈ (the highest key on the

piano). A is played in two registers, A_0 (the lowest key on the piano) and A_3 , and D appears only once as D_4 . *Middle, Bottom, and Top* is a short, two-system composition of various events, each separated by a caesura. The first system is illustrated in Example 13.



Example 13: Finney, *Middle, Bottom, and Top*
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At the repeated Cs, Finney graphically notates a ritardando by gradually diminishing beams and widening spaces between note-heads. The repeated figure also functions well as a study on extended decrescendo. Finney presents an important composition in allowing the young student to *read* pitches in extreme ranges and in a wide range of dynamics. *Middle, Bottom, and Top* stimulates careful listening to sound and its decay in an unmeasured context.

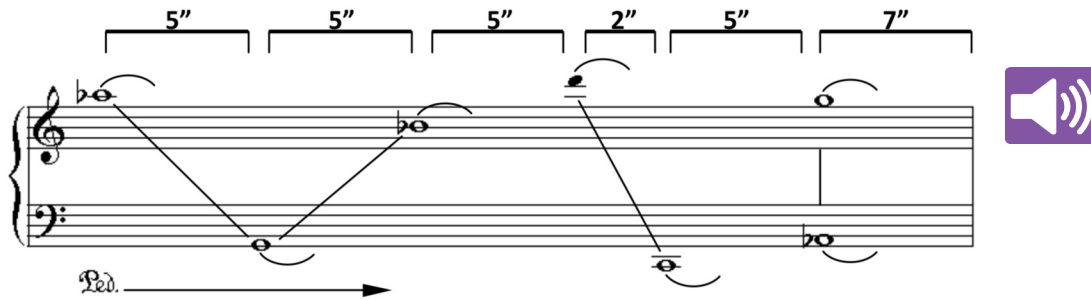
Similar to *Marsch* (Example 12), *Too Tired for Anything* effectively communicates to the beginning student, with only note-heads and horizontal bars, the relative timing of attack, release and length of tones.¹⁶



Example 14: Daxböck et al., *Too Tired for Anything*
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In Example 14 the performer plays and holds two pitches with the right hand, followed by two more in the left hand (a). Both hands release together at the fermata, as represented by the length of the horizontal bars. The same procedure follows as a three-note cluster (b) and is held longer than the previous event. Finally, the two hands alternate as they strike and hold single pitches, forming three-note clusters (c). The tones release again alternately, leaving A_3 sounding alone at the conclusion. The graphic representation of tone length encourages the beginning student to listen carefully to the decaying characteristics of held tones rather than counting their exact length. One must consider dynamic levels carefully to insure all pitches are sounding and decaying together at the fermata.

In *Daydream*, Stephen Chatman introduces the young student to several elements typically found in unmeasured notation.¹⁷ Black and white note-heads form the pitch sequence. Their duration is relative with approximations indicated in seconds. A line connecting note-heads now denotes not only the order of pitches, but also phrase groupings. A vertical line indicates a simultaneous execution of those note pairs. A portion of *Daydream* is shown in Example 15.



Example 15: Chatman, *Daydream*

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With the performance direction "In a daze," Chatman requires pedal throughout the piece, but allows the student to determine appropriate dynamics. The student must decide on dynamics by listening and reacting to evolving sounds as tones in various registers blend together. *Daydream* is an effective study in octave placement, ranging from C_1 to D_6 , and provides the challenge of successfully communicating a character with very few notes.

Flûte de Pan is an ensemble for two pianists at the early advanced level.¹⁸ Both parts are unmeasured but the secondo player reads specific note values while the primo player reads continuously flowing black note-heads. The parts do not synchronize, and note placement functions only as a guide to approximate location in the score. The primo player flows freely throughout on non-accented tones of the G phrygian scale. The secondo player provides a secure foundation by playing each phrase in strict rhythm. At the end of each phrase, the secondo player holds the final sound indefinitely. The following phrase begins when the primo player has reached the corresponding place in the score. Example 16 illustrates the combination of rhythmic and non-rhythmic notation in *Flûte de Pan*.



