

Jems: Journal of Experimental Music Studies

5 bars of 3 slow beats irregularly spaced

actor

es

gt

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Switch on organ

Cornelius Cardew, Paragraph 1, *The Great Learning*, opening.

Chinese Characters and Experimental Structure in Cornelius Cardew's *The Great Learning*

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CORNELIUS CARDEW'S experimental work *The Great Learning* (1968-71) may be considered, with some justification, to be the summation of British experimental music techniques, and, to a great extent, all experimental music techniques of the classic experimental era (ca. 1952-73).² *The Great Learning* is based on the first seven paragraphs—the introduction—of the *Dà Xué* (or the *Ta Hseüh*),³ written by Confucius and his pupils between the fifth and second centuries B.C. and translated by the poet Ezra Pound. Each paragraph in this work lasts from a half hour to two hours, the whole lasting more than nine hours. Cardew dedicated *The Great Learning* to the Scratch Orchestra (a London-based ensemble founded by Cardew and the composers Michael Parsons and

Howard Skempton), whose members included professional and student musicians, visual artists, actors, dancers, and people with no previous experience of the arts.

The Great Learning is designed with the Scratch Orchestra's variety of experience in mind: there are solos of great technical difficulty written in common-practice music notation, text pieces or pieces using prose instructions, and music in graphic notation (Cardew had, of course, previously written *Treatise* (1963-67), a 193-page graphic score).⁴ Most of these sections, pieces, and activities reflect the musical categories of the Scratch Orchestra as laid down in its Draft Constitution, which Cardew published in *The Musical Times*.⁵ These categories were Compositions, Improvisation Rites (activities which are not compositions in themselves but which can facilitate improvisation), Scratch Music (a kind of apprenticeship programme in which pieces are written first as solos which then act as accompaniments to other solos), Popular Classics (previously written pieces which are known well enough to be improvised upon), and Research Projects.⁶ Cardew also used the structure, content, meaning, and other features of the Chinese characters of the *Dà Xué* throughout *The Great Learning*. This use of textual and associative material to generate the music itself is typical of Cardew's experimental work and of experimental music in general. However, this concern has mistakenly been attributed to a kind of formal academicism gained from his work with Karlheinz Stockhausen and the European avant-garde, although he disassociated himself from this movement in 1961.

The late Brian Dennis wrote a perceptive article outlining the use of Chinese characters in *The Great Learning* in 1971.⁷ However, this article appeared before the centrepiece of the work, the massive Paragraph 5, was premiered, and Dennis, who was constrained by the limitations of the purpose of his article, had to explain all the features of what was then a new work in less than 1500 words. Because of this, Dennis's findings are necessarily condensed: clear to those who work closely with the score and an intriguing introduction for the greater musical community that made up the readership of *The Musical Times* in 1971, but only a tantalising indication of the richness of this work to others. The present article attempts to explore Cardew's use of Chinese characters in greater detail and to show that his consistent use of these characters for structural generation does not come from the inheritance of post-war serialism of the dominant avant-garde culture; rather, it uses the eclecticism, philosophy and game-play of most American and British experimentalism to give structural coherence.

Dennis noted that both Paragraph 1 and 7 are structured using the brushstrokes of the Chinese characters of the text in different ways. Paragraph 1, for chorus and organ, was completed at the end of April 1968⁸ and premiered before the establishment of the Scratch Orchestra. It begins with a conducted passage for the chorus, who strike pairs of stones together according to the following notation:

Ex. 1: Opening, Paragraph 1, *The Great Learning* © Cardew estate. Reproduced with kind permission.

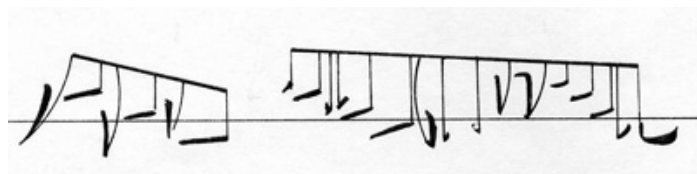
The stones 'quavers' (which are to be played at any time within the conducted beats) are related to the Chinese text, according to Dennis, in that the number in each beamed group corresponds to the number of letters in the transliteration of the words. For instance, the first three words, transliterated into the standard English Wade-Giles Romanization, are 'Ta Hsueh Chih', corresponding to the first three beamed groups of two, five, and four 'quavers'.⁹ These symbols in no way indicate 'quavers' in the sense of duration, as they would in traditional notation. Instead, stones may be hit the requisite number of times at any time between downbeats (indicated by the brackets at the top of the excerpt). The 'pitch' or relative height of these quavers can only be performed physically (by playing the stones at a relative height from the ground) or symbolically in some other way, unless stones are chosen with a great range of sounds. Dennis noted that the relationship between the Romanized letters of the paragraph and the quavers 'resembles Schumann's use of letters and ciphers'.¹⁰ This 'pitch' is a cipher that indicates the letter name of the transliteration ('a' at the lowest, 'z' at the highest: see Examples 1 and 2).

character	大	學	之	道	在	明	明	德
W-G spelling	Ta	hsueh	chih	tao	tsai	ming	ming	te
quavers	1 2	1 2 3 4 5	1 2 3 4	1 2 3	1 2 3 4	1 2 3 4	1 2 3 4	1 2

character	在	親	民	在	止	於	至	善
W-G spelling	tsai	chin	min	tsai	chih3	yu	chih4	shan
quavers	1 2 3 4	1 2 3 4	1 2 3	1 2 3 4	1 2 3 4	1 2	1 2 3 4	1 2 3 4

Ex. 2: Transliteration of stones groups in Paragraph 1

There is a slight variance from the first to the last regarding relative height; still, the system is consistent enough to obtain the Wade-Giles Romanization found in Example 2 (above) by measuring the quavers. After a long organ solo, a section begins which consists of an alternation of a reading of the text (over a whistle and organ drone) by a little more than half the chorus (which mirrors the final, unaccompanied spoken text of Paragraph 7), and whistle solos based upon the brushstrokes of the text.



