

The Effectiveness Of Treatment  
In Aphasia

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Slightly over three years ago, in JSHD, Fred Darley reviewed the available American literature on the efficacy of language rehabilitation for aphasics. He concluded that the inconsistent results of these studies precluded generalization to the population of aphasics, and suggested quite strongly that such would remain the state of affairs until aphasia specialists more clearly defined the language disorders they worked with, controlled for the effects of spontaneous recovery, specified the nature of treatment more explicitly, defined "progress" more exactly. Further, he felt that a host of patient characteristics such as age, education, intelligence, social status, health, environment, time elapsed since onset, and type of aphasia, also were substantially related to progress in therapy, and hence required control in efficacy studies. When those factors are accounted for, said Darley, "we will introduce a richness of description and a rigor of procedure... which can increase the likelihood that ten years hence the profession could enjoy substantial agreement about the nature of language breakdown and what can best be done about it." (1972)

Perhaps it is optimistic to expect to see many steps in this direction in just three years. After all Darley allowed ten for such efforts at rigor to bear fruit, and the VA study on efficacy (Wertz, et al.), about which probably all of you know more than I do, is still underway. However, when I began preparing for this presentation, I reviewed the literature for indications of the barest flickering of "light at the end of the efficacy tunnel," from Darley's perspective. With the major exception of Vignolo's still unpublished 1973 paper,<sup>1</sup> no other new literature reflects the control Darley talked about or adds positive weight to the scale measuring whether we should continue to "do" aphasia therapy. Vignolo's research is most encouraging to clinicians who doggedly persevere in their careers in aphasia rehabilitation. It does not, however, conclusively "prove" the efficacy of therapy. No single study ever can. Thus, this paper will begin (rather than end, for a change) with a plea for more research of the kind Darley

<sup>1</sup> Vignolo's paper was presented in Cleveland, Ohio, 1973.

requests. Darley's concerns and his suggested prescriptions are legitimate--we live in an age of accountability; the professional community, the persons who pay for service, and above all, aphasic patients themselves have the right to sound information concerning the general efficacy of aphasia therapy before deciding either to undertake it or recommend it to others.

The dictionary defines efficacy as "the power to effect." Thus it has another, less-comprehensive meaning than the one I sense Darley is using. Few of us go to work in the morning with the big efficacy question before us; we are concerned with our clinical "power to effect" a single patient, or a few of them. Rather than, "Does aphasia therapy work?" we ask "What will be useful with some patients?" (Understanding as we must the full consequences of variability among aphasics,) and "What will help this single patient a little bit?" or even, "What factors account for the disaster that aphasia therapy has become for this patient? Where have I misjudged?"

Shared, published answers to such questions depend on meticulous descriptions of patient characteristics and clinical strategies, intensive therapy reports on single subjects, small sample research studies. They also represent the sort of studies most open to criticisms such as "That patient would have recovered anyway," or "Your N was too small to generalize about." Nevertheless they remain the source of the most valid efficacy data, in clinical terms. Such studies also are the source of the most valuable leads for developing or applying new clinical strategies. Let me emphasize that the information obtained that way should represent both our most productive therapy and our most blatant failures. While I have some trouble accepting Sarno, Silverman and Sands' general conclusions regarding their work with severely impaired patients (1970), their courageous presentation of negative results clearly informed their readers what not to do in the name of therapeutic innovation. We need a lot more of that.

Clinical research evidence concerning efficacy will come from accumulation of a great number of such studies. Parenthetically, it seems that concern with "efficacy" on the general level is a peculiarly American concern. The literature coming from Eastern Europe, influenced primarily by the giant Luria, appears to assume to a far greater degree that aphasia therapy is a respectable profession. There, the professional responsibility of clinicians seems to be to refine and develop techniques for meeting that assumption.

So much for explicit efficacy. Thinking that the most appropriate approach for ultimately addressing the question of efficacy was to look on a more molecular level--at published reports on what people are doing the "helps" aphasics--I have reviewed the literature of the past ten years, with an eye to isolating trends in therapy, finding new clues for approaches

that have been productive, and perhaps finding portents that could lead to further strategies for helping aphasics. What follows, then is the result of that review, immodestly tied together with my own clinical hunches.