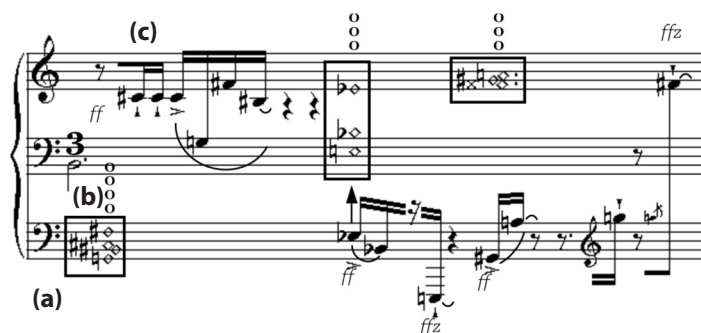
Example 16: Takács, *Flûte de Pan*

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The combination of strict and free playing make *Flûte de Pan* an excellent work in listening and pacing. Students should be encouraged to learn both parts to become familiar with the distinctive characteristics of each.

Sympathetic Vibrations

Sympathetic vibrations occur when undamped strings resonate on tones generated from another string or sounds from an external source. The pianist produces sympathetic vibrations by holding one hand on silently depressed keys while playing the other hand or by holding keys with the sostenuto pedal while playing both hands. If the instrument lacks a sostenuto pedal, a heavy book or object can be placed on the keys to free the strings. Silently held single keys are generally notated as diamond-shaped note heads.



Example 17: Crumb, *Gnomic Variations* (Var. 2)

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In the second variation of *Gnomic Variations*, illustrated in example 17, George Crumb notates held tones as diamond shapes set inside boxes (a).¹⁹ The circles above the boxes (b) indicate overtones sympathetically vibrating. They are awakened by the played tones (c).

Student Repertoire

Ghostly Voices appears in traditional notation and only the preparation requires unconventional techniques.²⁰ The performer is instructed to silently depress five white keys (D, E, F, G, A) in the great octave (C₂–C₃) and hold them for the duration of the piece with the sostenuto pedal or assistance from a friend. Appropriate for the beginning student, *Ghostly Voices* is based on a D minor pentascale and includes single pitches, triads and harmonic intervals ranging to the fourth. The different textures, combined with numerous rests, contrasting dynamics, and staccato indications are effective in producing vibrating sonorities. The staccato gestures, when played abruptly, form a haunting echo effect as the rests become clearly audible. A four-measure excerpt of *Ghostly Voices* is illustrated in Example 18.



Example 18: Daxböck et al., *Ghostly Voices*

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Billie Ferrell's *The Forest Speaks* includes texts referring to various activities in a forest.²¹ The programmatic content inspires frequent changes of texture, register and meter. The events are separated by a measure of rest, allowing the unique characteristics in that section to vibrate. A

chromatic fifth is depressed silently in the lowest octave and held throughout the piece. In Example 19a, "Puffs of wind," based on a whole-tone scale, is followed by "squirrel chatter," on a rapidly repeated pitch in the high register.



Example 19a: Ferrell, *The Forest Speaks*

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Example 19b illustrates eight additional measures of *The Forest Speaks*.



Example 19b: Ferrell, *The Forest Speaks*

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The Forest Speaks is an exceptional recital piece in its successful exploitation of sympathetic vibrations through sharply contrasting dynamics, articulations and rhythms.

Werner Heider's *Where is the 12th Note?* functions well as both an introduction to sympathetic vibrations and to the dodecaphonic idiom.²² The composition consists of 12 phrases, each using a 12-tone row. In each phrase, 11 tones are played with the right hand as the left hand silently depresses one tone. The single tone awakened by the sounding ones, however, is actually the missing tone not of that phrase but of the preceding one. Since each phrase is marked *meno mosso* or *piú mosso* and separated by a measure of rest (only the held tone sounds), 12 distinct events result. In addition, at the conclusion of the piece, one has heard all 12 tones of the scale as sympathetic vibrations. The silently held tones can be tricky to coordinate with the played tones in the right hand, and the articulation and dynamic indications are numerous and varied. Technically, the work is accessible and appropriate for the early advanced student. *Where is the 12th Note?* provides the instructor with the opportunity to introduce the student to a matrix and 12-tone compositional techniques.