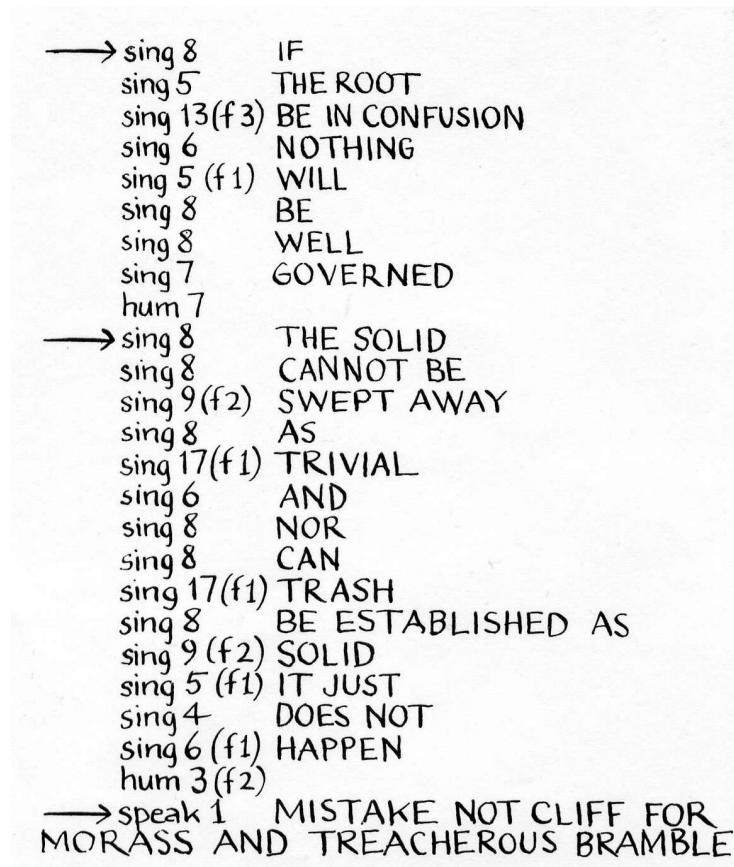
Ex. 3: 'zài' (tsai) and 'qīn qīng' (chin) in the whistle solo, Paragraph 1

Brian Dennis wrote that this is 'not another randomisation technique like Cage's use of the imperfections in paper or John White's adoption of random permutations', giving that specific instrumentation is required and that the patterns made are specific.¹¹ Although they may not involve randomisation, this feature of Paragraph 1 is very much like Cage's *Music for Piano* in that it is a found system, analogous to musical ready-mades like Christopher Hobbs' *Aran* (which uses the knitting pattern for an Aran sweater to generate its musical content). Here the order of the brushstrokes does not always tally with the order given in the animated character website *Ocrat Chinese Pages*:¹² in 'zài' (在—tsai in Paragraph 1), Cardew begins with a downward, curved brushstroke, followed by a horizontal stroke, a lower, vertical stroke, concluding with a horizontal, a vertical, and another horizontal stroke. *Ocrat* reverses the first two strokes.¹³ *Ocrat* also uses the preferred, modern version of 'qīn qīng', using nine strokes rather than Cardew's sixteen.¹⁴ Separated brushstrokes also generate guero solos in Paragraph 4.¹⁵

Paragraph 7 (Example 4, below), the final paragraph in terms of score order (but with a completion date of 8 April 1969), consists of twenty-four lines which must be sung for the length of a breath a given number of times. Each performer works at his or her own speed through the material in a 'network' effect noted by Michael Nyman.¹⁶ This network effect has caught the attention of some writers outside of the immediate British experimental group (for instance, Linda Dusman and Joseph Rukshan Fonseka) more than the rest of *The Great Learning*.¹⁷ Each performer chooses his or her pitches in each subsequent line (the first pitch is freely chosen) from a pitch he or she hears another singing. Dennis found that the repetitions in Paragraph 7 reflect the number of brush strokes used in the Chinese character for each line.¹⁸ The *f* indications in parentheses on the third, fifth, twelfth, fourteenth, eighteenth, twentieth, twenty-first, twenty-third and twenty-fourth lines (*f* 1, 2, or 3) indicate that a certain number of the required repetitions of the line should be sung forte, and stand for the number of hooked brushstrokes (or 'gou')¹⁹ in the character portrayed in that line.

Pound's translation reflects his choice of words for poetic effect rather than for exact translation.²⁰ According to the *Great Learning* page on the web site *Chinese Characters and Culture*,²¹ the words 'root' ('ben' - 本) and 'confusion' ('luan' - 亂) have direct correspondence, but Pound's choices and the neutral translations of *Chinese Characters and Culture* vary in succeeding lines until the end of the first sentence, at which the character 'yī' (矣) is hummed instead of sung in the score. This character seems to have a grammatical function ('an indication of the perfect tense'),²² as perhaps does the other hummed character, 'yě' (也: 'now, or too'). The spoken text at the end of the score completes the paragraph. This paragraph, by oral tradition, is dedicated to La Monte Young, as it has a surface effect similar to Young's drone pieces. The reductive system, in which performers work through the material taking each line at the length of a breath, led Dennis to compare this work more closely to John White's *Drinking and Hooting*

Machine (1968), in which players drink the contents and blow across the bottle tops of 'a favoured drink' in units of the length of a breath.²³



Ex. 4: Paragraph 7, excerpt

Dennis did not write about Paragraph 6, completed in October 1969 (Example 5). This paragraph, a tribute to Christian Wolff, uses a different type of 'network' system than that of Paragraph 7,²⁴ and emulates the participatory interaction of many of Wolff's scores, such as *Septet* (1964). Performers work through a score that presents categories of sounds that must be made in response to other players' actions. These categories of sound include 'isolated', 'optional' and 'synchronised' sounds, sounds which are 'made or heard', 'accidental or incidental', and 'simultaneously with another player', respectively. The Paragraph is laid out using one character for each direction, beginning with the translation of each character in capitals, and followed by the actions based on the brush strokes.

