

TOWARDS A CASE FOR ISOCHRONOUS VERSE

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The notion that the rhythms of poetry in English can be something other than syllabic rhythms is not really new, dating, at least, from Thomas Campion, being echoed by Samuel Taylor Coleridge and Sidney Lanier, occurring as "sprung rhythm" in the poems of Gerard Manley Hopkins, and recurring frequently among the modern poets, including William Carlos Williams' concept of the "variable foot "

And linguists have, at times, worked with the notion of non-syllabic rhythms in poetry in English. For example, in "Towards a Formal Poetics: Metrical Patterning in 'The Windhover'," Charles Scott demonstrates that Hopkins' "sprung rhythm" is not alliterative, in the same sense that Old English poetry is alliterative, and that it is not strictly formulated in the iambic tradition, rather, Scott finds that Hopkins' poem is a blending of the two traditions in English poetry, and that "The Windhover" is, at least in part, isochronous.

However, not all linguists agree that Hopkins' rhythms are isochronous--or even that isochronism exists. David Crystal, for example, in his Prosodic Systems and Intonation in English, tends to discredit the concept of isochronism. "Clearly," he writes, "if one means by isochrony a direct perception of regular peaks of prominence running through all the utterances of an individual, then English is not isochronous" (162). And Crystal continues to discount the concept of isochronism, seemingly, more than anything else, upon the strength of the argument presented by Yao Shen and Giles G. Peterson in their Isochronism in English.

The Shen/Peterson monograph is the report of an inquiry into the nature of and into the very existence of isochronism in English, and in the conclusion of the study, they write "we did not find isochronism in our limited data and therefore cannot say that there is isochronism in English"(24).

Although the Shen/Peterson monograph discounts isochronism in English, the criteria by which they establish and control their study are questionable. In essence, they establish the boundaries of the "supposed" isochronous units at the beginning of a syllable containing a primary stress and at the end of the syllable pre-

ceding the next primary stress--

$$\underbrace{\text{íŋlɪʃ} / \text{ʔz} + \text{vèrɪ} + \text{í} \text{y} \text{z} \text{ɪ}}_{\text{—measured—}}$$

with the measured unit marked by the bracketing beneath the sentence (33)

The Shen/Peterson criteria for the determination of the boundaries of the "supposed" isochronous units are based primarily upon three statements, all similar, by Kenneth Pike, and upon an analogous statement from Harold Whitehall's and Archibald Hill's "A Report on the Language-Literature Seminar " All three of Prof Pike's statements, which provide the core from which the Shen/Peterson criteria are developed, are similar to the following statement from Pike's The Intonation of American English

The timing of rhythm units produce a rhythmic succession which is an extremely important characteristic of English phonological structure. The units tend to follow one another in such a way that the lapse of time between the beginning of their prominent syllables is somewhat uniform (34) ¹

--and the Whitehall/Hill statement reads "the amount of time between two primary stresses tends to be the same, irrespective of the amount of material between them" (490)

The Shen/Peterson monograph relies heavily upon these statements of tendency and converts them into absolutes which, in turn, become the criteria for the determination of the boundaries of the "supposed" isochronous units

First, there are three essential factors. They are 1) Two primary stresses. The first one marks the beginning of the time span to be measured, and the second marks the end of it. 2) One terminal juncture. This juncture occurs between the two primary stresses. 3) A time span. This is the time interval between the first and second primary (13)

However, strict adherence to those criteria seem to lead to certain infeasible readings, as in the example below

And if the examples of the single and double rhythm units are marked for primary stresses and terminal junctures--

the cár
 intonátion
 hére it is#
 he sáid he would#
 a jumping jáck
 I wánt to go // but I cán't#
 If he cómes // he'll búy it#
 évery day // is Pepsodent dáy#

--each simple rhythm unit contains one and only one primary stress, and the primary stress is not restricted to any single position inside the unit, and each simple rhythm unit has boundaries which occur simultaneously with a terminal juncture. And the plus juncture neither begins nor ends a simple rhythm unit.