Surveying the literature of the past ten years leads to the following generalization: people talk a lot about aphasia; they talk very little about aphasics. For example, the year 1971 produced roughly 40 published articles on the subject of aphasia in adults. Only 10 of them addressed clinical issues of aphasia, or presented findings which appeared to me to have direct clinical implications. This four-to-one ratio is fairly typical, although some years appear to have been more or less productive in terms of total numbers of articles appearing. Why is this so? Part of the answer, of course, is that aphasia is such a seductive subject. I am interested in aphasia because I see it as a way to study the way the human brain works, the relationship between language and thought, the nature of language, how we apprehend and store information, the basic problems of human interaction--all concerns which have intrigued me since childhood--within one single, terribly human and very tangible problem. I suspect I am not alone in this. And it is easy to get involved, through aphasia, in any of these and a host of other equally intriguing concerns, particularly when clinical aphasia research is such a grimy and unpredictable venture. Moreover, clinical research is still viewed by our more "scientific" colleagues with only slightly-veiled disdain, not very reinforcing to the clinical researcher. (This is not our problem alone, of course, but one shared throughout our culture by practitioners in contact with the scientific elite.)

This is not to say, of course, that clinical aphasiologists should stop studying the complex neurological, behavioral and linguistic processes made accessible by aphasia. We do such studies well, and we do them with our feet planted rather firmly on practical ground. What I am suggesting is that because we are as concerned with the patients with the aphasia as with the aphasia itself, we have a further professional responsibility to share with the scientific and clinical community what we know about what works in aphasia therapy. Further we have a responsibility to evaluate and to apply in our own work the clinically fruitful leads made available to us by those other "purer" scientists.

In this regard, it is interesting to note the frequency with which purer research articles end with allusions to provocative implications for the rehabilitation of aphasics. Some of these implications are extremely obscure; in others their relevance is quite direct. But regardless, it is our responsibility to ferret out and study clinical implications of purer research findings. Let me give you an example--from the 1971 literature. One of the most provocative studies that year was Swinney and Taylor's study of short-term memory processing in aphasics (1971).

Their research indicated that aphasics not only appear to process information more slowly than normals as Carson, Carson and Tikofsky (1968) suggest, but that in addition they appear to process differently at least as far as short-term memory is concerned. Swinney and Taylor's work demonstrates that in tasks in which normal speakers do an exhaustive short-term memory search, aphasics operate using a self-terminating strategy. That is, where normals tend to search through their entire relevant short-term memory before deciding whether a given item is "in" or "out" of a list of previously presented material, aphasics terminate the search process the moment they conclude an item is "in", and thus present themselves with a radically more difficult and time consuming problem when they are confronted with an "out" item. Swinney and Taylor extend their finding to explain how aphasic self-terminating short-term memory searching patterns can result in impaired comprehension for grammatically complex sentences.

To me, this idea has a host of fascinating clinical implications. For instance, can we clinically adapt the sort of test task utilized by Swinney and Taylor to "normalize" STM? In their procedure, a two-, four- or six-item list of digits was presented, followed by a test digit about which the aphasic was to decide whether or not it occurred in the previous list (given 1,7,4,6--7 "in or out?"). Can we train aphasics to search exhaustively by giving the list, and externalizing (in Luria's sense) the appropriate search strategy? In short, what happens to short term memory skills if we allow an aphasic to hear the list and require him to judge "in" or "out" for each digit, gradually increasing the list length and equalizing the practice for "ins" and "outs?" Can we use related verbal materials (e.g., comb, brush, razor, soap--soap "in or out?") in the same way? If it works, "in" and "out" judgment time should equalize on a post-test. If that is the case, can we demonstrate subsequent language comprehension gain for complex grammatical material? To my knowledge, no clinical follow-up of this provocative research has occurred.