FROM Make or hear an isolated sound and hear out the following general pause. Then a set of four sounds, the first one synchronised. THE EMPEROR A pair of sounds, then a pair of optional sounds. SON OF HEAVEN Two sounds, the first synchronised. Between the two await the occurrence of a long pause. DOWN TO A synchronised sound followed by an isolated one. Then an optional sound followed by an isolated one. DOWN TO Five sounds; the second synchronised, the third isolated, the last preceded by a general pause.

Ex. 5: First five characters interpreted in Paragraph 6

Cardew used short, often oblique, strokes ('dian', or dot)²⁵ to generate isolated sounds. An angled stroke (two strokes made without lifting the brush) indicates a synchronised sound. If the second part of the stroke curves in yet another direction, the sound is loud or long. Curved strokes are optional sounds, and pauses are vertical strokes ('shu'). The excerpt above can be explained in the following way, illustrated by the excellent animated drawings from the *Ocrat Chinese Pages*:

自 is 'zi', meaning 'from'. There are six strokes in this character: the top angled stroke (丿) is short, indicating an isolated sound, the left-hand vertical line is the pause, then the top horizontal line continues to the right vertical line, making a synchronised sound. The other three horizontal strokes provide the remainder of the four sounds required.²⁶

天 is 'tian', meaning 'the expanse above humans', or heaven.²⁷ This character is made by making two horizontal lines, followed by two downward curved strokes, corresponding to the pair of sounds, and the pair of optional sounds.²⁸

子 is 'zi', a character representing an infant meaning 'son'. The top horizontal line ('heng') and the diagonal line between the two horizontal lines ('duanpie') is one angled stroke, and indicate the synchronised sound. The vertical stroke with the hook represents the long pause, and the long horizontal line the second sound.²⁹

以 is 'yi', an archaic character meaning 'stop', by means of', or 'below', and so is thus the first action prefaced 'down to'. The left-hand angled stroke (down vertically with the upward angle) is, as in the other character sections, a synchronised sound. The middle, short stroke is an isolated sound, followed by the downward, curving stroke (the optional sound), and another short stroke (an isolated sound). This character is repeated later in the paragraph. Although translated as 'this' in its second appearance in the score, the order and type of sounds—a synchronised sound, an isolated sound, an optional sound and an isolated sound—is the same.³⁰ The following character for 'down to' is 'zhi' - 至, a character of a bird, meaning 'descend',³¹ and there is a third character marked as 'down to' in the score: yū - 於 (于), another archaic character.³²

Sometimes the order of brush strokes Cardew has indicated varies from that depicted in the animated drawings of the *Ocrat Chinese Pages*,³³ even when the final character is the same. Cardew's interpretation of the sound for 'jiē' ('each person' or 'together') is as follows:³⁴

ALL TOGETHER Make four sounds, the first and third synchronised. Wait for a general pause and then make three more sounds, the first synchronised.

If one were to follow the *Ocrat* order, which also adds a dot or short stroke,³⁵ the instructions would be:

ALL TOGETHER Make four sounds, the second and fourth synchronised, followed by an isolated sound. Wait for a general pause and then make three more sounds, the first synchronised.

In Paragraph 5, the original meanings of the characters provide the action for the opening Dumb Show. Here, the performers act out each character, 'teaching' the movements in a kind of chain to each other (the 'student' becoming the 'teacher' for the next student) in groups of seven or eight people. Dennis did not write about this relationship in his 1971 article, but he knew of it later.³⁶ It was thought by many Scratch Orchestra members that Cardew took these gestures from Indian Sign Language (now formally Plains Sign Talk). However, the most common accessible documents for this language in the late 1960s—such as the book written by William Tomkins in association with the Boy Scouts³⁷—show only, at most, a general correspondence to Cardew's movements. For instance, the gesture for 'beard' is described by Tomkins as '[f]or chin whiskers hang compressed hand below chin – for other kinds of whiskers place hands accordingly'.³⁸ The Dumb Show sign language for this character is '[c]ombing motion of the fingers of both hands down the face, accompanied by facial expression'.³⁹ Both Plains Sign Talk (PST) and Chinese language use a succession of signs which are descriptive of the idea they represent (PST in movement, Chinese pictorially), even though their morphologies differ.⁴⁰ Chinese characters often no longer have the same meaning as their original characters, or represent them only symbolically (as 'wù', or 'thing' developed from the character for 'ox'); a PST gesture often shows a direct correlation with the thing described.

The character 'zhì' (至, seen in Paragraph 6, above)—which is translated in the text as 'moved towards fulfillment [Pound's American spelling]'—is a '[p]ictograph of a bird swooping down to the ground'.⁴¹ The Dumb Show instruction for this character is:

Flex arms, fists closed, then release forearms up and out, turning the hands to face outwards and continuing the movement down and curving back with the whole arm, continue the curve to bring the arms up at the back, forcing the body forwards, down on knees, touch forehead to ground with hands as high as possible behind, optionally beating like wings.⁴²

The first sentence thus can be interpreted as in Example 6 (next page).

By moving his interpretation of Chinese characters from the symbolic (as musical notation) to the gestural, Cardew has encountered the problem of the accuracy of movement symbols which hinders the transmission of dance movements and, as was found by Brenda M. Farnell, also hinders the study of PST.⁴³ Cardew wrote the description of the Dumb Show gestures, but never entirely relied upon them. He taught the movements to the Experimental Music class at Morley College, which was attended, in the main, by Scratch Orchestra members, who premiered Paragraph 5 in January 1972. Most revivals of this paragraph and its opening Dumb Show have been directed by members of the Scratch Orchestra, such as Michael Parsons and Dave Smith, who have used personal shorthand as an *aide-memoire*.⁴⁴ Gestural notation is notoriously inaccurate: for that reason I commissioned a film of Michael Parsons performing the Dumb Show in an attempt to clarify Cardew's description in a more permanent fashion.⁴⁵