In addition to describing the simple rhythm unit in terms of stress and juncture, Prof. Pike also describes the rhythm unit in terms of pitch contour. "A rhythm unit which contains one, and only one, primary contour is a SIMPLE RHYTHM UNIT.

the university
 3- 02- -4 //

Robert must do it
 02- -4 // (1945 34)

In addition to establishing the boundaries of simple rhythm units in terms of stress, pitch, and juncture, Prof. Pike makes other observations about the nature of the simple rhythm unit.

- (1) "Words in very close grammatical association are likely to belong to the same rhythm unit."

the boy
 3- 02-4 //

He's gone
 3- 02-4 //

Come in
3- 02-4 //

It's a big one
3- 02- -4 // (1945 35-36)

- (2) "Words which have no innate lexical stress tend to join that rhythm group preceding or following them with which they are grammatically most closely related

I'm going to, tomorrow
3- 02- -3/ 3- 02-4 //

He gave it to the man
3- 02- -3/3- 02-4 //

Whom did you tell it to yesterday?
02-3/3- 02- -3/02- -4 // (1945 36)

- (3) "The beginning of any simple rhythm unit almost always coincides with the beginning of a word" (1945 36)
- (4) "The beginning of a simple rhythm unit tends to coincide with the beginning of a total contour, whether the total contour begins with a precontour or begins directly with a primary contour, as in

the boy and Don't
3- 02-4// 02-4 // (1945 36)

- (5) "The ending of a simple rhythm unit tends to end coincidentally with some word" (1945 36)
- (6) The ending of a simple rhythm unit also occurs "at that place where some primary contour is ending at the same time" (1945 36)

The criteria which Prof Pike describes for the determination of the boundaries of the "simple rhythm unit" are those criteria which must be used to determine the boundaries of isochronous units, ~~if~~ isochronous units do indeed exist in poetry in English. However, if it is to be said that isochronous rhythm units do exist in poetry in English, then the elapsed reading times for successive simple rhythm units, successive isochronous units, must be essentially the same

For purposes of testing the criteria set forth by Prof Pike, for establishing the boundaries of simple rhythm units, for the boundaries of isochronous units, and for purposes of demonstrating the feasibility of isochronous rhythms in poetry in English, two readers were asked to read Gerard Manley Hopkins' "Pied Beauty"²— and their readings were taped. Using the readings as the basis for marking the poem, the poem was marked for primary stresses and junctures in such a manner as to conform to all ten criteria set forth by Prof Pike for the determination of the boundaries of a simple rhythm unit: each unit (1) was delivered "as a single rush of syllables uninterrupted by a pause", (2) was bounded on either end by a terminal juncture, (3) contained one and only one primary stress, (4) contained at least one syllable, with the total number of syllables occurring at random,³ (5) contained one and only one primary pitch contour, (6) contained words in close grammatical association, (7) began at the beginning of a word, (8) began at the beginning of a total pitch contour, (9) ended with the ending of a word, and (10) ended with the ending of a primary pitch contour.

The taped phrases were then played into a Tektronix, type 565, dual-beam oscilloscope, and a Polaroid camera (timed exposure at $f 2.8$, with type 107 film) was used to produce oscillograms. The sweep of the oscilloscope was set at 2.0 seconds, producing a total time lapse for the oscillogram of 200 centiseconds, each major division of the oscilloscope grid recording 20 centiseconds elapsed time, and the minor divisions of the grid recording 4 centiseconds elapsed time.⁴

The poem, as it appears below, is marked for stress and juncture as per Prof Pike's criteria. The numbers appearing above each line indicate the succession in which the marked phrases occur in the poem, and the sequence in which they were measured. The square brackets appearing below the line mark the outside limits of the measured phrase, and the number immediately below the phrases and interrupting the square brackets indicate the elapsed time as measured for that phrase from the tape of the first reader.