Inside The Piano

There is a variety of compositions for students of all levels that include techniques of playing directly on the piano strings. In these works, the hands directly manipulate the strings by strumming, muting, plucking or touching nodal points to produce harmonics. Some pieces include string manipulation with objects other than the hands, such as different types of mallets, drumsticks, light chains, pencils or paper.

Since the hands directly contact the strings, the student should become familiar with preventative measures to safeguard against potential damage to the instrument. The hands should be clean and dry. If playing extensively on the strings, the performer should consider using magnesium carbonate powder on the hands. In addition, a soft dry cloth should be used to wipe the strings after playing to prevent corrosion. Often it is necessary to mark strings at nodal points, and this should be done with a bit of chalk. White-out or adhesives will destroy the strings and should never be used. The dampers should be marked only with adhesives labeled as “non-permanent,” and only when absolutely necessary. Adhesives not labeled as such can leave a sticky residue or even remove finish. Small pieces of Post-it notes work well to mark dampers and should be placed and removed with extreme care.

Notation representing string manipulation, whether plucked, strummed, muted or touching nodal points, is mostly consistent among composers of both artist-level works and student compositions.

(a)



(b)

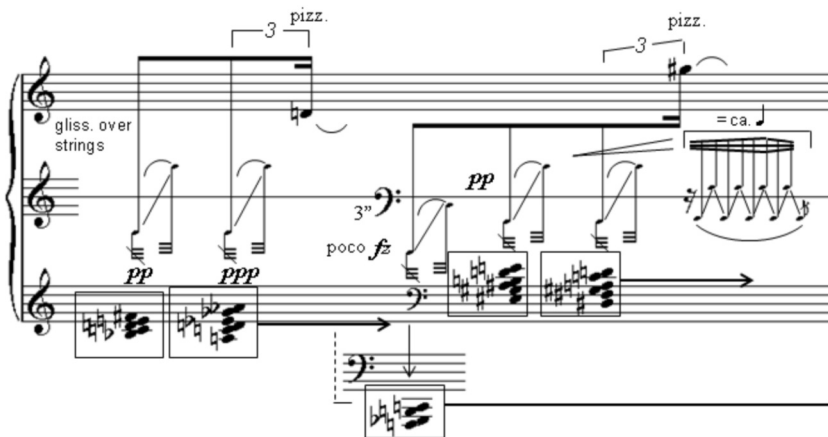


Example 20: Cowell, *Aeolian Harp*

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In Example 20a, fingertips (or fingernails when indicated) strum the strings as chords are silently held on the keys in Henry Cowell’s *Aeolian Harp*.²³ The freed dampers allow the chord to emerge, producing harp-like sonorities. The sweep is notated with an arpeggio symbol, and the ascending or descending direction of the sweep is indicated by an arrow. Plucked tones (Example 20b) are notated traditionally with instructions referring to the technique such as “plucked” or “pizzicato.” Cowell notates them as “pizz.”

George Crumb’s *Music of Shadows*, from *Makrokosmos I*, contains another common notation for strumming strings over a silently-held chord, illustrated in Example 21.²⁴



Example 21: Crumb, *Music of Shadows*

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The boxed-in chords signify tones depressed but not played. The diagonal glissando symbol above the chords instructs the performer to sweep the strings, allowing those tones to sound. The direction of the sweep is obvious from the placement of note-heads at either end of the diagonal bar.

The final variation of Crumb's *Gnomic Variations* includes muted tones and fifth partial harmonics and is illustrated in Example 22.²⁵



Example 22: Crumb, *Gnomic Variations* (Var. 18)

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The "+" above the note in the top staff denotes a muted tone (a). The finger presses firmly on the string next to the bridge where the string ends. In this example, the left hand mutes the string as indicated by the A_0 notated in parentheses on the bottom staff. The right hand plays the same key, A_0 , as seen in the uppermost staff. A circle above the note (b), seen here on the middle staff, indicates that the fundamental tone is sounding as something else, in this case, a fifth partial harmonic (notated on the uppermost staff). The fifth partial is found by dividing

the string into five equal lengths and lightly touching any one of the division points. The resulting harmonic tone will sound two octaves and a major third above the fundamental pitch. In this example, the left hand touches the fifth partial nodal point of B_0 , notated on the bottom staff, while the right hand plays B_0 as notated on the middle staff. The actual sound, Eb_3 , is notated in parentheses on the top staff.