Farnell, who showed several pictorial and graphic depictions of PST, preferred Laban dance notation (although she also mentioned video evidence). She ruled out written description for notation, using music as the example of an activity that could not use verbal directions sensibly:

It might still be argued that while there are obviously problems with verbal descriptions, there is nothing in principle that rules out a complete verbal description of bodily movements, however long, tedious and cumbersome it might be.... [L]et us ask the same question of musical description. Surely, no-one would seriously suggest that a performable record of a song or symphony is possible with a complete verbal description of musical sounds, however long, tedious and cumbersome it might be. Neither would anyone advocate that such descriptions be placed on the music stand in front of musicians. Ethnomusicological analysis and understanding of a musical tradition would not be possible if based upon such data instead of musical notations. The medium of movement is no different from musical sound in this regard.⁴⁶

Farnell, of course, refers to traditional music and musical notation, in which there is a note-to-note correlation between symbol and resultant sound. In most cases, Cardew's use of Chinese characters in *The Great Learning* is designed to allow experimental indeterminacy. The verbal notation in Paragraph 6 is closest to Farnell's scenario of musical description (and in practice it is perhaps

the most cumbersome to read in performance), but it limits the occurrence of sounds to categories rather than specifying the exact sounds to be made. The Dumb Show is the only part of *The Great Learning* in which the characters operate as written language, with the meaning intact. Indeterminacy arises from the inadequacy of description to depict the Dumb Show gestures, rather than the planned indeterminacy of the stones music, or of the graphic music made from brushstrokes. It would be within experimental practice to try to imitate the Dumb Show gestures as accurately as possible, while exploiting the indeterminacy of other activities in the same Paragraph.

Character	Transliteration	Meaning	Original Meaning	Movement
物	wù	thing	ox	horn gesture
格	gé	pattern	wood (tree)	foliage in the wind
而	ér	and	beard	combing of face
后	hou	prince	person/mouth orders	vocalisation and body gesture
知	zhī	knowledge	arrow/mouth	shooting gesture with vocalisation
至	zhì	arrive	bird swooping down	dip with beating wings gesture

Ex. 6: Interpretation strategy in Paragraph 5, first sentence

Farnell's concept of music only in the post-Renaissance tradition—of 'a song or symphony' in which notation is fixed and symbolic—can be related to the unquestioned assumptions held by many music scholars that structural complexity is the preserve of the international avant garde. Timothy D. Taylor wrote of Paragraph 2 that

[n]o other paragraph in *The Great Learning* reveals such tight organisation. Perhaps no other work is so rigorously organized while simultaneously allowing the performers so much freedom. In this longest and probably most respected of his works, Cardew has not completely abandoned form-oriented 'academic' music, however. His control of pitch and rhythmic material in paragraph 2, for example, is total. The other paragraphs of *The Great Learning* show many other kinds of compositional process at work, including improvisation, graphic notation and prose directions.⁴⁷

Paragraph 2 consists of two interactive strands of musical activity. In the 1971 edition, the first strand, marked 'Drumming', consists of twenty-six rhythmic patterns which are to be 'repeated over and over like a tape loop'⁴⁸ in co-ordination with the latter strand, marked 'Singing', which consists of twenty-five bars of pitches, each of which are to be held for the length of a breath. The singing parts are arranged as five lines of five bars each with the text arranged over each note of the first line, so that the text is sung five times. The sung material is to be worked through from first to last, but the drumming patterns can be played in any order, one pattern to each bar of singing. The twenty-sixth pattern is played after the singing has stopped. Performance is effected by a lead singer who cues a group of singers and one drummer. Cardew directed that the 'rhythms should be memorised' by the drummer and gave each rhythmic pattern a name that acts as a mnemonic to ensure that the drummer does not accidentally repeat a pattern. Cardew noted in the performance indications that there were '11 groups: 2 pentads, 1 tetrad, 4 pairs and 4 uniques'.⁴⁹ They are the following:

Pentads:

Senses: Touch, Taste, Smell, Sight, Hearing

Lakes: Superior, Michigan, Huron, Erie, Ontario

Tetrad:

Suits: Spades, Hearts, Diamonds, Clubs

Pairs:

Twins (Similarities): Castor and Pollux, Romulus and Remus

Opposites: White and Black, Right and Left

Uniques:

Mary

Polaris

Imck

Brabazon

Ex. 7: Rhythmic pattern groups, Paragraph 2

Timothy D. Taylor found that the senses and suits groups are arranged in reverse alphabetical order, the lakes in geographical order, from north to south,⁵⁰ and the uniques at random. Taylor did not distinguish the pairs, but they are the twins Castor and Pollux, Romulus and Remus, and the opposites White/Black and Right/Left, the latter of which also appear in reverse alphabetical (and normal presentation) order. He also found that the singing section was organised by means of a series of pitch-class sets, to give total control of both pitch and rhythmic elements.

There is, however, another way in which to interpret this sense of control. Cardew's construction of these activities can be seen more clearly in an earlier, privately published version of Paragraph 2 of *The Great Digest* (the original title of the Pound translation) from 1969. The 1971 patterns, marked 'Drumming', were originally named 'The Twenty-Six Rhythmic Patterns' in 1969; more tellingly, the 'Singing' part was originally called 'The Five Melodic Phrases with their transpositions' in 1969. Cardew labelled every pattern of the rhythms and each note of the basic melodic phrase with Chinese characters in the 1969 edition (Example 8), but removed them in the 1971 edition. The reason for this is not clear, but the result is that the relationship between individual patterns and the construction of the Melodic Phrases has become obscured.



















Ex. 8: Paragraph 2, First Five Rhythmic Patterns of 1969 edition

The 'drumming', or rhythmic patterns, are related directly to the Chinese characters in the Paragraph.⁵¹ Cardew wrote that '[t]he characters on the right may aid memorising the rhythms, or the verbal mnemonic on the left may be used' in the instructions to the first edition.⁵² The 1969 edition shows that each pattern group shares the same character: for instance, all the lakes are 'hòu' - 后; both twins are 'dìng' - 定; and so on. The four uniques occur when a character is used in the Paragraph once only (Example 9).