(1)	(2)
Glóry be to God, /	for dappled thínks //
└──────────┬──────────┘	└──────────┬──────────┘
100	100
(3)	(4)
For skies of couple-cóLOUR, /	as a brinded ców //
└──────────┬──────────┘	└──────────┬──────────┘
104	100

(5) For rose-móles / (6) all in stfple / (7) upon trout that swím //
 | 96 | | 98 | | 96 |
 (8) Fresh-fírecoal / (9) chestnut-fálls / (10) finches' wíngs //
 | 100 | | 100 | | 98 |
 (11) Landscape plótted and pieced // (12) fóld, fallow and plow //
 | 104 | | 108 |
 (13) And áll trades / (14) their géar and tackle and trim #
 | 110 | | 130 |
 (15) All things cúnter // (16) original // (17) spare // (18) strange //
 (19) Whatever is fíckle // (20) freckled // (21) (Who knows hów?) //
 (22) With swíft, slow / (23) sweet, sour / (24) adazzle, dim /
 | 112 | | 116 | | 114 |
 (25) He fathers-fóρθ / (26) whose béauty is past change #
 | 112 | | 134 |
 (27) Praise Hím #

The poem itself is divided into three sentences, the first ending with phrase 14, the second with phrase 26, and the final phrase (27) is the final sentence. The original intent, for purposes of demonstration only, was to time the phrases in the first sentence of the poem. However, when the phrase timings for the first sentence were completed, the difference between the elapsed time for phrase 14 and the other phrases of the sentence was so great that the phrases were retimed--with the same result. Consequently, the final phrases of the second sentence were also timed and, again, the elapsed time for the final phrase of the sentence was substantially longer than the elapsed time for the other phrases, but essentially of the same duration as phrase 14--perhaps, signaling the end of the sentence, since the two phrases which terminate the sentences constitute the only major deviations for reasonably consistent timings for the phrases within the sentences.

Elsewhere in the first sentence of the poem, the elapsed times for the reading of consecutive phrases remains exceedingly close, with a variance of only six centiseconds between the elapsed times for phrases 10 and 11 being the greatest, with phrases 1, 2, 4, 8, and 9 all having an elapsed reading time of 100 centiseconds, and

with the elapsed reading times for any other two consecutive phrases varying no more than two to four centiseconds

Relatively few phrases from the second reading were timed, yet the timings reflect an isochronous reading of the poem's phrases

TABLE
(all times recorded in centiseconds)

Phrase No	Elapsed Time Reader 1	Elapsed Time Reader 2
1	100	108
2	100	110
3	104	112
4	100	110
5	96	
6	98	
7	96	
8	100	
9	100	
10	98	
11	104	110
12	108	114
13	110	116
14	130	128
22	112	
23	116	
24	114	
25	112	
26	134	

The second set of timings also reflects another aspect of isochronous rhythms though the elapsed times for reading individual phrases vary from the first reader to the second reader, both readers are consistent in an isochronous rendition of the poem's phrases. In other words, different readers may read the isochronous rhythms of a poem at different rates of speed, but the elapsed times for consecutive phrases are consistent with each reader.

The data presented here is sparse, yet demonstrative, however, the data does establish a proper set of criteria for determining the boundaries of isochronous units in poetry in English. And above all, the data demonstrates the existence of isochronous

rhythms in poetry in English

And, perhaps, the criteria outlined in this paper will lead to further investigations into the nature of isochrony, into the relationships between the shape of the poem (or prose) on the printed page and rhythmic readings, into the rhythmic relationships between poems written in the iambic tradition and those written in the tradition of free verse, and, perhaps, even into the relationship between muscular rhythms in the production of speech and the rhythms of poetry ⁵

NOTES

¹Also see Pike 1945 35, Pike 1947 13a, and Shen 1962 5

²Hopkins' poem was elected because both Scott (1974) and Hill (1966 6-18) work with Hopkins' rhythms, but without supplying electronic data to support their claims of isochronous rhythms

³For variant numbers of syllables to be read in essentially equal elapsed times, an utterance in English would have to be subject to compression (or stretching) with respect to elapsed times and such has been conclusively demonstrated by Lehiste 1971 and 1973

⁴The timings reported in this paper were made in the Physics Department at the University of North Carolina at Charlotte, with technical assistance from Bill Melton, Asst Prof of Physics

⁵David Abercrombie (1971 19-20) asserts that speech rhythms (and the reading of poetic rhythms) in English is directly correlated with the muscular rhythms of speech production, even in silent reading

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