Student Repertoire

For children, *The Princess and the Troubador* is an effective and accessible piece to experience strumming.²⁶ In part of the composition, chords are silently depressed with the left hand while the right hand strums across the open strings of a grand piano. The technique is notated exactly as Cowell's *Aeolian Harp* (See Example 20) as shown in the final four bars of the piece in Example 23.

R.H. strum inside piano



L.H. press quietly

Example 23: Noona, *The Princess and the Troubador*

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Since the strummed strings will activate only those free from the dampers, the damper pedal cannot be held while strumming. It is, however, necessary to connect the strummed chords with touches of pedal, and this requires some practice. Young students may have difficulties reaching inside the grand piano while playing on the keyboard and using pedal, but there are several options to overcome this. The performer could use the eraser end of a pencil, giving the arm that much additional length, or half sit/half stand by using a stool. A former student of mine used wooden chopsticks and achieved a very beautiful, metallic-like sound. *The Princess and the Troubador* could easily be played on an upright piano with the lid drop (front lid) removed. This is also an opportunity for the instructor to introduce the student to the mechanics of the instrument and to emphasize caution and care with them.

Emma Lou Diemer's *Echo Dream* presents the early intermediate student with the opportunity to dampen tones.²⁷ Diemer uses triangular note-heads (diamond shapes for longer note values) to indicate dampened tones, as illustrated in Example 24.



Example 24: Diemer, *Echo Dream*

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Echo Dream alternates between traditionally played keys (a) and dampened tones (b). The example shows the final eight bars of this short 20-bar piece.

Jenő Takács's *Study in Sounds* includes the techniques of muting tones and plucking a single string with the fingernail.²⁸

Mute inside the piano

L.H. 3 2

(a)

Example 25: Takács, *Study in Sounds*

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As shown in Example 25, the left hand places two fingers on the G₃ and A₃ strings (a) and holds them throughout the piece. The right hand alternates between playing the two muted tones on the keys (b) and short figures in the treble clef (c). There is one plucked pitch (d) with instructions from the composer to use the fingernail. The black note-heads are notated proportionally and the distance between them on the page approximates the speed in which they are played. The treble clef figures are notated as half notes and are free as well. Takács places staccato marks on the half notes to denote a light articulation. As its title implies, *Study in Sounds* provides the serious intermediate student with the challenge of playing unmeasured notation and inside-the-piano techniques, while experimenting with sound and sound decay.

Samuel Adler's *Bells and Harps* includes extensive use of direct string manipulation for the early advanced student.²⁹ The left hand plays mostly on the strings throughout the composition, alternating with right-hand tones played on the keys. The left hand produces harp-like sonorities as it strums over silently held chords and plucks strings. In the closing measures, the right hand lightly touches the second partial nodal point producing bell-like sonorities as the left hand strikes the key and hits the lowest strings. The slow tempo allows the student to navigate easily between plucked and strummed strings, and between played and silently depressed keys. Careful practice is required with the damper pedal to ensure smooth legato between plucked and strummed chords. Plucking repeated tones occurs throughout the piece and can be very difficult. Once the string vibrates, approaching it again with the finger will abruptly dampen the tone. Therefore, the performer should take advantage of the three strings for each pitch by alternating between the far-left and far-right strings. Non-traditional techniques in *Bells and Harps* are notated clearly and precisely, yet differ somewhat from common forms of extended notation.



Example 26: Adler, *Bells and Harps*

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Illustrated in Example 26, note-heads as diamond shapes denote silently held chords (a) and a diagonal line (b) indicates the strings are strummed at the speed equivalent to the value of one quarter note. Adler notates a triangle (c) at subsequent strums to indicate an approximate starting pitch. The “+” symbol above the note, a symbol for muting by many other composers, indicates plucked tones here (d). Harmonics are notated as in Crumb’s *Gnomic Variations*. The small circle (e) signifies a tone sounding other than the fundamental pitch. The performer touches the nodal point to produce a second partial harmonic, sounding one octave higher than the notated pitch. The sounding pitch is indicated as a diamond shape in parentheses between the circle and the played pitch. The asterisk (f) refers to instructions by the composer to gently strike the lowest strings.

