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An Information Processing Approach to Group Performance of Poetry: Implications for Adaptation and Audience Research

Sandra Highnam

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AN INFORMATION PROCESSING APPROACH
TO GROUP PERFORMANCE OF POETRY:
IMPLICATIONS FOR ADAPTATION
AND AUDIENCE RESEARCH

An Abstract of
A Thesis
Submitted
In Partial Fulfillment
of the Requirements for the Degree
Master of Arts

UNIVERSITY OF NORTHERN IOWA

by
Sandra Highnam
July 1979

ABSTRACT

This investigation explores the relationship between a neurological model of information processing and a group performance of poetry. It focuses upon three considerations: construction of a neurological model of information processing, application of this model to group performance of poetry, and implications for adaptation of poetry and audience research.

A neurological model of information processing is constructed which explains perception in terms of the specialized functions of the left and right hemispheres. According to this model, certain aspects of the environment (stimuli) are more efficiently processed by each hemisphere: the left dealing largely with verbal material and the right with nonverbal, visual/spatial material. Furthermore, each hemisphere prefers to operate upon, or process, elements of the environment in a particular manner. The left hemisphere processes material in a sequential, linear and analytic fashion, while the right processes material in a simultaneous, holistic, and intuitive fashion. The model offers a summary of neurological research relevant to a discussion of probable hemisphere involvement for an audience experiencing a group performance of poetry.

This model is then applied to the components of group performance of poetry: the poem and its performance. The discussion indicates that although poetry is a linguistic system which contains syntactic

order (a left hemisphere element) the language of poetry is such that its richest and most effective processing is realized in the right hemisphere. It is characteristically high in concrete words linked to a perceptual context, rich in imagery, metaphor, and appositional language; and is an evocative, subjective and multifaceted gestalt. Furthermore, performance enhances the right hemisphere elements inherent in poetic expression by giving the audience acoustic manifestations of tone and mood, rhythm and word texture as well as visual/spatial manifestations of implicit movements. Because the right hemisphere is sensitive to auditory and visual stimuli which express affect (i.e., tone of voice and facial expression), it is involved fully in processing both the poem and its expression through the medium of performance.

Implications for adaptation of a text and for audience research are explored describing the audience experience of a group performance of poetry as a cognitive process, in which the synthesizing characteristics of the right hemisphere are crucial in the act of processing the poem at its most resonant and experiential level. Such a description offers the adapter-director a guide for making decisions in adaptation and staging of a poem. It offers the audience researcher a means of describing audience experience in quantifiable terms, of isolating variables which affect the experience, and a source of research methods and relevant data. The application of the neurological model to the field of oral interpretation in this thesis contributes another dimension to the study and appreciation of performance and the aesthetics of literary experience.

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Chapter One

INTRODUCTION

An audience member at a group performance is experiencing two artistic dimensions simultaneously. One is the dimension of the poem itself, with its inherent properties of evocation, imagery, content and sound texture. The second dimension is the performance, which interprets, reinforces and intensifies these properties through oral and physical expression. The audience member then experiences the poem as it exists in the words (figuratively and literally), the sounding of these words, and the visual/spatial expression of these words. The audience member is actively engaged in perceiving elements of meaning on many levels and integrating them.

To say that the audience experience is a complex interplay of dynamic forces is not to say that it is ineffable. It is, ultimately, an experience that the audience member sorts, processes, and assigns meaning to. That the experience and the meaning may differ from individual to individual does not mean that the elements of the process may not be explored by researchers in the field of oral interpretation in order to better understand their art and its effect upon an audience.

One approach to the audience experience which might provide a direction for audience research is the information processing paradigm. The paradigm is composed of a number of theories from several disciplines including neurology, psychology and education. Despite

variations in vocabulary, all of the information processing models rest upon the fundamental assumption that people gather, sort, store and utilize aspects of their environment in ways which give meaning to these aspects. The oral performance of poetry then may be viewed as an environment bounded by the time of its occurrence and composed of aspects both common to other events and unique to that event.

The thesis will employ a neurological model of information processing which explains cognition in terms of the left and right hemispheres of the brain and their specializations. According to this model, certain aspects of the environment (stimuli) are more efficiently gathered and sorted by each hemisphere: the left dealing largely with verbal material and the right with nonverbal, visual/spatial material. Furthermore, each hemisphere prefers to operate upon, or process, these aspects of the environment in a particular manner in order to derive meaning from these aspects. The left hemisphere processes material in a sequential, linear and analytic fashion, while the right processes material in a simultaneous, holistic, and intuitive fashion.

A neurological model provides a means by which to explore the experience of a group performance of poetry as essentially a right brain phenomenon. The existing research data upon which the model is predicated offer evidence that the constituent dimensions of the event, that is poetry and performance, as well as the multifaceted whole it becomes when perceived by the audience member, are conducive to right brain, holistic, intuitive processing. However, research also indicates that there are factors present which can preclude right brain processing and encourage the more analytic left hemisphere to assume the major role

in processing. For this reason, the adapter-director plays a vital role in the audience experience because he or she is in a position to use adaptation and performance as devices to enhance the right brain elements inherent in the poem and to minimize left brain elements which potentially distract from the right brain experience.

In light of these initial considerations then, this thesis will investigate the relationship between the neurological model of information processing and group performance of poetry.

A fundamental assumption underlies the use of a neurological model of information processing as a descriptor of audience experience. It is assumed that the right hemisphere's contribution to the perception and conception of a poem in performance is fundamental to experiencing the poem's fullest potential. It is also believed that this assumption is compatible in spirit, if not vocabulary, with several contemporary views in the field of oral interpretation regarding the nature of the poetic experience in general, and the nature of the poetic experience in the aesthetics of group performance.

Speaking about the nature of the poetic experience, Wallace Bacon takes particular care to distinguish the poem as it "exists" from those things which can be done to a poem. According to Bacon, we may talk about a poem, analyze a poem or paraphrase a poem, but this is not the poem. And, while a poem may communicate, it is not itself communication, because its symbolic language is "immediate rather than mediating." Instead, the poem is an act, which comes to life in the consciousness of the reader:

And if we are successful as readers (whether silent or oral), and if they are successful as poems (or even if we or they are only partly successful), we do feel them. What we have is not communication--but communion, a sharing of something which we and the poem hold in common . . . this communality is something created in the exchange between the poem and us, not simply something which we bring to the poem.¹

Those activities which are done to a poem, talking about it, analyzing it, paraphrasing it, are associated with cognitive functions which the neurological model attributes to the left hemisphere. Experiential knowing, communion with the subjective world of the poem, is associated with cognitive functions which the neurological model attributes to the right hemisphere.

In the aesthetics of group performance, some theorists imply that there are ways of knowing other than the analytic. Leland Roloff, for example, describes the perceiver of a group performance as the "reader." "It is he who is reading an environment given to him with sensory ratios of some kind: ratios of hearing to sight, sight, sight to hearing, tactility (spatial closeness) to sight and sound."² According to the neurological model, these are precisely the sensory environmental aspects which the right brain is specialized to process. And when Roloff describes the effect as "a way of knowledge," which is "non-rational," and based on "visual knowings, auditory truths" that

¹ Wallace Bacon, "The Act of Literature and the Act of Interpretation," in Oral Interpretation and the Teaching of English, ed. Thomas Fernandez, (Champaign: NCTE, 1969), pp. 5-6.

² Leland Roloff, "Interpretation of Time and Space," Readers Theatre News, 6, No. 1 (Fall/Winter, 1979), 46.

"transcends the capacity to talk about it,"³ he is, in essence, describing the unique abilities of the right hemisphere to know and think without words, but rather in visual/spatial gestalts.

The exercise of conjoining an information processing paradigm with group performance of poetry is necessarily complex; each model approaches the information processing phenomenon from a different perspective. This thesis will limit its focus to a neurological model, rather than attempt integration of diverse perspectives. The reader should be aware that neurology is only one possible approach to the broader theoretical construct known as information processing.⁴

This investigation will explore the audience experience of a group performance of poetry in light of a neurological model of information processing. The audience experience of solo performance of poetry and prose or group performance of prose is left to the investigation of other researchers. Certainly, many of the same principles developed here apply to both forms of interpretation as well as to the group performance of poetry. However, each has unique concerns which require special attention and therefore put them beyond the scope of this paper.

Two recent studies which indicate tentative beginnings in the

³ Roloff; p. 46.

⁴ Other major approaches include psychophysiology (F. J. McGuigan and Vernon Mountecastle); neuropsychology (Alexander Luria); psychology (Allan Paivio, Herbert L. Pick, Elliot Saltzman, Jon Bieri, et.al.) and education (Howard Gardner, Jerome Bruner, Bob Samples). The reader will find these and other authors cited under the subheading Information Processing in the bibliography.

exploration of audience experience as cognitively based include one in theatre (using a psychological model of information processing), and one in oral interpretation (using a neurological model of information processing).

The first of these, by William Gourd, examines the relationship between the cognitive complexity of an individual audience member and the response to performed plays and the characters in those plays.⁵ The theory of cognitive complexity as Gourd defines it in his study is a derivative of the larger information processing paradigm. It is primarily a personality (or type) theory which assumes that people have certain proclivities toward information processing styles, ranging along a continuum from complex (many dimensions and categories for sorting and integrating information to simple (significantly fewer dimensions and categories). The results of the study confirmed Gourd's hypothesis that cognitively simple subjects respond differently to both the play and the characters in the play than do cognitively complex subjects.

The experimental design and the data are of more interest perhaps to the actor and director, but the statistical approach to audience research favored by Gourd may have relevance to audience research in the field of oral interpretation. He states that "research which views an audience in a theatre as engaged in the activity of 'information processing' can give us useful insights into features of the process of

⁵ William Gourd, "Cognitive Complexity and Theatrical Information Processing: Audience Response to Plays and Characters," Communication Monographs, 44 (1977), 136-52.

'theatre art' which are unexaminable without benefit of the scientific methodology in modern communication research."⁶ According to Gourd, the statistical data obtained through empirical research are useful because they begin to "quantify a specific relationship between performance and spectator. The observed statistical interactions become, in part, metaphors for the relationship consisting in the information-processing interaction occurring between play and playgoer."⁷

A second study, by Kittie Watson and Larry Barker⁸ is more directly applicable to the field of oral interpretation. They employ an experimental design based upon a neurological model. Electroencephalographic data indicates a suppression of alpha waves in the brain hemisphere engaged in cognitive processing. Furthermore, the data indicate that the left brain alpha activity is suppressed during analytic tasks and the right brain alpha waves are suppressed during gestalt and imagery-based tasks. Watson and Barker therefore hypothesized that experienced oral interpreters, who presumably "have sensory responses to literature," would display right hemisphere alpha suppression while listening to verbal messages. The experimenters chose four recorded messages: prose, poetry, debate, and oratory. The

⁶ Gourd, p. 140.

⁷ Gourd, p. 151.