- Pentads:
 - Senses: 'èr' - 而
 - Lakes: 'hòu' - 后
- Tetrad:
 - Suits: 'nèng' - 能
- Pairs:
 - Twins (Similarities): Castor and Pollux ('dìng' - 定), Romulus and Remus ('ān' - 安)
 - Opposites: White and Black ('jìng' - 静), Right and Left ('lǚ' - 慮)
- Uniques:
 - Mary ('zhī' - 知), Polaris ('zhǐ' - 止), Imek ('yǒu' - 有), Brabazon ('dé' - 得)

Ex. 9: Paragraph 2, first five Rhythmic Patterns and Rhythmic Group Character Relations

Stroke								
Note								
Dennis's description	Short	Short	Long	Long	Short	Short	Broken	Short
Stroke description	Top left diagonal	Top horizontal	Second horizontal	Left-curving 'leg'	Small right 'leg'	Left vertical of right-hand 'box'	Angled top and right side vertical of 'box'	Bottom horizontal of 'box'

Ex. 10: Stroke description for 'zhī'

Dennis noted that the rhythmic patterns were determined by the brush strokes and gave two examples of the way in which the brushstrokes of the first two characters (whether short or long) influenced the rhythms (short or long).⁵³ For instance, Mary (zhī - 知) is represented by Dennis as having the strokes shown in Example 10 (previous page).

The simple brushstroke/pattern relation becomes more complicated when applied to the pairs, tetrads and pentads. A dotted crotchet is often attached to the longest strokes. Fermatas in Romulus, Remus, Castor and Pollux coincide with separations between stroke groups and relate these two mythological pairs to each other. Other gaps in strokes sometimes coincide with rests in the rhythms (as in the suits), although not always (the ‘unique’ Brabazon). The doubled first note in the suits coincides with an open triangle, shown as a broken stroke followed by a short stroke in Ocrat. Each rhythmic variant in a pattern group reflects variants in calligraphy, so that simpler the characters have smaller variations in rhythm, as in the lakes (Example 11).

Character group	Pattern name	Number of strokes	Pattern variance (s=short; l=long; vl=very-long; bs=broken short; bl=broken long
Hòu - 后 Great Lakes	Superior	7	l, l, l, s, bl, s
	Michigan		l, l, l, s, bs, s
	Huron		vl, vl, l, s, bl, s
	Eric		vl, vl, vl, s, bs, s
	Ontario		s, l, l, s, bs, s

Ex.11: Stroke codes for Hòu⁵⁴

The only exceptions to this consistent relationship of types are the two pairs of opposites: White and Black, Right and Left. Both pairs illustrate the most complex characters and both involve ‘thought’. Jìng, 靜, is a combination of signs which mean ‘think vividly’ and ‘pull (at truth)’. Similarly, lǚ, 慮, combines two signs to make ‘think (along different lines)’ like ‘tiger stripes’.⁵⁵

A musical score consisting of five staves, numbered 1 to 26. Each staff contains a sequence of notes and rests, with Chinese characters and English translations written above them. The characters are: 知, 止, 而, 后, 有, 定, 定, 而, 后, 能, 静, 静, 而, 后, 能, 安, 安, 而, 后, 能, 虑, 虑, 而, 后, 能, 得. The English translations are: 'Know the point of rest and then have an orderly mode of procedure', 'having this orderly procedure one can grasp the azure that is take hold of a clear concept', 'holding a clear concept one can be at peace in-ternally being thus calm one can keep one's head in moments of danger', 'he who can keep his head in the presence of a tiger is qualified to come to his deed in due hour'. The score is written in a single key signature with a common time signature.

Ex. 12: ‘The Five Melodic Phrases with their transpositions’, Paragraph 2

‘The Five Melodic Phrases with their transpositions’ (Example 12, previous page) shows the close affinity between character and construction that the 1971 edition obscures. In this earlier edition, Cardew has linked the Chinese characters with each of the twenty-six notes of each line with the translation arranged above it. The characters fit Pound’s translation only sporadically: best in the first and third characters, meaning ‘know’ and ‘and’, less well in others. In fact, this association shows that Cardew chose to set the characters themselves rather than their translation. He stressed in the 1969 notes: ‘In the event of performance by a Chinese chorus the text is to be sung in Chinese, one syllable to each note’.⁵⁶

The co-ordination of drumming and singing is much the same in the 1969 edition as in 1971, aside from Cardew’s forlorn hope that each singer would be able to drum and sing at the same time. He seemed to be the only one able to do so.⁵⁷ Moreover, the drums were much too loud a 1:1 singing/drumming ratio, so he stipulated in the later edition that the singing groups would each have a drummer. Once a group has completed the twenty-fifth bar, the drummer moves to the final rhythmic pattern, yelling ‘hey’ in the 1969 edition. Cardew removed this twenty-sixth bar in the 1971 version.

Taylor analysed the pitch content of the singing to find a ‘grid of pitch-class sets’ even though he wrote earlier in the article that ‘Cardew reacted against serialism’. Here the first bar pitch-class content is used three times ([0, 2, 4, 7, 9] in bars 1, 13, and 25) and there is a general pattern of sets running in order twice within. There are also three ‘uniques’ (bars 4, 10, and 18), possibly associated with the uniques in the drumming mnemonics.⁵⁸

However, as Joseph Kerman wrote, ‘the true intellectual milieu of analysis is not science but ideology’.⁵⁹ While pitch class analysis can be applied to unknown pitch systems with good results, it also brings the assumptions of avant-garde culture to the music to which it is applied, with the danger of overlooking the Chinese associations in this Paragraph as well as the anti-serial climate in which Cardew set it. In fact, the pitch content of each bar is pentatonic, which has the interval content [0, 2, 4, 7, 9]. The pentatonic scale (‘wusheng’ or ‘wu yin’) is the basis of Chinese modal theory and created from the proportions of the cycle of fifths (for instance, C – G – D – A – E). Thus, the basic Chinese wusheng scale (arranged within an octave) would be: gong (C), shang (D), jiao (E), zhi (G), yu (A). Each pitch within this mode may be used to build associative modes (so that a zhi mode would be: zhi (G), yu (A), gong (C), shang (D), and jiao (E)).⁶⁰