Sylvia Glickman’s *Dances and Entertainments* is also well-suited to the early-advanced student.³⁰ The suite begins with a solemn introduction, which sets the tone for four “Dances” (Earth, Air, Fire and Wind) separated by three “Entertainments” (Sarabande, Waltz and Rag). The *Entertainment—Rag* requires a light chain to be placed on the treble strings for a novel and nostalgic effect. *Dance of Air* requires two wooden drum sticks, two felt drum sticks and a percussionist’s wire brush. They are used throughout the composition to play glissandos across the strings and, in one case, across a silently held chord. The performer also taps the drumsticks alternately on the strings of a single pitch to create a tremolo effect. Glickman has the performer prepare the piece by holding the bottom three Gs of the piano silently with the sostenuto pedal.³¹ The Gs are repeatedly awakened by the glissandos and drone throughout the composition. The drone is especially effective in the sections where both hands play in the treble clef with no damper pedal. *Dance of Air* is clearly notated both in terms of rhythm and extended techniques. The rhythm, spatially notated, directs the two hands to play according to their approximate vertical alignment only. They do not coincide unless indicated. This technique of proportional notation results in an absence of meter and successfully reflects its character of weightlessness. Aside from the diamond-shaped note heads of a single silently depressed chord, *Dance of Air* is traditionally notated as a series of glissandos and repeated pitches. Instructions to use drum sticks or brushes are given at each event.

Stefan Schleiermacher’s *In der Burgruine* (In the Castle Ruins) from *Zwölf Klanglandschaften im Klavier* (Twelve Soundscapes Inside the Piano) presents the early advanced student with a number of techniques inside the piano.³² Example 27 shows the opening measures of this two-page piece.



Example 27: Schleiermacher, *In der Burgruine*

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In the first 11 bars alone the performer is instructed to silently depress forearm clusters (right arm on black keys/left arm on white keys) while holding them with the sostenuto pedal (a), depress left-hand chords silently while strumming with the right hand (b), glide over bass strings with the fingernail (c), mute tones (d), and strike the metal beam with an open hand (e). Not visible here, the fingernail also plucks the highest string of the piano in measure 14. All techniques represented in the piece occur in the first 14 bars.

These various techniques combine to form a magical, eerie and convincing soundscape. Schleiermacher successfully incorporates extended techniques as an integral part of the composition without resorting to mere effects. *In der Burgruine* also includes many moments of rest, allowing the sound to audibly develop and decay. Another work from the same collection is worth mentioning here in its novel treatment of pitch and sound. *Im Flachland* (In the Lowlands) allows the performer to explore various techniques of finding the same pitch, namely, the E above middle C (E₄).³³



Example 28: Schleiermacher, *Im Flachland*

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In Example 28, the E string is played (a), muted (b) and plucked in various ways. The string is plucked near the front of the string with the flesh of the finger (c), near the center of the string (d) and in front with the fingernail (e). Harmonics are formed on the third- (f), fifth- (g), seventh- (h) and second-partials (not seen here)—all resulting in the same pitch. In each instance, the pitch is modified in color. Schleiermacher writes that these “changes of altitude” represent a landscape that is not geographically 100 percent flat. The final note of the piece is the only to sound as a new pitch. Formed on the A₀ string using the fifth-partial harmonic, it sounds as C#₃.

Auxiliary Sounds

Auxiliary sounds include vocal expressions or sounds such as clapping, stomping, knocking, or striking different parts of the instrument with the hands or an object. Some of the following works include objects to create these sounds such as a pot lid, water glass, book and tape recorder. Generally, any type of auxiliary sound is notated as a non-pitched “x” and includes instructions from the composer pertaining to the desired type of sound. For example, Frederic Rzewski notates auxiliary sounds with an “x” in *The Days Fly By*.³⁴ Illustrated in Example 29, he notates rhythm to tap (a), and to play an open-handed tremolo and knock (b).