⁸ Kittie Watson and Larry Barker, "An Investigation of Lateralized Alpha Activity of Oral Interpreters While Listening to Varied Oral Messages," Presented at Nonverbal Division, Eastern Communication Association Convention, Philadelphia, May 1979, (unpub. ms.).

results did not confirm the hypothesis, but due to a number of problems with the structure of the study (no control group for example) the hypothesis is in need of additional investigation. The authors do mention possible extensions of the neurological approach worthy of note: "(1) hemispheric differences between effective and ineffective readers, (2) hemispheric differences between oral interpreters and other classes of individuals (i.e., debaters) and (3) hemispheric processing differences of performers while responding to various types of literature."⁹

While neither of these studies speak directly to the concerns which this thesis will develop, they do suggest that information processing is of interest to some researchers in the arts as an approach to the audience experience and that the neurological model has been employed in the oral interpretation field with limited success.

The concerns which this thesis develops are those related to the audience experience of a group performance of poetry as explained by a neurological model of information processing. The order of investigation is as follows. Chapter Two integrates a number of neurological studies and develops a model of hemispheric specialization. Chapter Three examines the relationship between this model, the characteristic components of poetry, and audience experience of poetry in group performance. Chapter Four addresses the implications for the adapter-director and the audience researcher based upon a description of audience involvement with group performance of poetry as a neurological process. The conclusion reviews the investigation of the neurological

⁹ Watson and Barker, p. 42.

model as a means by which to explore the audience experience of a group performance of poetry.

Chapter Two

A NEUROLOGICAL MODEL OF INFORMATION PROCESSING AND GROUP PERFORMANCE OF POETRY

A Neurological Model of Information Processing

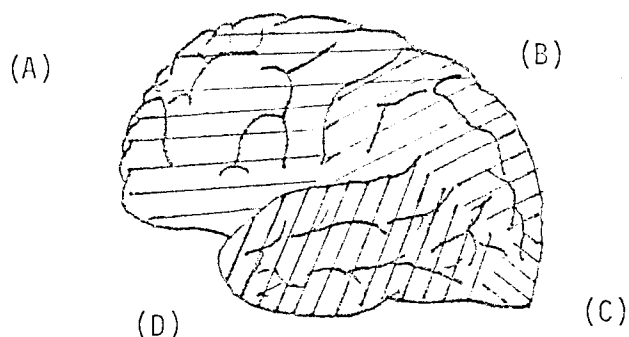
The neurological model is based on a set of assumptions common to information processing approaches. These include a concept of the mind as being actively engaged in extracting meaning from the various elements of the environment. The mind is not viewed as a blank slate which the environment "impresses" with information, ideas and concepts; nor is it seen as a "black box" which is an inscrutable way-station between stimulus and response. Rather, the mind is seen by information processing theorists as an aggressive, information-seeking instrument. It encodes relevant perceptual features from the environment (both physical and social), by sorting these features into categories, or "chunks" according to salient characteristics, thematic similarities or any number of cognitive dimensions. This information may be sorted and integrated for immediate use, as in conversation, or stored in short or long term memory for later manipulation in thought or problem-solving tasks. As a rule, the term "information processing" refers to the sequence of steps performed in the mediation process from the perception of initial sensation to the output of new information.

The neurological model defines the information processing system

and its mechanisms in terms of the lateral specialization of the brain.¹ That is, each hemisphere is particularly efficient in dealing with certain types of information (stimuli) and is better able to manipulate this information in a particular fashion. This hemispheric preference for certain cognitive functions is variously referred to as cerebral dominance, lateral specialization, or functional brain asymmetry. It is anatomically based on the division of the brain into hemispheres by the corpus callosum, a band of nerve fibers which appears to be the vehicle for exchange of information between the hemispheres. Each hemisphere is further divided into four major zones, or lobes: (A) the frontal (near the front of the brain), (B) the parietal (near the top), (C) the occipital (at the rear) and (D) the temporal (flanking each temple). These areas are indicated in DIAGRAM 1.

¹ Hemisphere specialization of function develops through childhood and is well established by puberty in most individuals. Exceptions do occur in some cases of brain impairment, however. Specialization generally involves the localization of speech in the left hemisphere, although again there are exceptions to this pattern in some left-handed individuals who acquire speech functioning in the right hemisphere, or in some right-handed individuals who have suffered injury to the left hemisphere in childhood and through the brain's plasticity are able to develop speech functions in the right hemisphere.

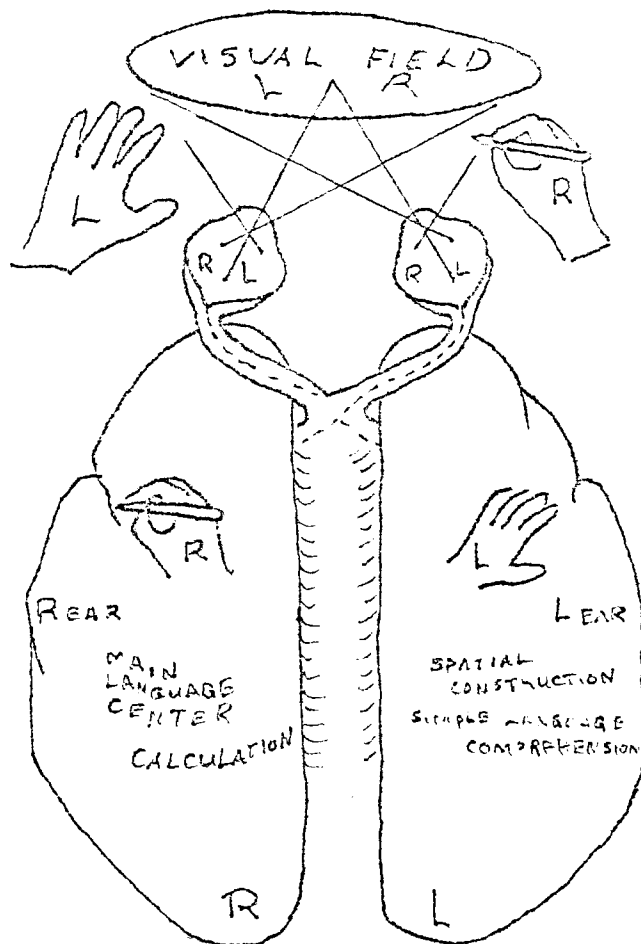
DIAGRAM 1
LATERAL VIEW OF THE LEFT HEMISPHERE



Source: Lord Walter Brain, Speech Disorders. Aphasia, Apraxia, and Agnosia (Washington, D.C.: Butterworths, 1965), p. 83.

Each hemisphere is responsible for the motor functioning of the opposite side of the body: the left hemisphere coordinates motor activity for the right side of the body and conversely, the right hemisphere coordinates motor activity for the left side of the body. Furthermore, auditory stimuli reaching the left ear will first be processed by the right hemisphere as will visual stimuli in the left visual field, as illustrated in DIAGRAM 2.

DIAGRAM 2
LATERAL BRAIN FUNCTION



Source: John Eccles, The Understanding of the Brain (New York: McGraw-Hill, 1977), p. 210.

It has been known for over a century that trauma to the left hemisphere (aphasia, war wounds, lesions) severely diminished or entirely destroyed a person's ability to understand speech and to produce meaningful and appropriate language. This observation not

only set the stage for the study of hemispheric specialization, but gave rise to the commonly held belief that the left hemisphere was verbal while the right was mute, and that the left was dominant while the right passive. However, as surgical techniques have become sophisticated enough to localize trauma and testing devices have been developed to explore brain functioning in normal subjects, evidence has accumulated which suggests that the right hemisphere is not entirely mute, nor is it passive. There are aphasics, for example, who are still able to produce some speech, although it is usually a memorized unit like poems, prayers and songs, or is highly emotional, as in profanity. Evidence of the right hemisphere's involvement in speech comprehension is also being noted. In Physiological Psychology, Peter Milner asserts that review of the work of Roger Sperry with split-brain patients will show "quite conclusively that the right hemisphere can mediate the comprehension of simple speech and writing," and is able to follow simple verbal instruction.²

As data continue to accumulate, there is an increased awareness that the left hemisphere's dominance in speech production does not constitute dominance in all areas of thought. TABLE 1 is a catalogue of stimuli which each hemisphere is specialized to process. It presents a more detailed account than the usual verbal/nonverbal dichotomy in order to underscore the role of the right hemisphere in perception, particularly that which is related to language mediation. A review of current research in hemispheric specialization suggests a

² Peter Milner, Physiological Psychology (New York: Holt, 1970), p. 179.

division of stimuli into the general categories of language-related and nonlanguage. Each of these categories offers a useful profile of the types of information for which each hemisphere is dominant.³ The term "language," as used for the purposes of TABLE 1 and subsequent discussion, is defined as "an arrangement or system of symbols employed by beings who are capable of making associations between essentially arbitrary representations and events to express their wishes, their thoughts, and their feelings."⁴

³ The term "dominance" in neurological research generally refers to the proficiency which the hemispheres exhibit processing certain types of stimuli or when engaged in specific types of tasks.

⁴ Jon Eisen, Adult Aphasia (New York: Appleton-Century-Crofts, 1973), p. 30.

TABLE 1
HEMISPHERE SPECIALIZATION⁵

LANGUAGE-RELATED

| Left Hemisphere | Right Hemisphere |
|--|--|
| 1. Language Elements | 1. Language Elements |
| syntax or grammar (Goodglass, et al., 1979) | imagery (Robbins and McAdam, 1974) |
| phonemic features (Zaidel, 1976) | emotional tones (anger, boredom, happiness, distress) in sentences (Haggard & Parkinson, 1971) |
| vowels presented in series of English words (Spellacy & Blumstein, 1970) | vowels embedded in melody (Spellacy & Blumstein, 1970) |
| intonation which clarifies syntax (Zurif, 1977) | pitch, timbre, texture (Gardner, 1977) |
| intonation which provides context cues (Zurif, 1977) | intonation which provides context cues (Zurif, 1977) |
| 2. Types of Language | 2. Types of Language |
| propositional (Bogen, 1969) ^a | appositional (Bogen, 1969) |
| abstract (Rogers, et al., 1976) ^b | concrete (Rogers, et al., 1976) |
| literal sign (deaf speech) (Eisenson, 1973) | emotionally-charged words or phrases in a story (Weschler, 1976) |
| musical notation (Gardner, 1977) | |
| 3. Mathematical Calculations (Mountcastle, 1962) | 3. Simple Mathematics (addition, subtraction) (Mountcastle, 1962) |

^a"Propositional language" is a phrase sometimes used to describe the speech of the aphasic patient before the impairment of the left hemisphere. It is used in linguistic study as a general term for

language which is composed of propositions, or statements which are highly rational, logical, and subject to verification as to truth or falsity. To greater or lesser degrees most adult speech is propositional. "Appositional language" is a term used in linguistic study to describe a type of language which is emotional, concrete, affective (as opposed to rational) and not subject to verification because it does not present propositions of fact, but of feelings or subjective attitudes.