The content of each succeeding bar of Paragraph 2 is a transposition of a fourth from the previous one, so that the twenty-five bars transpose the pentatonic material in reverse order through the cycle of fifths twice, starting and ending on C (see Ex. 13). The pitch order of each of the first five bars is not clear: however, it does seem to have some affinity with campanological or other permutational systems used by John White and other British experimentalists.⁶¹ Bar lines indicate the coordination with rhythmic patterns in performance, but they also indicate the division of sentences in the Chinese text, so that the first sentence is made of six characters and the other four of five characters. This Paragraph also has the sense of repetition or nested information also common to the text of Paragraphs 4 and 5,⁶² and this is reflected at a larger level in the repetition of the entire text. Each succeeding line (at which point the text is repeated) is a semitone higher than the line before.

Bar Transposition Pitch order	1 C 31245(1)	2 F 32145	3 Bb 35124	4 Eb 52341	5 Ab 43521
Bar Transposition Pitch order	6 Db same as above	7 Gb s/a	8 Cb/B s/a	9 E s/a	10 A s/a
Bar Transposition Pitch order	11 D s/a	12 G s/a	13 C s/a	14 F s/a	15 Bb s/a
Bar Transposition Pitch order	16 Eb s/a	17 Ab s/a	18 Db s/a	19 Gb s/a	20 Cb/B s/a
Bar Transposition Pitch order	21 E s/a	22 A s/a	23 D s/a	24 G s/a	25 C s/a

Ex. 13: Transposition and Pitch Order, first five groups, P.2
(The repeated C is marked as (1) in brackets)

The Great Learning is a complex work, and Paragraph 2 is a complex paragraph. Taylor wrote:

It is as if he [Cardew] were following the ‘orderly mode of procedure’ and ‘careful deliberation’ of the original Confucian paragraph in the making of the portion of the piece I have highlighted [Paragraph 2].⁶³

However, Cardew took this care and concern with the structure and organisation of given material, not as an ‘academic’ concern as Taylor would have it (i.e., in the sense that Cardew was somehow leaving the ‘do your own thing’ ethic of experimentalism, and

returning to the formalist rigours of Stockhausen), but as an experimental one. Cardew used such care in all of his music from 1960 to the early 1970s, when he adopted Maoist thought and began work in an equally rigorous, albeit tonal, structure and organisation. This concern with the material extends to the Chinese characters as well as his emulation of Christian Wolff's 'network' of responses in Paragraph 6, and in the emulation of John White's systemic Machines in Paragraph 5. In each case, Cardew has shown respect for the material used. Pitch is only one of many features which he has chosen to determine in *The Great Learning*, and he has done so in the context of Chinese culture. The Chinese characters are just one of many means by which Cardew has chosen to structure this work, and space prohibits an examination of others. Perhaps future analysis in keeping with Cardew's concerns will yield a closer understanding of *The Great Learning*.

Notes

¹ The material for this article was gathered while writing my Ph.D. thesis, 'Aspects of British Experimental Music as a Separate Art-Music Culture'. Although extraneous to the thesis (the chapter on *The Great Learning* deals mainly with performance practice issues), this article could not have been written without the help and suggestions of my supervisor, Katharine Ellis, who guided me in similar issues in the thesis. Whatever shortcomings in this article are my own, however, as this is my first 'solo' writing since submitting the thesis, but it was made with Katharine's wisdom in mind. Great thanks to Horace Cardew for permission to quote from *The Great Learning* at length, and to Rick Harbaugh of Indiana University for allowing me to link repeatedly to his excellent site *Chinese Characters and Culture*, which is in turn linked to *Ocrat Chinese Pages*. Most of all, I wish to express my deep admiration for the late Brian Dennis, who first articulated Cardew's use of Chinese characters in *The Great Learning* at a time when it had not been performed in its entirety. We can only add to such a solid, perceptive foundation.

² Along with other writers (Peter Yates, Michael Nyman, David Nicholls) I find that there is an aesthetic experimental attitude throughout the twentieth century (what Nyman calls the 'backgrounds': Satie, Ives, Cowell, early Cage, and others (*Experimental Music: Cage and Beyond* (London: Studio Vista, 1974), p. 27)). The 'classic' era of experimental music is that which has been called 'experimental' by most writers: the New York School of Cage, Wolff, Feldman, and Brown; Fluxus; the Scratch Orchestra, and similar movements in which the nature and presentation of music is tested. This aesthetic attitude, which allies Satie and Ives to Cage, Young, and Cardew, informs the music of many more recent composers who are often labelled 'postmodern' (much of Reich and Young, some of Glass; almost all of Bryars, Nyman, White, Skempton and others). The 'postmodern' music by these composers has more in common with their 'experimental' work and its backgrounds than with other 'postmodern' music (Thomas Adès, for instance).

³ The first spelling is a Pinyin Romanization, or transliteration, of the Chinese characters, a system which was developed in China in the 1950s. The second spelling is Wade-Giles, developed by Sir Thomas Wade at Cambridge in 1859 and further developed by his successor, Herbert Giles (for more information, see *Chinese Romanization Guide* <<http://www.edepot.com/taoroman.html>>, accessed 15 February 2004; and Paul Halsall, 'The Chinese Language and Writing', *Chinese Cultural Studies* <<http://acc6.its.brooklyn.cuny.edu/~phalsall/texts/chinlng2.html>>, accessed 15 February 2004). Cardew was familiar with Wade-Giles, as he used it for the ciphers for the stone pitches in Paragraph 1. He still used the common Wade-Giles spelling of Mao Tse Tung in *Stockhausen Serves Imperialism* (London: Latimer New Directions, 1974), a book that he edited after his 'big switch' to Maoism (as he described it to Keith Potter). However, he spells *The Great Learning* 'Ta Hio' in 'Criticism of "The Great Learning"', an article in *Stockhausen Serves Imperialism*, using a Romanization system developed in 1902 by the Ecole Française d'Extrême Orient (EFEO: for more information, see Guillaume Morel, *Chinese, Japanese, Korean* <<http://www.guillaumemorel.com/en-cjk.htm>>, accessed 15 February 2004). Since Pinyin has become standard and there is evidence that to use other Romanizations can be offensive, I shall use Pinyin wherever possible.