That particular example illustrates what I feel is the ideal relationship between pure research and clinical application. If we use the research data only to help us understand, we are covering an important half of the distance. In this case, we could say, "Well, you see, aphasics have some real short-term memory problems; they don't process auditory materials as fast as normals, and they also do it rather differently. So watch it! in terms of the materials you use in therapy." That's important. But there's a lot more to be done with it clinically. You might just be able to solve the aphasics' processing problems by working directly on them.

Hanna Ulatowska's paper on Markedness (this volume) can furnish another example. If it is true that marked linguistic features are impaired and unmarked ones relatively preserved, should we not incorporate this finding into hierarchial therapy

activities, for example approaching marked lexical items only after assurance that unmarked class members are present.

What I have been trying to suggest to you is itself a strategy for aphasia therapy. Simply stated, it is to follow research leads by turning the techniques designed to isolate a particular problem into potential therapeutic tasks.

Let's turn now to a rather fast review of the present state-of-the-art regarding therapy for aphasics. In essence, in the 25% of the literature which is devoted to therapy for aphasics, are there any significant trends? Are there any particularly promising or exciting new leads, not extensive enough to be called trends yet, which need to be followed up? The answers to both of these questions is "yes," and what follows summarizes the reasons for the positive answers.

Two approaches--sometimes interwoven and here separated for the sake of clarity rather than to suggest their opposition--appear with enough frequency in the literature to be thought of as trends are: 1) behaviorally oriented approaches; and 2) psycholinguistically oriented approaches. I want to talk about them next--in that order.

### Behavioral Strategies

Behavioral strategies in aphasia therapy show mutual concern for careful delineation and measurement of the behavior to be changed or taught; precise definition of the behavior we wish to end up with; the nature of reinforcers we use along the way, and most important as far as I am concerned, careful attention to gradually changing either the topography of the behavior in question or to systematically altering the stimulus conditions in which the desired behavior is supposed to occur--the process of successive approximation in clinical application.

Probably the most notable attempts in behavior modification for aphasics are represented in the work of Brookshire (cf, 1971a and 1971b), Sidman (cf. 1971) and Goodkin (cf, 1973) who applies the principles most broadly of all--by training spouses to apply operant procedures in natural-settings to the language attempts of their aphasic partners.

Having done some of this work in the past myself, and continuing to do it now, I believe the following generalizations are justified. Behavioral approaches force us into a specificity about what we do and how we do it which is both refreshing and commendable. As both Bollinger and Stout's (1974) and LaPointe's (1974) papers to this conference last year so well illustrate, behavioral approaches carry with them an almost intrinsic commitment to accountability. They require the user not only to measure change precisely but to specify the behavior as it changes over time. Whether or not therapy is behaviorally-based, that concept has begun to have a general impact on aphasia therapy.

Joseph Wepman once described teaching machines (and, by association, programmed approaches) as "devil's boxes," suggesting that those who use them do so out of fear of interacting with aphasic patients (1972). That statement strikes me as just a bit too strong. In fact, those of us who use the techniques are frequently in the uncomfortable position of being too close to the patient, watching our techniques go wrong when by all logic they should have gone another way. But we have had our share of over-involvement with the trappings of the machinery, sometimes designing materials to show what our equipment can handle or record, rather than what our patients need or can profit from. There have also been some other problems in aphasia rehabilitation, which, if not caused by behavior modification, at least have become highlighted by it.

One concern I have with programmed approaches is that much of the work doesn't attempt to change language at all, but concentrates on some discriminatory pre-requisite skill. My own work on memory span (1969) furnishes a pertinent example of this. The problem of memory span was chosen primarily because of its general underlying importance to language. This allowed me to avoid problems inherent in "type of aphasia." It was secondarily chosen because it was so easy to cast memory-span into a framework that was amenable to programming. Aphasic patients showed significant pre- and post-test change, but little overall language improvement as a result of that change.