^bAs used in neurological research, "abstract language" usually refers to words which are manipulated as symbols free of a perceptual field or any particular context. "Concrete language" refers to words more directly tied to a perceptual field and a particular context. Language development in children typically follows a pattern from reliance on concrete words to facility with symbolic and abstract words.

NONLANGUAGE

| Left Hemisphere | Right Hemisphere |
|---|---|
| 4. Acoustic recognition of musical chords (Gordon, 1978) | 4. Acoustic cries, shrieks and laughter (Carmon & Nachson, 1973) environmental sounds (water running) (Kimura, 1964) musical melodies (Kimura, 1964) |
| | 5. Visual shapes and slanted lines (Kimura & Dunford, 1973) placement of objects located in space (Kimura, 1973) |

Left Hemisphere

Right Hemisphere

spatial relationships as in
mazes or body orientation
(Bogen, 1969)

facial expression (Suberi &
McKeever, 1977)

recognition of faces
(Rizzolatti, Umilta, &
Berlucchi, 1971)

identification of emotions in
faces (Ley & Bryden, 1979)

⁵ TABLE 1 represents a compilation of data from a number of sources in current neurological research. These studies are listed by last name of the primary author and date in the table. More detailed documentation is provided in the bibliography under the subheading, Neurology.

The lists of stimuli presented in TABLE 1 indicate that the left hemisphere is dominant for most aspects of speech reception, particularly aspects which signify propositional and abstract speech. It is also dominant for manipulating other rule-bound systems such as numbers and musical notation. The right hemisphere is dominant for aspects of verbal messages which are contextual, that is, identifying the intent of the speaker and emotional overtones, aspects important in appositional speech. Eran Zaidel offers a characterization of the linguistic competence of the two hemispheres as related to "more general differences in their perceptual and cognitive styles, namely, categorical and context independent processing in the left versus continuous and context sensitive processing in the right."⁶ Zaidel's reference is to the left hemisphere's tendency to deal with words as symbols quite unrelated to the presence of a physical referent, while the right hemisphere has little symbolic capacity and ties a word closely to the physical (perceptual) event. This orientation of the right hemisphere toward nonsymbolic, context-oriented processing appears to be a reflection of its capacity to process and store information from the physical environment.

In addition to differences in types of material which each hemisphere prefers to process, there is also a difference in processing modes or strategies. In order to understand these differences, researchers have developed a number of tests which provide a behavioral

⁶ Eran Zaidel, "Language, Dichotic Listening and Disconnetic Hemispheres," in Conference on Human Brain Function, ed. Donald O. Walter, Linda Rogers, and Joyce M. Finzi-Fried (Los Angeles: Brain Information Service/ BRI Publications Office, 1976), p. 72.

representation of mental processes. For example, as patients with damaged left hemispheres copy drawings or assemble puzzles with the right hand they make errors on internal details and proceed slowly, while patients with damaged right hemispheres make errors in overall configuration and proceed quickly. Consistent error patterns suggest a dependence upon detail and analysis in the left hemisphere and a dependence upon configuration and holistic processing in the right.⁷

Terms which are currently used by researchers to characterize the processing strategy or style of the left hemisphere include: sequential and linear, categorical, and analytic.⁸ Each of these refers to a slightly different aspect of the function known as cognitive strategy. "Sequential" and "linear" indicate the arranging of material by integrating separate elements into a series which is temporally ordered. Meaning is then understood only as each element relates to another in the chain.⁹ "Categorical" refers to the perception of stimuli which differ in acoustic properties as being

⁷ Amy Veroff, "A Structural Determinant of Hemispheric Processing of Pictorial Material," Brain and Language, 5 (1978), 141.

⁸ These terms are discussed respectively by Kenneth Robbins and Dale McAdam, "Interhemispheric Alpha Asymmetry and Imagery Mode," Brain and Language, 1 (1974), 189-93; David Galin and Robert Ornstein, "Lateral Specialization of Cognitive Mode: An EEG Study," Psychophysiology, 9 (1972), 412-18; George Papcum, "The Categorical Perception of English Stress," in Conference on Human Brain Function, ed. D. O. Walter et al., (Los Angeles: Brain Information Service BRI Publications Office, 1976), 115-23; A. H. Morgan, H. MacDonald and E. Hilgard, "EEG Alpha: Lateral Asymmetry Related to Task and Hypnotizability," Psychophysiology, 11 (1974), 275-82.

⁹ Alexander Luria, Human Brain and Psychological Processes, trans., Basil Haigh (New York: Harper and Row, 1966), p. 78.

identical, provided they fall within rule ordered boundaries or classes. In perception of speech, then, sound differences which have no bearing upon meaning are not processed; sound differences which do have a bearing upon meaning are processed. This discrimination selectivity is an important aspect of the left hemisphere's coding mechanism and makes rapid speech perception possible. "Analytic" refers to the practice of conceptualizing wholes in terms of constituent elements.¹⁰ It is perhaps best exemplified by the comprehension of sentence meaning through "analysis" of the sentence's linguistic constituents (e.g., subject, main verb, direct object).

When all of these descriptive terms are considered jointly, they define the left hemisphere mode as one which uses the serial arrangement of stimuli; meaning is derived from application of a code which assigns significance to particular serial arrangements. Categorical perception, in turn, allows the coding system to operate efficiently. Hence the strong proclivity of the left hemisphere for processing speech, since the order of each phoneme is crucial for word meaning and each word's relationship to previous and subsequent words is crucial for meaning of the sentence.

The right hemisphere processing strategy is much the reverse. Its style is characterized as: holistic and gestalt; synthetic, pre-logical, pre-verbal, irrational, subjective and intuitive; and

¹⁰ Howard Gardner, "Senses, Symbols, Operations: An Organization of Artistry," in The Arts and Cognition, eds. David Perkins and Barbara Leondar (Baltimore: Johns Hopkins Univ., 1977), p. 110.

imagaic.¹¹ Stimuli may arrive in any order to the right hemisphere and still be synthesized as a total unit with reliance upon temporal or serial relationships. The processing is continuous rather than sequential and thus the ability to process melody and rhythm but not syntax. Because the right hemisphere does not use temporal order as a constituent of meaning, relationships are analogous and associative instead of linear. Because elements acted upon by the right hemisphere do not have to be temporally ordered, the right hemisphere can process several types of stimuli simultaneously, thus its responsibility for integrating diffuse information from the environment. Facial expression, for example, does not depend upon a linear relationship between components, but upon a total configuration. Simultaneous processing also explains the facility of the right hemisphere with imagery, both auditory and pictorial. Alexander Luria summarizes the simultaneous processing as:

. . . the synthesis of separate elements into groups that generally have spatial overtones, with all portions of the synthesis being surveyable or accessible without dependence on their position within the synthesis. This type of processing is required, for instance, in the formation of any holistic gestalt, or in the discovery of the relationships among two or more objects.¹²

¹¹ These terms are discussed respectively by Galin and Ornstein, 412-18; Paul Bakan, "Hypnotizability, Laterality of Eye Movements and Functional Brain Asymmetry," Perceptual and Motor Skills, 28 (1969), 927-32; Bertram D. Cohen, "Functional Asymmetry of the Human Brain," Science, 162 (1968), 475-77; Robbins and McAdam, pp. 189-93.

¹² Luria, p. 74.

The model indicates that once the hemispheres have developed the level of specialization typical of right-handed adults, the processing mode for each hemisphere does not vary in form. The left hemisphere is consistently sequential, categorical, analytical, linear and logical while the right is consistently holistic, gestalt, simultaneous and intuitive. Furthermore, there are certain types of stimuli which are predictably acted upon by each hemisphere. Syntax, for example, requires decoding sequential relationships between symbols or digits and would not be handled by the right hemisphere as long as the left were functionally normal. Similarly, pictorial imagery requires configurations based on visual/spatial relationships and would not be handled by the left hemisphere as long as the right were functionally normal.

However, some material is not necessarily hemispheric specific and therefore more cognitively ambiguous. It might be processed by either hemisphere depending upon how the receiver views the cognitive task. Even a stimulus as conventionally right hemisphere as music may be processed by the left hemisphere under some circumstances. Arlene Morgan, Hugh MacDonald and Ernest Hilgard noted that when they asked subjects to make up a tune which they had never heard before and hum it to themselves, the subjects displayed a left hemisphere alpha suppression (left hemisphere processing). The experimenters had anticipated the task to be a right hemisphere one and attributed the contradiction to the fact that the subjects conceived of the task as a linguistic one because they apparently had to establish a temporal order or coding system, as with speech production, before they could

produce a melody.¹³

Previous discussion indicates that poetry is an example of a language system which is potentially ambiguous from a cognitive processing point of view. It contains elements of the linguistic code, such as syntax; it also contains elements of a nonlinguistic code such as imagery.

It appears that the mere presence of syntax does not preclude right hemisphere processing, since aphasia and split-brain patients can still understand language. The determining factor seems to be the degree of complexity of the syntax. The question of how complex the syntax must be in order for the right hemisphere to be inhibited by the left remains unanswered in the research. But the work by Harold Goodglass, Sheila Blumstein, Jean Gleason, Mary Hyde, Eugene Green, and Sheila Statlender with aphasics implies that the type of embedding may be a significant factor.¹⁴ When one propositional statement is embedded in another (e.g., the fireman is stronger than the policeman--the fireman is strong; the policeman is not strong) the decoding process requires a great deal of left hemisphere activity. When such a construction is expanded into two sentences, many of the aphasics in the study were able to understand it, presumably because the word order could be more readily decoded for meaning and the semantic meaning could then be mediated by the intact right hemisphere. While

¹³ Morgan, et al., p. 281.

¹⁴ Harold Goodglass, Sheila Blumstein, Jean Gleason, Mary Hyde, Eugene Green and Sheila Statlender, "The Effect of Syntactic Encoding on Sentence Comprehension in Aphasia," Brain and Language, 7 (1979), 201-209.

the generalizability of this research to an audience member should be undertaken with some reserve, this study and the Watson and Barker findings cited in Chapter One do suggest that syntax complexity is a prominent factor in hemisphere processing. Further, syntax is a more crucial component in processing *propositional statements than appositional statements.*

*These respective modes of processing obviously offer the human brain an efficient system to deal with the various types of stimuli which impinge upon it as sensations, through the various stages of processing until meaning is obtained. Precisely how stimuli are "tagged" for the right or left hemisphere is not fully understood. A physiological explanation accounts for specialization as one hemisphere inhibiting the other at the brain stem where stimuli are first sorted.*¹⁵ However, this account does not adequately explain why the same stimuli are typically processed in one hemisphere, then on occasion, in the other: vowels being left hemisphere in speech but right hemisphere in melodies (TABLE 1).

Resolution of such a complex issue is outside the parameters of the present discussion. The purpose is to construct a model which coordinates the existing research data in neurological processing relevant to group performance of poetry. Application of this model to the interpretative event is the focus of Chapter Three.