⁴ An interesting introduction to this work and some of its performance solutions can be found in *Treatise: An Animated Analysis* <<http://www.blockmuseum.northwestern.edu/picturesofmusic/pages/anim.html>>. Accessed 3 November 2002. [2007: See also my "'Well, It's a Vertebrate...': Performer Choice in Cardew's *Treatise*", *Journal of Musicological Research*, 25/3-4 (September 2006), 291-318.]

⁵ Cornelius Cardew, 'A Scratch Orchestra: Draft Constitution', *The Musical Times*, 110/1516 (June 1969), 617-9.

⁶ For more on the activities of the Scratch Orchestra, see my M.A. thesis, 'British Experimental Music: Cornelius Cardew and His Contemporaries' (reprinted, Leicester: Experimental Music Catalogue, 2000, now out of print); for the Improvisation Rites, see 'Aspects of British Experimental Music as a Separate Art-Music Culture' (Ph.D. thesis, Royal Holloway College, University of London, 2004). [2007: Both works will be supplanted by *Experimental Music in Britain*, in preparation.

⁷ Brian Dennis, 'Cardew's "The Great Learning"', *The Musical Times*, 112/1545 (November 1971), 1066-8.

⁸ The date, given on the first page of *The Great Learning*, is '31/4/68'—obviously a mistake on Cardew's part. It is equally valid that he could have got the month wrong, but the piece was premiered that summer at the Cheltenham Festival, making only March and May likely as the month for completion if the 31st is accepted. As this appears on the hand-autographed score, a slip of memory is more likely as to day than month, however, whereas a typographical mistake would have favoured a change of month.

⁹ Dennis, 1067.

¹⁰ Ibid.

¹¹ Ibid.

¹² *Ocrat Chinese Pages* <<http://www.ocrat.com>>. Accessed 13 February 2004. These pages are no longer working. However, they have been mirrored and reconstructed in <<http://lost-theory.org/ocrat/>> by Steven Kryskalla. Accessed 21 August 2007. Some of these characters are animated as to brushstrokes in time and so are valuable to the non-Chinese writer to understand their use in the construction of *The Great Learning*.

¹³ Animated brushstrokes: <<http://www.ocrat.com/chargif/GB/horiz/d4da.html>>, (2007: <http://lost-theory.org/ocrat/chargif/char/d4da.html>). *Chinese Characters and Culture* <<http://zhongwen.com/faq.htm>> gives the order of the strokes, which have some variants when two types of strokes occur.

¹⁴ *Chinese Characters and Culture* <<http://zhongwen.com/d/191/d203.gif>>. *Ocrat*: <<http://www.ocrat.com/chargif/GB/horiz/d4da.html>> (2007: <http://lost-theory.org/ocrat/chargif/char/c7d7.html>).

¹⁵ Guero' is part of an organology which Cardew devised for Paragraph 4. It 'means any ridged or notched instrument' [Instructions, Paragraph 4, *The Great Learning*]. Gueros have been bicycle wheels and cheese graters, among other things. They are struck by another instrument, 'the wand', which strokes the guero and is used to hit another instrument, a 'sonorous substance' (often a cushion). Dennis noted that Orchestra members who first rehearsed this Paragraph at Cardew's Experimental Music class at Morley College, London, were 'choked by the dust from the beaten cushions' [Dennis, 1066].

¹⁶ Michael Nyman, 'Cornelius Cardew's The Great Learning', *London Magazine*, 11/5 (December 1971/January 1972), 134.

¹⁷ Linda Dusman, 'The Individual as Structure in The Great Learning: Paragraph 7', *Interface* 16 (1987), n.p. Joseph Rukshan Fonseka, 'Musical Agents' (Unpublished thesis, Monash University, 2001), proposes the intriguing idea of using the 'network' principle as a means for generation of electronic music. Timothy D. Taylor, in 'Moving in Decency: The Music and Radical Politics of Cornelius Cardew', *Music and Letters*, 79/4 (November 1998), analyses Paragraph 2, as will be discussed later in this article.

¹⁸ *Chinese Characters and Culture*; Dennis, 'Cardew's "The Great Learning"', 1067.

¹⁹ Dennis, *Ibid.*; for the categories of Chinese strokes see *Chinese Characters and Culture*.

²⁰ It also reflects Pound's political stance. In 'The Immediate Need for Confucius', in the Fascist magazine, *The Aryan Path* in 1937 (reprinted in *Ezra Pound: Selected Prose 1909-1965*, ed. Cookson (London: Faber, 1973), Pound wrote, 'There is a visible and raging need of the *Tā Hio* [Pound's EFEO transliteration of the *Dà Xué*] in barbarous countries like Spain and Russia' (quoted in Cornelius Cardew, 'Criticism of The Great Learning', in *Stockhausen Serves Imperialism* (London: Latimer New Dimensions, 1974, 96). Pound made this statement during the Spanish Civil War: the 'barbarism' of which he wrote was aimed against the anti-Fascist forces.

²¹ *Chinese Characters and Culture* <<http://zhongwen.com/daxue.htm>>. Accessed 6 February 2004.

²² *Ibid.*

²³ John White, *Drinking and Hooting Machine*, in *Scratch Anthology of Compositions* (London: Experimental Music Catalogue, 1971), pp. 6-7.

²⁴ Michael Nyman, 'Cornelius Cardew's *The Great Learning*', *op. cit.*, 134.

²⁵ *Chinese Characters and Culture* <<http://zhongwen.com/faq.htm>>.