(a) tap on piano cover

(b) tremolo on piano cover

Example 29: Rzewski, *The Days Fly By*
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Student Repertoire

For the very beginning pianist, some of the most accessible non-traditional techniques are those containing auxiliary sounds. Both volumes of *Seventy Keyboard Adventures* include several examples.³⁵ In *Raindrops*, the performer speaks a given text notated as non-pitched quarter notes. The text alternates between left and right hand quarter notes playing middle C. The only other note value is the final whole note. The piece can be introduced in the first piano lesson as it ensures a conscious pulse with the student speaking two trochees (raindrops, raindrops), beautifully setting up the 4/4 meter. *Gently Blows the November Wind* includes circled “x” note heads representing half and whole notes with instructions for the performer to “whistle like the wind.” The sections of whistling function as consequent phrases to antecedent phrases played on the keys. The strong contrasting treatment of the two phrases, both physically and aurally, strengthens the student’s understanding of a question-and-answer phrase structure. *There and Back* begins with right-hand finger snaps on beats two and four of a 4/4 meter. This introduction sets up the syncopated pitches which the right hand eventually plays. Four measures of *There and Back* are illustrated in Example 30.

Example 30: Daxböck et al., *There and Back*
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In *Trumpet and Drum*, the performer alternates between tapping one hand on the piano lid while playing the other. The percussive hand, tapping eighth- and quarter-note values, allows the student to consciously hear the full length of the long note values played by the opposite hand. The piece also serves as an excellent study in coordination, as the alternating hands move from the piano lid to the keyboard. In *Fox, Watch Out!*, a double-stemmed “x” between the staves indicates the two hands clapping together. It occurs four times and functions as a phrase ending or as an interjection within a phrase. It is an excellent and fun activity involving keyboard geography. The student must quickly relocate both hands after having removed them from the keyboard. Three measures are shown in Example 31.



**Example 31: Daxböck et al., *Fox, Watch Out!*
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Stockpile involves creating auxiliary sounds by clinking a glass of water with a spoon and dropping a heavy book on the floor.³⁶ Both techniques are executed on a given rhythm. In addition to the auxiliary sounds in *Stockpile*, the depressed damper pedal and tone clusters make this an important study in sound quality. The result of the percussive actions reacting with vibrating strings produces subtle overtones from which performance decisions, such as dynamic relationships and timing, should be made.

Stephen Chatman's *Night Sounds* is a bizarre soundscape and includes both graphic and rhythmic notation to indicate numerous auxiliary sounds.³⁷ Two abstract shapes, representing the wind, call for the performer to make breathy, whistling sounds. Rhythmic representations include tapping a pencil on the surface of the instrument, clicking the tongue, snorting like a pig, meowing like a Siamese cat and “whooping” like a distant owl. Written instructions require a long, whispering “sssh” sound. The piece is indeed for the uninhibited student who possesses a good rhythmic sense and much fantasy. The composition includes pitches across an extremely wide range of the instrument and is appropriate for the late intermediate student.

For the early-advanced student, Seymour Bernstein's *The Black Fly* includes several auxiliary sounds.³⁸ Instructions include clapping, slapping the back of one's neck, right leg, left thigh, both wrists and even the wood above the piano lid. The theatrics, if done well, can contribute to a very effective and successful work of performance art.



Notes

1. Henry Cowell, *Piano Music*, Vol. 1 (New York: Associated Music Publishers, 1959), 4.
2. Stephen Chatman, *Amusements*, Book 1 (Ontario: Frederick Harris, 1989), 14–15.
3. Karin Daxböck, Elisabeth Haas, Martina Schneider, Rosemarie Trzeja, and Veronika Weinhandl, *Seventy Keyboard Adventures*, Volume 1 (Wiesbaden: Breitkopf & Härtel, 2001), no. 30.
4. Monika Hildebrand, ed., *Piano Variété* (Vienna: Universal Edition, 1994), 18.
5. Ross Lee Finney, *32 Piano Games* (New York: C. F. Peters, 1969), 5–7.
6. Samuel Adler, *Gradius III* (New York: Oxford University Press, 1981), 5.
7. *Ibid.*, 5.