¹⁵ L. M. Aitkin and W. Webster, "Medial Geniculate Body of the Cat: Organization and Responses to Tonal Stimuli of Neurons in Ventral Division," Journal of Neurophysiology, 35 (1972), 365-80.

Chapter Three

THE NEUROLOGICAL MODEL AND GROUP PERFORMANCE OF POETRY

According to the neurological model as presented in Chapter Two, the audience member who is perceiving a group performance of poetry is stimulated to use both hemispheres in processing the event: the left hemisphere for linguistic components and the right for the non-linguistic and visual/spatial components. Furthermore, the left hemisphere would be processing in a logical, sequential mode, while the right would be using an holistic, simultaneous and subjective mode. But the model also indicates that, while both are involved to some degree, it is unlikely that their role in obtaining the final concept or total meaning is equal. That is, one is probably at the service of the other and synthesis of the event is the final responsibility of primarily one hemisphere rather than both.

Because oral interpretation is generally regarded as a vehicle for the presentation or study of literature through an oral medium it might appear initially that the more linguistic and verbal hemisphere would be the primary processor of a group performance of poetry. However, there are two considerations which question this assumption. The first is the nature of poetry itself as a unique linguistic system. Evidence from neurolinguistics, psychology and poetic theory indicates that

poetry may, in fact, be a particular linguistic system, one more compatible with limited symbolic, context-sensitive abilities of right hemisphere processing than the highly symbolic, abstract and rational abilities of the left hemisphere.

The second consideration which points to right brain processing for group interpretation is the nature of performance. In usual narrative discourse, the left hemisphere processes speech through a highly constrained, rule-governed and rule-bound system. The neural mechanism is specialized to perceive temporally ordered acoustic events in categorical fashion. Specifically, acoustic events whose features are within certain boundaries (of time, frequency and amplitude) are perceived by the left hemisphere as identical. Such processing reduces decision making which improves efficiency. Firmly established sets of probabilities operate in assigning meaning to these acoustic events, ordered by the linguistic rule system into constituents which combine to form propositions. In most communication situations, the system samples acoustic input, establishes hypotheses based on probability, resamples, tests hypotheses, reformulates if necessary, and so forth.¹ This speech processing model implies that each acoustic segment in the signal need not be analyzed, just as efficient readers need not attend to each word on the page to comprehend the written message. The efficiency of the mode, however, requires a somewhat "standard" input so that the sets of probabilities can function. Narrative discourse satisfies this assumption. Group

¹ Derek Sanders, The Perception of Speech (Englewood Cliffs, N.J.: Prentice Hall, 1978), pp. 192-93.

performance, however, violates the assumption because orchestration and vocal interplay serve to disrupt patterned expectations by repetition, by slowing down virtual time, and by overlapping temporal sequences. Moreover, group performance can simultaneously emphasize the affective subtext of the poem through selective use of orchestration. Orchestration is a technique which can be used to reinforce "an idea, an emotion, a character presence or an image structure," through augmentation, elaboration and repetition of multiple voices.²

In light of the special linguistic medium of the poem and of the oral medium of performance, then, it would seem more likely that the right hemisphere is the primary processor during a group performance of poetry. A more detailed discussion of poetry and its performance provides further support for this hypothesis.

Exploration of the nature of the poetic verbal system and cognitive processing might begin with an experimental study which speaks directly to the issue. However, the only study to date which has attempted to measure hemispheric specialization for poetry fails to offer much useful evidence. Watson and Barker employed an EEG procedure (relative amounts of alpha) as a technique to determine which hemisphere oral interpreters use while listening to poetry. The experimenters assumed that since a number of previous EEG studies indicated a right hemisphere preference among the general population for imagery tasks, experienced

² Marion Kleinau and Janet Larson McHughes, Theatres for Literature (Sherman Oaks, Ca.: Alfred Pub., MS, in press), pp. 111-18 and 111-19.

interpreters³ would display a significant right hemisphere lateralization when listening to poetry because they have "sensory responses to literature."⁴ The experimenters discovered, to the contrary, that subjects displayed relative increases in left hemisphere activity during the task. This finding lacks generalizability, however, because of two confounding factors. First, the poems contained very high levels of syntactic complexity.⁵ Second, the subject population was trained in techniques of poetic study and presumably brought to the task an analytical, rational mind set. Both these factors would predispose subjects to left hemisphere processing.

A second study, by Linda Rogers, Warren TenHouten, Charles Kaplan and Martin Gardiner⁶ yields data which are somewhat easier to interpret. These researchers examined the possibility that a language system may be a reflection of cultural thought patterns and that these differences may in fact be manifested at a neurological level. Rogers et al., focused upon the Hopi Indian language which the authors identified as differing from Indo-European language systems in two

³ "Experienced interpreters" were operationally defined by Watson and Barker as students who had taken an introductory course in oral interpretation, a graduate course in oral interpretation and having performed in at least one readers theatre production, p. 4.

⁴ Watson and Barker, p. 4.

⁵ The selections of poetry which were used for the study were "Anecdote of the Jar" and "Disillusionment at 10 O'Clock" by Wallace Stevens and "Saint" by Robert Graves.

⁶ Linda Rogers, Warren TenHouten, Charles Kaplan and Martin Gardiner, "Hemispheric Specialization and Language: An EEG Study of Hopi Indian Children," in Conference on Human Brain Function, ed. Donald O. Walter, Linda Rogers, and Joyce M. Finzi-Fried (Los Angeles: Brain Information Service/BRI Publications Office, 1976), pp. 33-40.

important ways. First, it is concrete and involved with the perceptual field, which leads to ". . . an immediate attendance to nature and links speech with its context." English, on the other hand, ". . . orients its users to separation or abstraction from the perceptual field."⁷ Second, the Hopi language does not separate time and space into linear segments but regards them as inseparable aspects of the ongoing present. English, by contrast, employs an abstract classification of linear time as conjugated verbs and linear space as units of distance.

The analysis of language differences led the experimenters to the following conclusions.

English serves as an instrument for formulating and communicating propositional thought in its abstractness, its analysis, its linear time, and its field independence. Hopi, on the other hand, serves as an instrument for formulating and communicating appositional thought in its concreteness and its orientation to the perceptual field. This specification of the world views associated with English and Hopi languages as the propositional (left hemisphere) leads to a neurolinguistic hypothesis: While the left hemisphere is known to contain a variety of areas associated with the production of aspects of language behavior (Lenneburg, 1967), the extent of right hemisphere participation in processing language should be greater for Hopi than for English.⁸

⁷ Rogers, et al., p. 34. This contrast can be exemplified by examining the verb organization employed by the two languages for discussing the spilling and pouring of water and sand. In English, the verb choice is based semantically on intention (accidental or purposeful) and ignores the character of the substance involved. Hopi verb choice, on the other hand, ignores intention and focuses on the substance, "wehekna" for water and "waihokna" for sand. A more detailed discussion of experiments relevant to Hopi language may be found in Philip Dale, Language Development: Structure and Function (New York: Holt, 1976), pp. 241-42.

⁸ Rogers, p. 35.

To test the hypothesis, the researchers drew a sample of 4th, 5th and 6th grade bilingual children from an elementary school at the Hopi Independent Nation. The children listened to tape-recorded stories, one in Hopi language, "Isaw Nig Pu Tutsvo" ("The Coyote and the Wren"), and one in Standard English, "The Sparrow and the Lizard." During each session, relative amounts of alpha waves were monitored for both hemispheres of each subject.

The results supported the hypothesis that the processing of Hopi speech involves greater right hemisphere participation than does the processing of English speech and led the researchers to suggest that their findings ". . . add some support to the notion that differing languages can serve as instruments for thought in a propositional, left-hemisphere mode, or in an appositional, right-hemisphere mode."⁹

This study offers two insights into the present discussion concerning the poetic experience and information processing: languages may differ qualitatively, and that difference may influence which cerebral hemisphere is more appropriate for processing meaning. While it does belong to a different language family, English poetry has several properties in common with Hopi Indian language, concreteness, sensory appeal and appositional structure. Furthermore, poetry accentuates these aspects through its concentrated form and sound structure devices which discourage the cursory information gathering approach useful for nonliterary texts. One of poetry's most characteristic qualities is that "it is so constructed as to call attention

⁹ Rogers, p. 38.

to its elements, reveal their usually neglected aspects, and thus, paradoxically--'dislocate language into meaning'." Thus, as the reader attends to each word, it "emerges as a microcosmos embedded in a multifaceted, multilayered, multidirectional space of meaning."¹⁰

The "space of meaning" for concrete words in a poetic passage is very often the sensory space of physical awareness, an affirmation of experience before it is abstracted into linguistic codes. The effect upon a reader is described by Philip Wheelwright as "confrontive imagining."¹¹ This response occurs, according to Wheelwright, because poetry "presents as well as represents; it evokes something of the very quality, tone and flavor of the concrete. . . ." ¹² It is experience with the physical world of the senses which inspires poetry and which poetry in turn evokes in those who feel its language.

"Concrete" may also be defined by what it is not--and that is abstract and intellectual--in Hopi terms, removed from the perceptual field. As A. E. Housman proclaims, "Meaning is of the intellect, poetry is not. It is more physical than intellectual."¹³ And W. B.

¹⁰ Hans Kreidler and Shulamith Kreidler, Psychology of the Arts (Durham, N.C.: Duke Univ. Press, 1972), p. 223.

¹¹ Philip Wheelwright, The Burning Fountain (Bloomington, Ind.: Indiana Univ. Press, 1968), pp. 32-55. Wheelwright discusses four types of imagining, one of which is the confrontive. The other three include compositive imagining, imaginative distancing, and archetypal imagining.

¹² Wheelwright, The Burning Fountain, p. 35.

¹³ A. E. Housman, "The Name and Nature of Poetry," in The Creative Process, ed. Brewster Ghiselin (Berkeley: Univ. of California Press, 1954), p. 90.

Yeats in his essay "The Thinking of the Body" proposes, "Art bids us touch and taste and hear and see the world, and shrink from what Blake calls mathematical form, from every abstract thing, from all that is of the brain only. . . ."14

I. A. Richards speaks of differing states of consciousness, one of which offers particular insight into the qualitative difference between intellectual abstraction and poetic concreteness. At the most removed from analytic and abstract attention, are a variety of possible states of consciousness which may be primarily perceptual or emotional. These states may be comparatively simple, "But certain of these concrete, immediate, and unintellectualized phases of life have in their own right a complexity and richness which no intellectual activities can achieve. Amongst these aesthetic experiences figure prominently."¹⁵ Richards elaborates the means by which a person contemplating a work of art achieves a concrete, immediate and unintellectualized consciousness similar to that which prompted the original creation. For Richards, the fullness of the aesthetic response, like most communicative responses, rests upon the action of memory; we must recall the meaning or referent of a word if we are to understand a message. But aesthetic memory is of a special kind: "not memory narrowed down and specialized as is required for reference, but memory operating in a freer fashion to widen and amplify sensitiveness. In such conditions we are open to a more diffused and more heterogeneous stimulation,

¹⁴ W. B. Yeats, "The Thinking Body," in Ghiselin, p. 106.