A second concern I have with programming is that so little of it seems to be attentive to gradual progression. The therapy application of behavioral technology in aphasia appears to me to have fractionalized the language process into component "teachable" elements, and failed somehow to unify them back into language again. The most charitable way to view this failure is to suggest that we have not fully exploited the principle of gradual progression, having lost the forest in our concern for technological trees; but if behavioral approaches to aphasia are ultimately to be useful they must be attentive to broader communicative questions than the teaching of a skill as an end in itself. Such teaching trivializes language. The behavioral solution lies in the direction of broader, more comprehensive specification of target language and the development of more sensitive gradual approximations to those goals. That is a mind-bending, perhaps unrealistic expectation.

One way around these problems in programmed therapy is elegantly illustrated by Albert, Sparks and Helm's work called Melodic Intonation Therapy (1973). MIT is essentially a technique which appears to "deblock" spoken language for aphasic patients who have relatively good auditory comprehension, but extremely limited language use. The program begins by requiring these aphasics to "intone" a limited series of sentences, and then through a carefully arranged gradual progression, modifies those

intoned sentences toward successively more normal speech prosody. On the whole, MIT has resulted in clearcut generalized language gains for aphasics meeting the above description who have previously demonstrated little or no change with more traditional therapy. What is intriguing about Melodic Intonation Therapy, for purposes of the discussion, is that basically MIT did not come about as a result of modifying an old technique to fit into a programmable framework. It represents a whole new therapy approach. Programming principles were applied to MIT because they ensured that the procedure would move slowly, could be explicitly communicated to others and required systematic data collection which could be used to determine the success of the approach. Why MIT is so successful is not clear; it seems dynamic and unusual enough to serve to reorganize neural patterns, as Luria suggests we must do. Sparks himself is responsible for my use of the word "deblocking" as the mechanism. (I'll have more to say later on deblocking.). I cannot resist speculating that MIT might be a facilitative technique for helping the right hemisphere assume some language function. But for sure, programming is not why it works. Programming is what makes the process accessible and replicable enough for systematic study leading to possible answers to that "why"--perhaps in the long run the ideal questions for therapists to be answering in the realm of "pure" research in aphasia.

#### Psycholinguistic Strategies

As concern with form typifies behavioral strategies, concern with content typifies psycholinguistic strategies. Aphasiologists have always flirted with linguistics; with the advent of generative grammar, the courtship became serious, and has so continued. Yet the research in this area has been, and in large measure continues to be, centered in understanding how the condition of aphasia alters language processing, what type of structures aphasics comprehend and produce, descriptions of aphasic language, conjectures about why they do what they do linguistically, etc. There is not yet the richness of attempts to apply these findings on normals to aphasia rehabilitation that seems typical of our sister-field, language disorders in children. I find this a curious state of affairs, and frankly am not sure why it exists.

Given that no two aphasics look any more alike in their language than they do in their faces, the following appear to be relevant generalizations about aphasic language, gleaned from the psycholinguistic study of aphasia. 1) Aphasics operate with a reduced number and variety of linguistic operations. 2) This reduction is true for both the language aphasics comprehend and the language they produce. 3) The nature of the reduction is toward the grammatically simpler, the lexically substantive (or at least more frequent), the structurally shorter. Some rather bald therapeutic principles seem apparent from this

psycholinguistic research. The first is that it is critical to apply whatever we know about grammatical and lexical complexity to therapy strategies for aphasics. The second is that what kind of language aphasics deal best with should be the starting point, the base behavior on which we need to develop shaping procedures, systematically increasing along the way both grammatical and lexical complexity. Careful regard to matters of this sort will allow us to rely more heavily on the aphasics' linguistic competence, and to develop therapeutic procedures which might permit generalization to language not specifically dealt with in language therapy.

In this regard, it is interesting to note that concern for generalization effects is reaching the literature. My work with Carol Levy, in which we showed generalization of training of an active declarative sentence to other grammatical forms of the same sentence (1971) has been expanded upon by John Dudley.<sup>1</sup> Weigel-Crump and Koenigsnecht (1973) have reported on the positive effects of training on one group of words to a control list as well as to words constituting the super-ordinate categories the trained words. It seems clear that the linguistic competence of aphasic patients accounts for such generalization. Nevertheless, generalization is an important parameter for systematic study and exploration in aphasia therapy; some language may just generalize more than others. It is also a parameter that behaviorally-oriented clinicians would do well to incorporate into their pre- and post-training tests.