8. Kazimierz Serocki, *A Piacere* (Melville, N.Y.: Belwin Mills, 1963), 1.

9. Stephen Chatman, *Amusements*, Book 2 (Ontario: Frederick Harris, 1989), 5.

10. Stephen Chatman, *Escapades*, Book 1 (Ontario: Frederick Harris, 1997) and *Preludes*, Book 1 (Ontario: Frederick Harris, 2002), 5, 4–5, respectively.

11. Walter and Carol Noona, *The Contemporary Performer*, Book 4 (Dayton, Ohio: Heritage Press, 1976), 12–13.

12. Mary Elizabeth Clark, ed., *Contempo 2* (Boulder, Colo.: Myklas Press, 1974), 18–19.

13. Alice Canady, ed., *Contemporary Music and the Pianist* (Port Washington, N.Y.: Alfred, 1974), 62.

14. Günther Bialas, *Lamento, vier Intermezzi und Marsch* (Kassel: Bärenreiter, 1987), 24.

15. Ross Lee Finney, *32 Piano Games* (New York: C.F. Peters, 1969), 2.

16. Karin Daxböck, Elisabeth Haas, Martina Schneider, Rosemarie Trzeja, and Veronika Weinhandl, *Seventy Keyboard Adventures*, Volume 1 (Wiesbaden: Breitkopf & Härtel, 2001), no. 25.

17. Stephen Chatman, *Amusements*, Book 2 (Ontario: Frederick Harris, 1989), 3.

18. Jenö Takács, *4 x 4* (Vienna: Universal Edition, 1981), 28–29.

19. George Crumb, *Gnomic Variations* (New York: C.F. Peters, 1982).

20. Karin Daxböck, Elisabeth Haas, Martina Schneider, Rosemarie Trzeja, and Veronika Weinhandl, *Seventy Keyboard Adventures*,

Volume 2 (Wiesbaden: Breitkopf & Härtel, 2001), no. 53.

21. Mary Elizabeth Clark, ed., *Contempo 2* (Boulder, Colo.: Myklas Press, 1974), 10–11.

22. *Ibid.*, 4–5.

23. Henry Cowell, *Piano Music*, Vol. 1 (New York: Associated Music Publishers, 1959), 10.

24. George Crumb, *Makrokosmos*, Vol. 1 (New York: C.F. Peters, 1972), 13.

25. George Crumb, *Gnomic Variations*. (New York: C.F. Peters, 1982), 25.

26. Walter and Carol Noona, *The Contemporary Performer*, Book 2 (Dayton, Ohio: Heritage Press, 1975), 26.

27. Emma Lou Diemer, *Reaching Out, for Solo Piano*, (Fort Lauderdale, FL: FJH, 2004), 9.

28. Jenö Takács, *Sounds and Colors*, Op. 95 (Vienna: Doblinger, 1977), 2.

29. Samuel Adler, *Gradius: Book III* (New York: Oxford University Press, 1981), 19.

30. Sylvia Glickman, *Dances and Entertainments* (Bryn Mawr, Pa.: Hildegard Publishing, 1990).

31. The *8vb* indication in the score is obviously wrong. The three lowest Gs are already notated on the staff.

32. Stefan Schleiermacher, *Zwölf Klanglandschaften im Klavier* (Wiesbaden: Breitkopf, 2001), 26.

33. *Ibid.*, 14.

34. Frederic Rzewski, "The Days Fly By" in *The Carnegie Hall Millenium Piano Book*, ed. Franz Xaver Ohnesorg (New York: Boosey and Hawkes, 1999), 25–26.

35. Karin Daxböck, Elisabeth Haas, Martina Schneider, Rosemarie Trzeja, and Veronika Weinhandl, *Seventy Keyboard Adventures*, Volumes 1 and 2 (Wiesbaden: Breitkopf & Härtel, 2001), nos. 2, 7, 29, 35 and 38.

36. Walter and Carol Noona, *The Contemporary Performer*, Book 3 (Dayton, Ohio: Heritage Music, 1975), 15.

37. Stephen Chatman, *Fantasies* (Ontario: Frederick Harris, 1995), 12–13.

38. Seymour Berstein, *Insects* (New York: Tetra, 1976), 30–32.

Kevin Richmond is assistant professor at the University of Memphis. He has held positions at the Universität Kassel in Germany, the Loire Valley Music Institute in France and the University of Texas at San Antonio.