¹⁵ C. Ogden and I. A. Richards, The Meaning of Meaning (New York: Harvest Books, 1968), p. 156.

because the inhibitions which normally canalize our responses are removed."¹⁶

Richards implies that an immediate and concrete experience for the poet stimulates a verbal expression in kind. When contemplated by another person, these same words stimulate memories of like sensitivities. Had the original expression been an intellectual abstraction of the concrete experience, the perceiver's memory would be likewise constrained to relatively narrow, categorical, verbal associations, rather than subjective noncategorical, sensory responses.

The language of poetry then is concrete rather than intellectual or abstract. Because it is so, responses to it tend to be in the form of images, often sensory images based upon past experiences. Images are recreations of scenes or events or sensations in the absence of the original stimuli.¹⁷ Concrete words in the poetic language evoke imagery of several types, often simultaneously. They are fundamentally, or at least initially, the medium of transportation between the senses and sensations of the poet (real or imagined) and the senses and sensations of the perceiver, remembered, revitalized, and processed as mental imagery. So inherent and definitive is the imagaic quality that poetry without any imagery, says Wheelwright, "would not be a poem at

¹⁶ Richards, Meaning of Meaning, pp. 156-57.

¹⁷ Allan Paivio, "Imagery and Language," in Imagery: Current Cognitive Approaches, ed. Sydney Joelson Segal (New York: Academic Press, 1971), p. 12. Paivio notes that abstract words may prompt imagery but not as readily as concrete words.

all, but merely a versification of abstract ideas."¹⁸

As noted in the discussion of the neurological model in Chapter Two, the right hemisphere demonstrates proclivity for processing imagery. The relationship is easy to understand in light of the environmental, perceptual sensitivity of the right hemisphere and its holistic, configural processing mode, which contrasts with the more abstract, symbolic and context independent mode of the left hemisphere. This lateral specialization was instrumental in the results of the Rogers et al. study of the Hopi language as a relatively more right hemisphere involved task. The same assumptions may be brought to bear upon the question of lateral preference for poetry as well, particularly if poetic language and imagery were the only dimensions of poetic expression. However, while poetry often makes an initial appeal through imagery, it seldom makes its final statement at this level. As Wheelwright assumes with regard to poetic images, they are not merely objects of contemplation in themselves, but "images with metaphoric potencies and metaphysical overtones."¹⁹ How then, does the lateral preference of the right hemisphere account for images which are not entirely sensory but transcendent, figurative, and intimations of meaning at levels other than immediate sensory experience?

Metaphor is an element of poetic expression which embodies this fundamental paradox of poetry--that it may speak of the very particular

¹⁸ Philip Wheelwright, Metaphor and Reality (Bloomington: Indiana Univ. Press, 1967), p. 66.

¹⁹ Wheelwright, Metaphor and Reality, p. 67.

and yet imply the general. It has been a source of interest and dispute among scholars for centuries. Even the most superficial review of metaphor study outside the neurological framework indicates the vast array of interpretations which are offered concerning the nature and functioning of metaphor as a vehicle of meaning. Two critics who argue the traditional approach to the metaphor as a verbal matter or a rhetorical strategy are Richards and Wheelwright.

Richards sees the metaphor as deriving ultimately from the nature of thought which works by comparison and expresses such comparisons in the language of metaphors: "In the simplest formulation, when we use a metaphor we have two different thoughts of different things active together and supported by a single word, or phrase, whose meaning is a resultant of their interaction."²⁰ When a metaphor is encountered in a poetic situation the mind is encountering two things belonging to different orders of experience and sets about connecting them in any number of ways; "Which of these it chooses is settled by reference to some larger whole or aim, and, though we may not discover its aim, the mind is never aimless. In all interpretation we are filling in connections, and for poetry, of course, our freedom to fill in--the absence explicitly stated in intermediate steps--is a main source of its powers."²¹

Wheelwright too, refers to the need for connection between the elements of the metaphor but is even more specific about the particular

²⁰ I. A. Richards, The Philosophy of Rhetoric (New York: Oxford Univ. Press, 1976), p. 93.

²¹ Richards, Philosophy of Rhetoric, p. 125.

linkage which metaphor invites. For Wheelwright, the metaphor operates by the semantic tension, i.e., associations between the words in the metaphor and their meanings with the sudden new expression or image which results from the linkage between them: "It is tensive because of the precarious balance between two or more lines of association which it invites the imagination to contemplate."²²

Within more empirically based fields, also, there is a lack of agreement about the nature of the metaphor. There are researchers, like traditional grammarians, who view the metaphor as a linguistic device and a deviant form of literal language.²³ There are others, however, whose approach to the metaphor more closely approximates those of Richards and Wheelwright. Robert Verbrugge and Nancy McCarrell²⁴ are researchers representative of this group. They do not view metaphor as a wayward child of literal language, but as a viable tool of expression which fulfills particular needs of its users which could not otherwise be satisfied. They view the effect of metaphor upon a receiver in much the same way. They question the underlying assumption of much contemporary research in metaphor perception that

²² Wheelwright, Metaphor and Reality, p. 102.

²³ For further detail concerning the various psychological and linguistic approaches to metaphor see Richard Billow, "Metaphor: A Review of the Psychological Literature," Psychological Bulletin, 84 (1977), 81-92; Howard Pollio, Jack Barlow, Harold Fine and Marilyn Pollio, Psychology and the Poetics of Growth: Figurative Language in Psychology, Psychotherapy and Education (Hillsdale, N.J.: Lawrence Erlbaum, 1977).

²⁴ Robert Verbrugge and Nancy McCarrell, "Metaphoric Comprehension: Studies in Reminding and Resembling," Cognitive Psychology, 9 (1977), 494-533.

subjects have to "normalize" a metaphor by using the rules of grammar and semantics appropriate for literal speech before they can comprehend the meaning of a metaphor. Researchers therefore seek to discover which rules have been applied to which constituents. According to Verbrugge and McCarrell, this assumption encourages subjects and experimenters to treat metaphors as though they were statements of proposition, subject to the tests of validity appropriate for literal language. These authors suggest that the criteria used to study literal language should give way to experimental designs based specifically upon the "creative use of language" inherent in metaphors. These designs might offer realistic insight into how metaphors are actually processed, rather than what happens when subjects reconstitute metaphors as literal language. Verbrugge and McCarrell believe that the two modes of expression differ in form and, more important to this discussion, differ in their effects upon cognitive processes.

The metaphoric "speech act" invites cognitive processes distinct from those engaged in accessing and verifying facts. Metaphor invites pretending, imagining, reasoning by analogy; in its more powerful forms, it requests a perception of resemblances by means of an unconventional reshaping of identities.²⁵

What psycholinguists like Verbrugge and McCarrell are coming to explore empirically with regard to the metaphors within common speech has been assumed by those in the arts for much longer. Leland Roloff's description of the poetic metaphor bears a striking resemblance to the closing remark from the Verbrugge and McCarrell study. Says Roloff,

²⁵ Verbrugge and McCarrell, p. 530.

"the problem of perceiving the metaphor is not in seeing, but in seeing as, of seeing mystical, congruent, outrageous, witty, precise analogues."²⁶

Expectations about the role of each hemisphere in processing the metaphor has led to some research in this regard. From a theoretical perspective similar to Verbrugge and McCarrell's, and Roloff's, neurologists have hypothesized that while the left hemisphere could process a metaphor, would very likely not appreciate it beyond the literal level because that hemisphere does not deal effectively with analogous meaning nor appositional expression. When subjects who had incurred unilateral right hemisphere brain trauma were asked to explain the meaning of "Too many cooks spoil the broth" they were unable to offer an explanation outside of a literal translation (e.g., "Too many people in the kitchen will spoil the soup").²⁷ This does not imply that the right hemisphere alone is responsible for metaphoric thought, since syntax is necessarily involved and is mediated in the left hemisphere, but it does suggest the significant role played by the right hemisphere in understanding the transcendent meaning of a metaphoric elements.

This view of the right hemisphere as primary processor of the poem as experience is supported not only by the presence of the right brain elements in the poem (the concreteness, the imagery, and the metaphoric

²⁶ Leland Roloff, The Perception and Evocation of Literature (Glenview, Ill.: Scott, Foresman, 1973), p. 164.

²⁷ Sidney Parnes, "CPSI (Creative Problem-Solving Institute System): The General System," Journal of Creative Behavior, 11 (1977), 1-12.

language) but even more definitely by the cognitive demands of its appositional language and multifaceted form.

The poem's appositional language demands a suspension of logical validation and judgement for the duration of its statement because its words are not intended to function as referents of information. The truth or falsity of their import matters little, "provided that the attitude or feeling is evoked, the most important function of such language is fulfilled, and any symbolic function that the words may have is instrumental only and subsidiary to the evocative function."²⁸

The language of poetry is chosen to create a world of possibilities which defies logical accounting. Alan Tate expresses the parameters of the poetic world so insightfully that his description bears quotation at length.

. . . the sea boils and pigs have wings because in poetry all things are possible--if you are man enough. They are possible because in poetry the disparate elements do not combine in logic which can join things together only under certain categories and under the law of contraindication; they are combined in poetry rather as experience, and experience has decided to ignore logic, except perhaps as another field of experience. Experience means conflict, our nature's being what they are, and conflict means drama. Dramatic experience is not logical . . .²⁹

The nonrational, holistic, simultaneous processing mode of the creative right hemisphere provides the neurological machinery best suited for Tate's postulations regarding poetry.

²⁸ Richards, Meaning of Meaning, p. 50.

²⁹ Allen Tate, "Narcissus as Narcissus," in Ghiselin, p. 140.

Finally, poetry is multifaceted; it requires simultaneous processing of images which build, expand or sustain impressions on several levels of awareness; of association between words, ideas, places, times and emotions. It requires parallel processing of the sounds of words and their meanings. It requires ". . . the ability to shift points of view, to exchange one frame of reference for another, and to replace one organization of the perceived stimuli by another organization."³⁰ It means, in short, forming a gestalt, a wholeness which permits configurations of meaning which are fluid and associative, free of the restraints of linear relationships. These requirements would be better met by the holistic, intuitive, simultaneous right hemisphere mode than the sequential, analytic and linear left hemisphere.

A qualitatively different type of appreciation becomes apparent when an effort is made to explicate the poem. The difference between knowing the poem as it exists and as it is discussed, analyzed or paraphrased is a distinction familiar to poets and critics alike. Allan Tate describes the difference as two kinds of knowledge:

. . . it seems to me that my verse or anybody else's' is merely a way of knowing something: if the poem is a real creation, it is a kind of knowledge that we did not possess before. It is not knowledge "about" something else; the poem is the fullness of that knowledge. We know the particular poem, not what it says that we can restate.³¹

³⁰ Kreidler, p. 296.