Perhaps it appears heretical to some of you to hear psycholinguistics and behavioral approaches bandied about in the same presentation. I am not uncomfortable doing it because the theoretical disagreements between the two areas just do not seem to have much to do with their application to clinical problems in aphasia. A skilled aphasia clinician must be, above all, a pragmatist. Even localization of function, well within our own theoretical backyard, is frequently unimportant in clinical management of individual aphasics. We have only behavior to work with and to work on. The Wepman diction applies: that is, the skilled clinician should go to the ends of the moon, if need be, to help his aphasic patient (1972).

Problems of gradual progression for behavioral strategies can be most appropriately solved by manipulating the content of aphasia therapy. It is possible, and to my way of thinking, commendable to specify gradual progression by gradually altering and increasing linguistic complexity, of the stimulus material, the linguistic responses, and the modalities in which those responses are to be made. The end result can be a didactic therapy valid not only in form, but in content as well.

Finally, sharp attention to the psycholinguistic aspects of any didactic therapy technique will improve it--even when the technique starts out as a good one. Melodic Intonation Therapy,

<sup>1</sup> Personal communication



for example, can probably be made more effective by careful linguistic control of the sentences or phrases used as stimulus material.

### Other Didactic Therapy Strategies

I want to turn now to significant entries in the literature which, while not yet trends, nevertheless offer productive suggestions for aphasia therapy. Specific techniques for working on some limited aspects of aphasic behavior are appearing. Naming, so dear to the hearts of aphasia clinicians, has been the subject of some exemplary clinical reports ranging from Gardiner and Brookshire's (1972) investigation of multisensory presentation (which generally facilitates) to methods for selecting lexical stimulus material, as in Crosky and Adams' interesting plan for using a corpus of words pretested for consistency, then (in line with good gradual progression), setting the word order to teach inconsistent words before teaching consistently wrong or absent ones (1969). Word-finding strategies designed to help aphasics produce self-stimulating cues, or to use cues presented by others are another welcome addition to the literature (Berman and Peele, 1967), (Keenan, 1966).

Brookshire (1972) studying the effects of interspersing difficult-to-name pictures into lists of easy-to-name pictures, found an interference effect. Conversely, interspersing easy-to-name pictures facilitated hard-to-name ones. Such studies suggest again that there is a sobering need to consider our stimulus materials carefully, and to subject our considerations to experimental testing.

Brookshire's study leads naturally to some consideration of the growing literature on "deblocking." Based on the German work of Egon Weigl (1970) deblocking is essentially a systematic use of a patient's more intact modalities to trigger or facilitate a response in another modality. Deblocking seems to be naturally in tune with clinical approaches which build new responses upon a patient's most intact language skill. The clearest clinical presentation of deblocking, is in the detailed case history report of Ulatowska and Richardson (1974), an important example of the kind of clinical case study so badly needed to increase our store of available clinical strategies. Such case studies are appearing more frequently in the literature. Some of the best of these, by the way, are those written in whole or part by aphasics themselves (Pannebacker, 1971), (Luria, 1973), (Rolnick and Hoops, 1969). Luria's writing is a veritable case-report goldmine (e.g., Traumatic Aphasia, 1969). I am a Russian aphasic, yet as I scanned the appropriate abstracts I became increasingly aware of what appears to be a vast therapeutic literature. From the Soviet Union and other European nations, the work is generally built on Luria's clinical principles of externalization and cortical reorganization.

Finally, there appear to be some provocative neophyte attempts going on to develop alternative symbol systems for severely impaired aphasics. The work of Zurif, et al, (1974), who appear to be starting from scratch and Glass, et al, (1973), who are building on the symbol system developed by Premack for teaching language to Sarah the chimpanzee, will both demand closer attention in the future. I was surprised to find no work on teaching aphasics by Bliss symbols. The Bliss symbol system, presently being used with impressive results for both severely apraxic and mentally retarded children (Yoder, 1974; Seligman, 1973) appears to me to offer significant possibility for the severely impaired aphasic.