²⁶ *Ocrat Chinese Pages* <<http://lost-theory.org/ocrat/chargif/char/d7d4.html>>. Accessed 30 September 2007.

²⁷ *Chinese Characters and Culture* <<http://zhongwen.com>>. The following references to Chinese terms for strokes comes from this source.

²⁸ Animated brushstrokes: <<http://lost-theory.org/ocrat/chargif/char/cccc.html>>.

²⁹ Animated brushstrokes: <<http://lost-theory.org/ocrat/chargif/char/d7d3.html>>.

³⁰ Animated brushstrokes: <<http://lost-theory.org/ocrat/chargif/char/d2d4.html>>.

³¹ Animated brushstrokes: <<http://lost-theory.org/ocrat/chargif/char/d6c1.html>>

³² Animated brushstrokes: <<http://lost-theory.org/ocrat/chargif/char/d3da.html>>.

³³ *Ocrat Chinese Pages*, *op. cit.*

³⁴ <<http://zhongwen.com/d/172/x210.htm>>. Accessed 30 September 2007.

³⁵ <<http://lost-theory.org/ocrat/chargif/char/bdd4.html>>.

³⁶ Brian Dennis, personal interview by author, 13 February 1983.

³⁷ Levette J. Davidson wrote, in 'Some Current Folk Gestures and Sign Languages' (*American Speech*, 25/1 (February 1950), 3): '[The] currency [of Indian sign language] is restricted, now, to only a few of the inheritors of a vanished culture and to such groups as the Boy Scouts who study woodcraft'. There is no sign that this situation had changed by 1969-70, when Cardew dated this Paragraph as having been completed. 2007: John Tilbury has said that Cardew left an AMM tour to study sign language (in conversation, ca. 2006).

³⁸ Mark William Tomkins, *Indian Sign Language* (1926); reprinted in *Sign Dictionary* <<http://www.inquiry.net/outdoor/native/sign/axe-beyond.htm>>. Accessed 30 September 2007.

³⁹ Cardew, *The Great Learning*, Paragraph 5.

⁴⁰ Adam Kendon, in 'Gesture', *Annual Review of Anthropology*, 26 (1997), 122, wrote that PST 'could not be represented as signs with morpheme equivalents'.

⁴¹ 'The Great Learning – Confucian', *Chinese Characters and Culture* <<http://zhongwen.com/d/166/x220.htm>>. Accessed 3 October 2007.

⁴² 'The Introductory Dumb Show', Paragraph 5, *The Great Learning*.

⁴³ Brenda M. Farnell, 'Ethno-Graphics and the Moving Body', *Man* (New Series), 29/4 (December 1994), 929-974.

- ⁴⁴ I have dealt with this matter in “‘The Masters of Plink’: Performance Variants in ‘The Great Learning’ (chapter in Ph.D. thesis, Royal Holloway, University of London, 2004), 227.
- ⁴⁵ *The Great Learning: Paragraph 5: Dumb Show*. Michael Parsons, performer; private-produced DVD film, produced by Christopher Hobbs, filmed and edited at De Montfort University, 10 June 2003, by Martin Shiel.
- ⁴⁶ Farnell, op. cit., n.28, 969.
- ⁴⁷ Timothy D. Taylor, ‘Moving in Decency: The Music and Radical Politics of Cornelius Cardew’, *Music & Letters*, 79/4 (November 1998), 559.
- ⁴⁸ Instructions, Paragraph 2 (1971 printing).
- ⁴⁹ Cardew, *The Great Learning*.
- ⁵⁰ Taylor, 558.
- ⁵¹ In Scratch Orchestra lore, this is known as the ‘Terry Riley’ paragraph due to the fact that its indeterminate repetitions are a tribute to Riley’s *In C* (1964).
- ⁵² Cardew, *The Great Digest*, Paragraph 2 (London: Experimental Music Catalogue, 1969).
- ⁵³ Dennis, 1067.
- ⁵⁴ The flam in Ontario is missing in the 1969 version. Taylor, a graduate of the University of Michigan, noted that this order of lakes is from north to south geographically.
- ⁵⁵ Chinese Characters and Culture, <<http://zhongwen.com/>>. Accessed 6 October 2007.
- ⁵⁶ *The Great Digest*.
- ⁵⁷ Christopher Hobbs, interview by author, 3 February 1983.
- ⁵⁸ Taylor, 559, Table 1. This table suffers from mistakes in transcription into pc notation. He misreads Bb in bar 4 as pc 8 (C as 0), forming one unique, transcribes the second Db in bar 6 without its accidental (thus finding a hexachord content), and misreads the doubled Eb in bar 16 (again resulting in a spurious hexachord).
- ⁵⁹ Kerman, ‘How We Got into Analysis, and How to Get Out’, *Critical Inquiry*, 7/2 (Winter 1980), 314.
- ⁶⁰ Ho Lu-Ting and Han Kuo-huang, ‘On Chinese Scales and National Modes’, *Asian Music*, 14/1 (1982), 133-4.
- ⁶¹ The *Call Change Arranger* <<http://www-users.cs.york.ac.uk/~ianb/cgi-bin/callcompose>> 2007: no longer an active link), a piece of software by Ian Broster which shows the shortest peal necessary to include four or more rows of permutations, came up with an eighteen-row peal in which the Cardew orders came nearly regularly, indicating a balance of some kind. Since Cardew used references to systems in Paragraph 5 (the Ode Machines and Action and Number Scores), it is quite likely that the pitch order of each bar in Paragraph 2 is systemically determined.
- ⁶² Paragraph 2 repeats the end characters of each sentence at the beginning of the next. Paragraph 4 begins every sentence bar the first and last with the character yù (‘desire, longing’: <<http://zhongwen.com/daxue.htm>>), which occurs as the third character in the first sentence. Lastly, Cardew set Paragraph 5 to make use of the ‘centrepiece’, the characters ‘hou’ and ‘ér’, which appear in every sentence.
- ⁶³ Taylor, 559.