³¹ Tate, p. 140.

Brewster Ghiselin sees the difference as residing in "impressions" which are not primarily intellectual but which have intellectual implications. The intellectual implications can be made clear in expository accounts of the poem, but "beside the actual poem even the most exhaustive description should be seen to be a relatively barren abstraction."³² Wheelwright, too, concludes his discussion of the nature of poetry with much the same observation. He refers to the "universals" in poetry, but makes very clear that the universal idea is bound to the context of the poem which implies it and it cannot be explained apart from the poem without some distortion because its universality exists by analogy only, not by definition, not by independent conceptualization.³³

Each of the ways of knowing a poem is a dimension of its evocative power. And each complements and completes the other. One must know a poem as experience as well as knowing its intellectual or abstract implications. According to the model of information processing presented in this discussion, the holistic, gestalt, intuitive right hemisphere processes the experiential and perhaps "prerequisite" knowledge of the poem; the rational, analytic left hemisphere processes its intellectualization.

A fundamental experiencing or knowing of a poem can be facilitated for the audience through performance. The right hemisphere is specialized for processing environmental stimuli, and particularly

³² Brewster Ghiselin, "The Birth of a Poem," in Ghiselin, p. 135.

³³ Wheelwright, Burning Fountain, p. 51.

those which signal the affective context of verbal expression. In performance, subtle nuances of tone, mood rhythm, stress, tensiveness, imagery and scene implied in the language structure of the poem are actualized visually, acoustically and kinesthetically as the interpreters move, speak and feel the poem. Performance becomes a sensory manifestation of a verbal system. It becomes a perceptual field, an affective context to which an audience member attends while simultaneously attending to the words of the poem. Roloff describes performance as an environment given to the perceiver to "read" an environment with sensory ratios: ". . . ratios of hearing to sight, sight to hearing, tactility (spatial closeness) to sight and sound The greater the interpenetration of the sensorium (if we speak of the totality of the theatrical event) or the sensoria (if we speak of the constituent parts), the greater the sense of involvement below the level of consciousness."³⁴ The level below that of consciousness to which Roloff refers is comparable to right hemisphere processing. As the neurological research indicates, the right hemisphere is sensitive to affective context: acoustically sensitive to tone and to voice qualities which reflect tone such as pitch, timbre, texture and intonation contours, and visually sensitive to the movement of forms in space, to shape, to spatial configurations and facial expressions. Moreover, the right hemisphere exhibits the processing style appropriate for synthesizing disparate elements from several sources, being holistic, simultaneous and not constrained by temporality for its

³⁴ Roloff, "Interpenetration," p. 5.

effective operation.

The acoustic variables which the right hemisphere processes during narrative discourse are not only present in the poem, but are a significant dimension of its meaning. These aspects are tone, mood, rhythm and word texture. As Charlotte Lee and Frank Galati note, in poetry, perhaps more than any other literature, the sound and the sense are inseparable and the poem reaches its maximum potential when read aloud.³⁵

Tone is generally defined in oral interpretation criticism as the manipulation of voices to express an attitude. Tone may be used to indicate (1) the author's attitude toward himself, toward other speakers, toward the audience or toward the subject of the poem; (2) the persona's attitude toward the subject, the audience and sometimes toward himself or other characters; (3) the characters' attitudes toward themselves, the audience, each other or the scene or situation. Tone includes emotions which are relatively simple to identify such as anger or bitterness, but also the more subtle coloring in irony or sarcasm. Group performance permits exploration of tone on several levels because of the flexibility in voice quality and number. Speakers may all reinforce a single attitude, or assume distinct attitudes of characters in dramatic interaction. Speakers may assume a metaphoric role as reflectors of a persona's affective and psychological state and thereby reveal the dynamics of attitude conflicts or shifts which occur almost simultaneously in the complex of a persona's

³⁵ Charlotte Lee and Frank Galati, Oral Interpretation, 5th ed. (Boston: Houghton Mifflin, 1977), p. 433.

thought or action.

The processing model indicates that intonation and stress patterns, when serving as vehicles to carry the affective context of an appositional statement, are processed by the right hemisphere. If intonation, stress, and duration factors are relevant to validating a propositional code, they are linguistic features and hence mediated in the left hemisphere.³⁶ As discussed earlier, poetic language is typically appositional and affective; therefore, during performance, vocal intonation patterns and the tone of the poem which they convey are presumably processed by the right hemisphere.

Mood is another component of the affective context which the audience member perceives, but refers more broadly to the overriding emotional quality of the poem than to specific attitudes of voices within the poem. It may be reflected in the setting or locate (as with a blackened sky portending doom), but is also more than setting. It is the prevailing atmosphere of the poem, the "emotional aura which a work possesses and which guides the reader's expectations and attitudes."³⁷ As with the projection of tone, the flexibility of group voices adds potential for exploiting the depth and variety of moods inherent in the text. Generally, mood is carried in the rate, pitch, volume, types of vocal qualities, and increasing or diminishing numbers of voices. Controlled orchestration of voices, in particular,

³⁶ Edgar Zurif, "Auditory Lateralization: Prosodic and Syntactic Factors," Brain and Language, 1 (1974), 391-404.

³⁷ Leslie Coger and Melvin White, Readers Theatre Handbook (Glenview, Ill.: Scott, Foresman, 1973), p. 71.

is an expressive device for elaborating, reinforcing, and sustaining the mood. For example, high pitched voices building or receding in rapid succession might suggest a light and frivolous mood or a strident, mounting tension. Lower voices might effect a sober, ponderous mood or a tranquil atmosphere. Particularly when mood is manifested by or reflected in the environmental setting of the poem, orchestration is effective in elaborating the emotional impact of descriptive passages. Again, this may be done in a variety of ways. The implicit "voices of the environment" may be given lines which suggest the mood, or the narrator may speak descriptive lines while a chorus elaborates with environmental vocal effects. According to the neurological model, the right hemisphere is proficient in detecting affective elements of context, in this case the mood of the text. In addition, the work by Kimura (1964) suggests that the right hemisphere is sensitive to environmental sounds and the human voice when it is supplying such sounds.

Rhythm refers to the internal patterns of the poem established through repetition within or among lines of the poem. Patterns may involve repetition of sounds (alliteration, assonance), of stress, of syntactic structure, content features or other elements in the poem. It serves to expand meaning along several dimensions by associations developed within the verbal structure of the poem which might otherwise go unnoticed. As Long et al. explain:

By placing words with regular features (primarily sound oriented) into a perceptible pattern, the poet creates a highly rhythmic expression. When something seen or heard in one line returns in a later one, it is simultaneously

noticable both in itself and because of its earlier appearance. The reverberation or reappearance, creates the rhythmic effect. This rhythm is the recurrence of any language element in the poem at somewhat regular intervals. This language element could be a word, phrase, syntactical structure, line, pause, couplet or even an image.³⁸

The hemispheric processing of rhythm depends to a greater degree upon the purpose which it serves than upon any inherent quality. If the mind perceives rhythm to be useful in verifying the logic of a propositional statement, then it is a linguistic feature of organization and relationship, like syntax. If, on the other hand, rhythm attends an appropositional statement, it is a perceptual component of affective context and a right hemisphere function. As noted previously, poetry is an appropositional language system and its rhythms function not to resolve ambiguities of reasoning but to service the creation of affective experience. As such, they will be mediated in the right hemisphere. Further, oral performance transforms the textural rhythm into acoustic patterns through vocal stress and choric effects, offering the audience member maximum opportunity for recognizing and appreciating the inherent rhythms.

One other dimension of acoustic space which group performance provides the poem is that of the sounds of words. In all oral discourse words are sounded, but the words themselves are symbols for the conveyance of information; the sound property of the words is generally

³⁸ Beverly Whitaker Long, Lee Hudson, and Phillis Rienstra Jeffrey, Group Performance of Literature (Englewood Cliffs, N.J.: Prentice Hall, 1977), p. 61.

superfluous to understanding the referent which the word symbolizes. The words in poetry, by contrast, are evocative and part of their power lies in the "sensation" of the referent in the sound of the word. Performance provides an auditory dimension of meaning which might be missed in silent reading.

Two types of words especially representative of sound and sense interdependence are the onomatopoeic and mimetic. Onomatopoeic words are not technically symbolic of another referent, but create their meaning in their sound.³⁹ Words such as "buzz" or "thwack" typify this category. Mimetic words are those in which the sound reinforces some internal property of the object or an action. For example, the word "jagged" not only signifies an uneven, broken surface as with a mountain or piece of glass, but sound to the ear much like its quality appears to the eye. Given the limited symbolic, and highly perceptual nature of such words, an audience member hearing them sounded during performance will process them in the right hemisphere.

Although a group performance of poetry is primarily an aural event, it has implicit elements which may be actualized through movement as well as through sound, providing another dimension to the affective context of the poem. In performance, visual/spatial properties become vehicles for the expression for psychological, physical and emotional forces or tensions within the poem. To a greater degree than literal movement, the suggestive movement and controlled intensity characteristic of readers theatre abstracts the essential attributes of

³⁹ Kreidler, p. 136.

expression and focuses the perceiver's attention upon them. The effect is much like the concentration in a verbal metaphor which brings into relief salient characteristics of likenesses and differences between its components, necessitating active synthesizing or completion on the part of the perceiver. Suggestive movement is an incipient form of literal movement and in its concentration can become a behavioral metaphor for an image, mental state or description implied in the words of the poem. In processing a suggestive movement, the perceiver might complete the action, compare it to the image forming in his own mind, or link it in a mental configuration with preceding or recurring movements. Furthermore, limited movement and the attentional technique of "off-stage focus" tend to bring prominence to the expressive powers of the face. Because the right hemisphere is sensitive to visual/spatial phenomena and facial expression, and because it processes in a simultaneous, configurational mode, it plays a major role in processing the visual context of performance.

This investigation has examined certain characteristics of poetry which make it more conducive to right brain processing than to left, despite its generic classification as a linguistic system. These features include its concrete words (rather than abstract), its rich sensory appeal, wealth of imagery, and metaphoric language. Its overall verbal system is appositional, inviting a suspension of criticism analysis and rational validation and inviting instead an intuitive, emotional, nonrational response. Its structure is evocative and multifaceted, requiring shifts in perspective, point of view, attitude, etc. simultaneous and continuous associative processing

rather than linear, sequential processing. All of these requirements are better met by the right hemisphere and it is there that the most experiential, communion with the poem occurs.

Furthermore, it has been revealed that performance by multiple voices enriches these features. The patterning created by multiple voices is different from speech in normal discourse situations. The effect of this difference is to impair the left hemisphere's ability to process it efficiently. The left hemisphere mode requires certain constraints upon its input, such as temporal order. In performance, temporal order is disrupted and each word becomes a rich component of meaning. More specifically, performance presents the audience with acoustic and visual manifestations of the affective context suggested in the verbal structure of the poem: tone, mood, rhythm, word texture and tensive movement.