#### Group Therapy and Family Interaction

The words "didactic therapy" have been used throughout this presentation. So you understand that I do not advocate total reliance on didactic approaches, I want to turn now to a rapid review of another aspect of aphasia therapy which is responsible for a significant portion of the rehabilitation literature-- the area(s) of group therapy and counseling for family members of aphasics. There is apparently a clear recognition that only some of the rehabilitation needs of aphasics can be met by direct attack on the language behavior exhibited by an aphasic patient. The literature contains many references advocating the need for counseling designed to help aphasics and their families cope with the devastation to personality and to family structure that the problem is likely to leave in its wake. Group therapy, for both aphasics and families is frequently fingered as the therapy of choice for such problems. And I think I agree. But practitioners of group therapy have a responsibility to educate people like me, basically trained to do individual therapy and counseling, about how we should use the group to rehabilitate aphasics. The most recent literature primarily extolls the virtues rather than defines the parameters, and as badly as case studies in therapy are needed, group studies seem to be needed more. Peggy Malone's presentation to this meeting (this volume) and this audiences' reaction to it present a striking example of an extension of this need.

In summary, the literature on group therapy for aphasics is plentiful and exhortative, but lacking clear explanation of either its specific purposes or how best to accomplish its major rehabilitative goals.

#### Communicative Strategies

Before throwing myself at the mercy of my discussants, I want to talk about one final area. That area is "where next?" Two answers emerge. One answer, to which I have already alluded in my projected application of Swinney and Taylor's data to the clinic, and was implicit in your enthusiasm for Albyn Davis'

paper (this volume) is that it is probably worthwhile to begin work in helping aphasic patients re-develop strategies for solving language problems. The emphasis I am suggesting is on the strategies, not on the communicative end-products of those strategies. Cromer's work (1972) indicates that adults apparently rely on semantic cues for decoding sentences whose surface structures give no clue to meaning. (For example, John is easy to please vs John is eager to please.) Children, on the other hand appear to develop strategies for decoding which implicate the differing base-forms for each type, and only slowly develop adult-like solutions as their early strategies are verified as correct or incorrect. This finding, I believe, has implications for aphasia therapy. In essence, if adults have learned some decoding strategies they have discarded by the time they reach adulthood, it may well be that some linguistic solutions are unavailable to them. Further, it may well be that they are unavailable to aphasic adults by the fact of their adulthood, not necessarily their aphasia. It follows therefore that aphasic adults might well profit from systematic and controlled exposure to the sorts of strategies they may have used as children, and as previously linguistically capable adults, may have abandoned.

The second answer is to be found by observing what is presently happening to the study of child-language in particular and transformational linguistics in general. In the 1960's, all of that literature seemed to be hipped on grammar. Syntax was where the mysteries of language resided. It took Lois Bloom and others, in child language, and a host of linguists whose interest became "generative semantics," to remind the professional community that words and what is talked about had a real big and important place in language. Those people together with some philosophers like John Searle (1960), some sociolinguists like Dell Hymes (1972) and Susan Ervin-Tripp (1973) have again legitimized not only the word, but the environment--the linguistic and behavioral context in which language occurs. Aphasia research generally and aphasia rehabilitation research notwithstanding, have ignored the features of man-using-language and using-it-in-a-context all too long. As the pragmatics of language generally becomes the new arena for language study, hopefully it will become so for aphasiologists as well.

I need to illustrate what I'm talking about. A few weeks ago, my adolescent son and I began our morning with a trivial argument. He stormed from the kitchen, and I heard him muttering something from another room. "Stop that mumbling!" I said (meaning "I'm damned angry"). "No!" he shouted clearly and at about 100db. (meaning "So, dear mother, am I!"). A linguistic analysis of that interchange is totally simple-minded to do. A behavioral analysis isn't much more difficult. And both miss the point. Absolutely. Language and communication are not necessarily isomorphic.

There is perhaps no clearer indication of our ties with medicine than the manner in which we traditionally gather clinical and research data in aphasia. The model is a medical one, symptom-oriented, and assuming the symptomatology to be invariant as a function of setting. We have begun to shake this model for all other communication pathologies (even laryngectomy); aphasia remains the last bastion of our medical orientation.