Inferences drawn from the application of a neurological model of information processing to the group performance of poetry offer insights into the probable cognitive activity of the audience member. Because the adapter-director plays a major role in adaptation of literature for performance, these insights may serve as a useful guide in preparation and staging of the text. In addition, the audience researcher may find an understanding of cognitive processing a useful tool in audience research. Implications for adaptation and audience research are the considerations of Chapter Four.

Chapter Four

IMPLICATIONS OF THE NEUROLOGICAL MODEL FOR ADAPTATION AND AUDIENCE RESEARCH

The evidence examined in Chapter Three indicates that both poetry and its performance are particular types of information which predispose the right hemisphere to assume a primary role in processing the interpretive event. The language of poetry is concrete; it stimulates the formation of sensory images and metaphoric associations; it creates a world where proposition and fact are subsidiary to the evocation of subjective response. It is multifaceted, engaging interest in shifting points of view, multiple meanings, unexpected insights, and the formation of a final gestalt composed of separate elements related through many dimensions of association. To know the poem at its most fundamental, most potent and most particular is to know all these aspects meaning at once. Performance provides acoustic and visual expression of a poem which enhances, elaborates and reinforces its verbal elements and intensifies the prevailing affective context.

The right hemisphere is specialized to process information analogous to that which characterizes poetry and its performance. It is sensitive to environmental and sensory stimuli, especially that which implies affect and emotional intent (forms in space, vocal tone,

pitch, rate, timbre, texture and facial expression). It is responsible for metaphoric understanding and preverbal, intuitive associations. It processes informational units simultaneously and continuously from several sources and conceptualizes meaning as images, configurations, and gestalts.

These conclusions offer both the adapter-director and the audience researcher valuable insights into the nature of the audience experience. These insights may be utilized by the adapter-director to guide decisions in the adaptation and staging of a poem. They may also be used by the audience researcher in isolating and exploring variables which affect the audience experience.

The Adapter-Director

The neurological model offers the adapter-director a guide for making decisions about adaptation and staging based upon the dynamics of the audience member's cognitive processes. It gives definition and substance to production aesthetics founded at present largely upon intuition, supposition, and individual directing style. According to the neurological model of information processing, the most fundamental and intrinsic knowledge of, or experience with, a poem occurs for the audience member in the right hemisphere. Performance can be used to facilitate this mode of processing. However, the model also indicates that syntactic complexity is a processing variable which might inhibit total right brain involvement.

In order to illustrate the manner in which a poem could be adapted and staged with the cognitive processing of the audience as a

guide, the discussion will be directed to several examples of adaptation and staging taken from the poem, "Moving" by Robert Wallace.

MOVING

1 Bookshelves empty, tables lampless, walls
 2 bare, the house is a rubble of moving--
 3 foothills of boxes, trunks
 4 under clouds of ceiling.

5 My friends
 6 said good-bye hours ago, when June twilight
 7 hung on the hills. Now, in late dark
 8 muggy for stars, moths whir at the yellow porch light,
 9 ping screens. By the one dim floor lamp
 10 among the shadowy undoings of my life,
 11 in a limbo between having gone and having gone,
 12 I sit like a caretaker of my doom.
 13 Not an ashtray or spoon.
 14 In the real dawn, I will be going.

15 My friends are sleeping, turned toward
 16 tomorrows without me--will still be sleeping
 17 when I begin to drive the familiar streets and roads
 18 in which sun will come only after me.
 19 If I called them now, in this hollow
 20 past midnight, anything I said would
 21 be from the future.

22 Alone in the present,
 23 I wait, smoking (a tin can for ashes).
 24 Bugs thwack on the screens. Beyond love
 25 I am a projectile into the future--
 26 still hours, -days away.
 27 Time has stopped at the speed I am going, landmarks
 28 appear strangely in new light,
 29 clouds whirling past me, into the past

30 The phone has been disconnected.

Robert Wallace¹

¹ In Some Haystacks Don't Even Have Any Needle, comp., Stephen Dunning, Edward Lueders, and Hugh Smith (Glenview, Ill.: Scott, Foresman, 1969), p. 170.

An adapter-director's approach to this poem in light of the neurological model might begin with an identification of these linguistic components which are mediated by the right hemisphere. These would include concrete words and images, appositional statements, metaphors and other elements indicative of the affective context.

Most obvious are the highly concrete words. These function in the poem to describe the speaker's physical, perceptual world (the room and the environment) and stimulate sensory images, as well as to reinforce aspects of the affective context. The sensory images include several types: (1) visual, as in the bare, but cluttered room and dim floor lamp; (2) tactile, as in the muggy night; (3) acoustic, as in the onomatopoeic words like "whir," "ping" and "thwack." Less apparent right hemisphere elements are the words associated with the speaker's psychological, conceptual world (introspective thoughts of the present and projective thoughts of the future). For example, the speaker being suspended in a limbo, or time being stopped at the speed which the speaker is going, are associations not readily tied to the concrete, physical environment. Indeed, "limbo" and "time" are quite abstract and symbolic. Nevertheless, consistent with the neurological model, these words and the metaphysical images which they evoke, are right hemisphere elements: they are components of an appositional language system, transcending logical validation. They express an affective meaning which is mediated by the intuitive right hemisphere.

The metaphors within the poem implicate the right hemisphere in discerning relationships which, again, exist outside the realm of logic and in the realm of intuitive associations. Some metaphoric

comparisons highlight physical similarity between objects, as in the resemblance of packing boxes to foothills. Other comparisons reside in a similarity between affective qualities, as in the resemblance between the sense of separation of the speaker, keeping a lonely vigil over the "present" which is no longer his, and a caretaker tending that which never has been his. Both types of comparisons involve the right hemisphere in making connections in several ways; that is achieved through the formation of images and processing as holistic thought.

Beyond this initial analysis, the adapter-director encounters in the poem a spiraling array of extensions, reverberations, and interpenetrations of these words, images, and metaphors with rhythm, mood, tone and implicit bodily tensions, all serving to create the affective context of the poem. It is a multifaceted movement through dimensions of time and levels of reality. The poem is a tightly structured linguistic expression of a complex human experience, necessarily fragmented by discussion, but potentially actualized in all its multiplicity through the medium of group performance.

The dramatic structure involves the speaker in the present, in the "now," objectively noting the features of the room--the bare walls, the lack of an ashtray and so forth, and imparting a basic narrative: "I sit" and "I wait." But this simple present is also compounded by metaphoric extensions of the speaker's affective state. The life of the room (its furnishings) is undone, contained in tumbling mounds of boxes; the speaker sits among them as they become the "shadowy undoings" of his life and he becomes the caretaker of his doom. The "now" becomes a "limbo between having gone and having gone." The sensory

image of moths fluttering about the porch light becomes a metaphoric image of the speaker sitting beneath the floor lamp gathering his thoughts, letting them "whir," move, flit, change. Similarly, the simple recollection of friends saying good-bye becomes more than a memory of an occurrence; it becomes a metaphor for the desire of the speaker to linger in the past as the sun appeared to linger on the hills as it set. There are also extensions of the affective state of the speaker in the metaphors of the future. In the immediate future, the dawn, the speaker will simply drive out of town along familiar streets as the sun rises after him. But beyond that tomorrow, hours and days away are other tomorrows, identified only by strange, unfamiliar landmarks. Again the environment extends to metaphor; as the bugs thwack blindly into the screen, the speaker is a projectile thrust blindly into time and space.

Thus, the poem's abstract words and images are infused with emotional substance by metaphoric comparisons and extensions. In isolation, they might have been symbols mediated by the left hemisphere. But in context they become vehicles of affective expression and hence the province of the right hemisphere.

The syntactic rhythm of the poem serves further to endow both the concrete and abstract images with emotional force. Variations in grammatical structure form a pattern which moves through the poem in several directions. The rapid, clipped phrases of the opening stanza initiate a structural rhythmic pattern which becomes a metaphor for objective reality. Longer, more syntactically complex sentences convey subjective levels of reality. For instance, in line nine begins with

a series of five prepositional phrases, deeply embedding the main clause. The sentence is dense, concentrated, and seems to wrap itself about the one direct statement, "I sit," like the speaker's thoughts wrap about him in his solitude. And just as abruptly as reality intrudes on thought, line thirteen snaps back to a phrase describing the paucity of furnishing: "Not an ashtray or spoon." An adaptation of this poem, consistent with the neurological model would clarify syntactic order to minimize the left hemisphere involvement in processing, while accentuating the affective properties of the rhythm to enhance right hemisphere involvement in processing.

The tone of the speaker is a shifting complex of emotions. His attitude toward the past is tinged with nostalgia but not with regrets; his attitude toward the present is introspective and sober but not maudlin; his attitude toward the future is tinged with apprehension but not fear. In addition, the recurring images of the physical present (bookshelves, ashtrays, and telephone) suggest that the speaker is not so totally lost in his emotional awareness that he loses touch with his surroundings.

The mood of the poem is much like that of the tone of the speaker. It too is serious, but remains more even through the poem, not being subject to the changes of the speaker's emotional attitude. The note of finality and resignation sounded in the first stanza set the mood for the poem. The last line completes the circle of inevitable dissolution which the first line began. There is a sort of stark reality to the observation, "The phone has been disconnected," which pervades the poem like a constant core around which the speaker moves.

The choral lines are divided so that voice 2 adds volume and stress to twilight (nature's division of time) while voices 3, 4 and 5 serve as echos to slow even more the inherent rhythm of the line. This rhythm is due to the preponderance of the "h" sound which tends to impede rate. Regular repetition of the phrase further slows the rhythm. The audience forms an image of the lingering twilight, hears a pattern of lingering phrases and senses the nostalgia of the speaker wanting to linger in the past. All of these effects are processed by the right hemisphere, in parallel, continuous fashion.

The images of the present which follow the images of the past, begin with "now," replace twilight with darkness and bring the speaker into the present. Again, the narrative voice might be used to signal the objective reality of the scene and the chorus used to signal the subjective. And, again, the environment is a metaphor for the tone of the speaker. The night is close and still, yet the moths whir and flutter about the light as do the speaker's thoughts. The line describing the physical environment (late dark, muggy for stars, moths whir and ping) might be orchestrated as follows to emphasize the onomatopoeic sound textures of "whir" (extended vocally) and "ping" (spoken quickly, at random).

Narrator: Now

Voice 1: in late dark, muggy for stars

Voice 1: moths whir at the yellow porch light

Voices 2,3,4: whhiirrrrrr.....

Voices 5 & 6: ping ping ping ping

 ping ping ping (at random)

Voice 1: ping screens

The right hemisphere is sensitive to environmental sounds, here presented through vocal effects.

The comparison of the speaker to the moths becomes clear in the next line with the phrase "by one dim floor lamp." As the moths are drawn to the light, the speaker seems drawn toward the future. Yet the movement through time is not smooth but emotionally as chaotic as the ping of the moths at the screen. The comparison of speaker with surrounding broadens as the packing boxes and "undone" room are recalled; the disarray suggests the speaker's emotional reaction to his dislocation in time, his sense of foreboding about the suspension between the known and the unknown, the past and the future. Line division continues the objective narrative thread for the speaker begun in line seven with "now." Orchestration again elaborates subjective context supplied by the chorus as the diminishing voices suggest the process of "undoing" in line ten.