We have literally no data on aphasics as communicators in their natural environment. All of our published data comes either from formal tests, ingenious experiments and clinical interaction. According to Labov (1970), one of the most counterproductive methods for obtaining language samples is to command someone to talk...just what we've always done.

Particularly if total recovery of pretraumatic language functioning is a rarity--and I'm afraid I see it that way--we need information on which we can build skills for maximizing aphasics total communication patterns--not only for helping him to retrieve words or fight his way through somebody else's center-embedded sentences.

Every aphasia clinician knows numerous cases of aphasics who because of extensive language impairment shouldn't have been able to communicate as much as they actually did. The clinician knows also of examples of superb communication with patients whose language was minimal or unintelligible. Together with language in natural environment it is such experiences that we must begin to analyze and understand instead of shrug off as "non-linguistic," if aphasia therapy is to be maximally beneficial.

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**The Effectiveness Of Treatment In Aphasia:**

**Discussion**



Rick L. Bollinger, Ph.D.

Perhaps the most important theme I have heard running throughout Dr. Holland's presentation and the conference as a whole, is that there is no one avenue of clinical research or applied methodology for the treatment of the aphasic syndrome. This lack of specific direction is reasonable and must be attributed to the differential effects of the brain injury, the degree of involvement, and above all, how these and their influences combine with the linguistic disorder resulting in a given symptom-complex. Because of the brain injury, we as clinicians must address ourselves to the management of non-linguistic behaviors that may be critical to successful symbol manipulation, and to the symbol disorder per. se.

Too frequently, attempts at aphasia treatment focus on either the treatment of the non-language brain damage behaviors or the linguistic disorder. We assume that if the patient develops the necessary perceptual-productive strategies thought to be crucial to language, he will facilitate his language skill; or, that if the patient is stimulated linguistically (aided in the understanding and application of appropriate labels and linguistic structures) the perceptual-performance influences will be minimized. Finally, a "shot-gun" approach might be employed which utilizes extensions of all or many of the research findings in the hope that at least one might affect improved communicative performance.

It seems to me, and now I'm most appreciative of my role as respondent since I can relate a little more subjectively, that the practicing clinician whose responsibility it is to treat patients day-by-day, hour-by-hour, utilize an eclectic approach, and those of us with the means to do otherwise (these "means" are usually times designated for research) tend to select and manipulate more discrete parameters specific to perceptual-performance and/or linguistic parameters. There is nothing inherently wrong with an eclectic approach to treatment. In fact, if the clinician hopes to apply the findings and test the questions presented by Dr. Holland, he/she has little choice. The use of such an approach, however, requires a highly structured treatment environment. Stimulation-teaching variables must be controlled and careful data maintained if such an approach is to be beneficial to the patient and clinician. Additionally, the results of the various treatments should be available for dissemination.

Because of the multitude of factors that operate in concert to produce an aphasic syndrome, and the many approaches to treatment, I would agree with the comment that indepth case studies will be most important. They can provide a wealth of information relative to the understanding of the effects of specific brain damage behaviors on communication, and specific strategies that

change--increase--communication skill. Critical to the merit of such studies, however, is the careful detailed assessment of the aphasic patient at perceptual-production, linguistic, and communication levels. Subsequent remarks will be directed to this important area of information.

As Dr. Holland pointed out, there are important recent findings relative to specific perceptual-production behaviors in aphasic patients (e.g., the memory study by Sands and Sarno), and the use of specific facilitation techniques (e.g., Spark's MIT). Our treatment techniques are not static, yet for some reason, the majority of the clinical techniques we employ are successful for a time, in that the patient performs the given skill behavior, but the nature of the basic deficit too frequently has not changed.