Voice 1: By one dim floor lamp

Voice 4: among the

Voice 3: among the shadowy

Voice 2: among the shadowy undoings

Voice 1: among the shadowy undoings of my life

Because "limbo" is not in itself a readily imagined word, the phrase "between having gone and having" might be split between three voices, vocally reflecting the essence of suspension which "limbo" evokes. The right hemisphere processes an auditory configuration from Voices 2, 3 and 4 which parallels the conceptual configuration of the image.

Voice 1: in a limbo
 Voice 2: between having gone
 Voice 3: and
 Voice 4: having gone
 Narr.: I sit
 Voice 2: like a care taker
 Voice 3: of my doom
 Narr.: Not an ashtray or a spoon

Line division can exploit the affective potentials in the poem while at the same time clarifying syntactic order. Clarification facilitates right hemisphere processing by minimizing involvement of the left hemisphere in difficult syntactic analysis. In the example above, line division enables the audience to hear separate phrases; each one is a simple unit of meaning within which syntactic order is readily perceived by the left hemisphere. Its operation upon the material will not need to be so consuming that it inhibits the formation of imagery or the processing of affective gestalts by the right.

The last stanza offers yet another interpenetration of objective, subjective, concrete, abstract, rhythmic, and tonal dimensions. As adapted below, lines are split so that the narrative present is still carried by the speaker's voice and the other components by the chorus. Again the image of environment and the speaker's affective situation are orchestrated to mirror each other. The onomatopoeic word "thwack" offers an acoustic dimension to the sensory image of which it is a part, as well as an affective dimension to the attitude of the speaker

toward his rapid, uncontrollable projection into the future.

Voice 1: Alone in the present
 Narr.: I wait
 Narr.: (a tin can for ashes)
 Voice 1: bugs thwack on the screens
 Voices 2 & 3: thwack
 Voice 1: Beyond love
 Voice 1: I am a projectile into the future
 Voice 2: thwack
 Voice 3: still hours days away
 Voice 4: hours days away

The abstract image of "stopped time" can be given an acoustic pattern reflective of its sense by breaking the subject-verb core, "time has stopped," into three separate words delivered by three different voices, necessarily causing the audience to hear a slightly longer pause than if the words were left as a grammatical unit for a solo voice. Similarly, the image of clouds whirling past the speaker as he is thrust into the future, leaving the past behind, might be illustrated acoustically by increasing voices in the middle of the line and decreasing them again after the build. The adaptation might appear as follows.

Voice 4: Time
 Voice 3: has
 Voice 2: stopped
 Voice 1: at the speed I am going
 Voice 1: landmarks appear strangely in new light,
 Voice 1: clouds whirling past me, into the past
 Voice 2: whirling past me, into the

Voice 3: past me, into
Voice 4: past me

Narr.: The phone has been disconnected.

The simultaneous presentation of the poem's affective context (tone, mood, imagery, rhythm, word texture), in the acoustic context provided by the voices of the performers, stimulates audience cognitive activity which depends upon the right hemisphere to process not only the various components of meaning, but their integration as a gestalt.

Finally, the adapter-director might arrange the performers in a manner expressive of the poem's interlocking levels of time and reality. The speaker might sit in the center of the playing area, while about him (or her) the chorus sits or stands on various levels in a random pattern. The right hemisphere automatically processes shapes in three dimensional space and will process the asymmetrical configuration. The right hemisphere also processes facial expression and will attend to the emotional qualities which the cast reflect in their faces and body tensions as it did the emotional qualities carried by the voices. The cast might indicate movements from past, through present, and into future without any literal movement at all by simply focusing on stage during the "present" and offstage during the past and future. Focus then becomes symbolic of the dimensions of time as the choral voices become symbolic of the dimensions of reality.

Adaptation of the text and stage arrangement can be used in the manner described in this explication to enhance the right brain experience in other poems. An adapter-director can be aware of right

brain elements within the poem and develop their fullest impact through careful treatment of the text.

Audience Researcher

The neurological model of information processing as a device for exploring the audience experience of a group performance of poetry offers the researcher in oral interpretation two advantages. First, as this thesis illustrates, there is a broad and expanding data base in other disciplines from which the interpretation researcher might draw in framing questions concerning probable cognitive activity of the audience in relation to type of literature being performed, its adaptation and the effect of performance as an act. Second, the neurological model as applied in this paper to interpretation of poetry offers specific variables which can be measured with the instruments designed by neurologists. The electroencephalograph, for instance, is a useful instrument for determining hemispheric activity during a task. Suppression of alpha waves indicates when hemispheric functioning switches and measures relative levels of cognitive activity in the hemisphere processing a task. An audience researcher could isolate any one of a number of oral interpretation components and investigate empirically its sight of specialization in the brain and what happens when a variable is introduced. As noted previously in this discussion, imagery is a significant component of poetic expression processed by the right hemisphere. However, it was also noted that syntax is a linguistic component whose processing in the left hemisphere can affect imagery formation. The audience researcher could generate

test items which contain ratios of imagery to syntactic complexity. By recording alpha activity of a sample audience, the researcher could quantify a relationship between type and degree of syntactic complexity and inhibition of imagery formation.

An audience researcher might use the neurological model as a guide for investigating the effect which differing theoretical views of performance might have upon an audience. As Bacon notes: "There is a difference between seeing interpretation as a pedagogical act and seeing it as an art of performance; on the other hand, there is no necessary inconsistency between the two views."² In theory, as Bacon suggests, there is no need to consider the two views inconsistent. In practice, however, there may be critical need for the adapter-director to be aware of the specific purpose for which the performance is to be put. If the purpose of performance is pedagogical, then perhaps a well-informed, critical audience attitude is preferred; if the purpose is entertainment, perhaps a "naive" or at least temporarily uncritical audience attitude is preferred. This paper has provided a basis for making assumptions regarding the audience involvement in both situations. When actively involved in evaluation and analysis, an individual is employing the processes of the left hemisphere; when thinking intuitively and holistically, an individual is employing the right hemisphere. The two modes of thought are qualitatively different and the adapter-director profits from a knowledge of these differences when matching production concept to purpose. An audience researcher

² Wallace Bacon, The Art of Interpretation, 2nd ed. (New York: Holt, 1979), p. 502.

contributes to an understanding of the process by examining the experience of the audience as it responds cognitively to the adapter-director's conscious choice.

An audience researcher might formulate hypothesis in light of a particular theoretical point of view regarding performance, such as that expressed by Cogler and White. "We shall consider [readers] theatre as aesthetic experience resulting from a combination of three ingredients-- literature, the source of the passion; effective performances by actor/ readers; and a participating audience--each possessing interacting properties."³ Consistent with this theoretical perspective, the authors define preferred audience participation.

To fulfill his role in readers theatre, [the audience member] must give himself over to the performance. . . . Appraisal, criticism, or thoughts of the techniques used must not intrude on the performance in which the audience member is participating. Theatre does not equate with literary analysis or literary criticism. These appraisals may come later, but if they occupy the mind of the audience during the performance they interfere.⁴

In order to investigate the assumption that evaluation interferes with participation as Cogler and White define it, the audience researcher might describe participation in terms of right hemispheric processes and evaluation in terms of left hemispheric processes as discussed in this paper. EEG alpha readings from a sample audience would offer data in support or refutation, at least in a given situation with a particular literary text.

³ Cogler and White, p. 6.

⁴ Cogler and White, p. 7.

The researcher might also explore one of the other theories of information processing mentioned in the introduction. For example, the data being generated in neurophysiology might prove particularly useful to the audience researcher. F. J. McGuigan, et al., are exploring the somatic thought ("covert behavior") which they believe occurs in the muscles and nerves of the body during information processing.⁵

Descriptions of the kinesthetic responses felt by the oral interpreter and perhaps by the listener could be quantified using the techniques devised by neurophysiologists.

The information provided by application of a neurological or alternative models of information processing would profit the field of oral interpretation by providing an aesthetic for performance based upon the cognitive needs of the audience as well as the literary needs of the text. A consistent and well-coordinated effort by audience researchers into the dynamics of audience experience will find a productive foundation in the information processing paradigm.

⁵ F. J. McGuigan and R. A. Schoonover, eds., The Psychophysiology of Thinking: Studies of Covert Processes (New York: Academic Press, 1973).

Chapter Five

CONCLUSION

A group performance of poetry is an artistic event which engages an audience's attention simultaneously in the text's verbal medium and its vitalization in the voices and bodies of the interpreters. The poem evokes sensory responses, images, feelings and novel perceptions which are enhanced through the acoustic and visual dimension provided by group performance. The event invites the audience to participate in a world where reason and logic give way to imagination, propositional knowledge gives way to metaphoric insight and intellectual understanding gives way to experiential knowing.

In order to explain the nature of the audience experience, group performance of poetry was defined as an event with information components to be processed by the audience member. In constructing a neurological model of information processing, it became apparent that each hemisphere of the brain is proficient with certain types of information and each has qualitatively different ways of sorting, storing and utilizing that information.

The left hemisphere was found to be proficient with material which yields its meaning by being rule-ordered and temporally sequenced into linear series. For this reason, the left hemisphere is adept with manipulation of symbols which are free of perceptual context. Most

narrative discourse is amenable to the left hemisphere's mode of processing. By contrast, the right hemisphere was found to be proficient with material which yields its meaning through associations regardless of its temporal order, or through configurations such as images or acoustic melody, through its affective impact rather than its logical development.

When the components of poetry's verbal system were examined in light of the model, they exhibited qualities which could more fully be appreciated by the right hemisphere than the left, despite poetry's basic linguistic system: it is characteristically high in concrete words linked to a perceptual context; rich in imagery, metaphor, and appositional language; and is an evocative, subjective and multi-faceted gestalt. It was also observed that performance enhances the right hemisphere elements inherent in poetic expression by giving the audience acoustic manifestations of tone and mood, rhythm and word texture as well as visual/spatial manifestations of implicit movements. Because the right hemisphere is sensitive to auditory and visual stimuli which express affect (i.e., tone of voice and facial expression), it is involved fully in processing both the poem and its expression through the medium of performance.

Implications for adaptation of a text and for audience research were also explored based upon the description of the audience experience of a group performance of poetry as a cognitive process, in which the synthesizing characteristics of the right hemisphere are crucial in the act of processing the poem at its most resonant and experiential level. Such a description offers the adapter-director a

guide for making decisions in adaptation and staging of a poem. It offers the audience researcher a means of describing audience experience in quantifiable terms, of isolating variables which affect the experience, and a source of research methods and relevant data application of the neurological model to the field of oral interpretation contributes another dimension to the study and appreciation of performance and the aesthetics of literary experience.

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