Perhaps our frequent ineffectiveness is the result of the performance/competence dualism. We continue to imply that the aphasic patient has not "lost" language, but has suffered a disruption of the processes necessary to the utilization of his still intact "rules and elements of language." If this is the case, then if we facilitate via programming, intensive stimulation through various modalities, deblocking, and the teaching of retrieval strategies, why then do our patients frequently remain restricted in their respective abilities to utilize language to relate to their environment? When then, don't the language structures we can facilitate through given techniques under controlled conditions generalize to the real communicative world?

Obviously some patients will manifest chronic observable language restrictions because of perceptual-production problems. Dona Hedrick and I, in studying auditory attention among aphasic adults, have found that the ability to "screen out" unwanted messages (diotic listening) is highly correlated with overall PICA performance in fluent aphasic adults but not correlated with overall PICA performance in non-fluent aphasics. The ability to not attend to distractions was significantly different between the two groups. This finding, like many of those reported by Dr. Holland are highly supportive of the role of perceptual performance deficits in the clinical syndromes presented by aphasic patients. Our question now is, is this deficit treatable, and if so, does treatment improve communicative performance?

In the area of children's language development, the whole idea of Chomskian generative grammar is being questioned and revised. Dr. Holland touched on the work of Eve Clark relative to some new insights into semantic development and possible lacunae to aphasia treatment. While this area of semantic development based on perceptual-cognitive learning is somewhat new and difficult, my work with certain aphasic patients has led me to look to this area for more effective approaches to management. I was falling into the trap of being a "brain damage" clinician, with what I began to feel was relative impotence regarding the linguistic remediation.

The readings presented in the area of child semantic development has made clinical aphasiology sense. The postulate that semantic development rules mirror perceptual cognitive development is particularly exciting. The overextensions made by a child learning to categorize and label the world about him have certain correspondences to the kinds of errors (such as inappropriate application of pronominalization, subject-verb agreement, passive voice, etc.) aphasic patients make. Goldstein argued years ago that abstract attitude was depressed in aphasic adults. He believed that aphasic patients tended to operate on the primary, most obvious stimulus attributes, finding it most difficult to abstract and generalize on the basis of less obvious stimulus properties. Eve Clark's work suggests that as children develop cognitively, they begin to determine a wider scope of attributes (or a more complete set of attributes) for categorization. These same operations eventually lead to morphologic and syntactic learning typical of the child's environment.

The implication of Dr. Clark's findings is that the teaching of specific semantic operations require a careful sequencing of the cognitive steps (categorizations) that precede them developmentally. Once a child has progressed through the developmental sequence, generalization of the concept is automatic. He has learned to select the necessary attributes. Is this cognitive-semantic parallelism operational in aphasics?

Support for a categorization deficit and developmental sequence was suggested by an unpublished study by Grover Farnsworth. Dr. Farnsworth developed and administered a non-verbal test of categorization to aphasic patients of various degrees of severity and classification types, and to children in Kindergarten and 3rd, 4th, 5th, and 6th grade classes. The categorization task involved sets of pictures to be paired on the basis of one attribute--number, color, form, object placement, agents performing different actions on the same object, and agents performing the same action on different objects. Though there is not sufficient time to relate all the findings of the study, results of the task administration showed that aphasics differed significantly from the Kindergarten and 5th and 6th graders on mean number of subtests completed, but not from the 3rd and 4th graders. Also, importantly, an order of difficulty in matching according to attributes was found for the aphasics and normal children--object similitude, object placement, action, color, form, and number. Similarly, the easier categorization subtests were completed more rapidly by all groups than the more difficult subtests. Thus, a hierarchy of categorization cues and types of categorization was determined. Variations in performance by the aphasic patients appeared to be more related to type and severity of aphasia than to age or education.

Is categorization (and its disturbance) a product of language use (labelling attributes to establish commonality--particularly relative to agent-action-object determination) or is language use

dependent, at least in part, upon categorization? In child language development the semantic supposedly parallels the cognitive. Is it possible that adult aphasic patients have reduced semantic operations in the presence of intact cognitive organization? Can we argue that semantic-syntactic competence is intact when severe neurologic disorders have occurred? Such a posit implies that language competence supercedes neurologic function.

Dr. Holland's questions relative to the differences between individual and group treatment may have some relevance to the semantic issue. What I mean is, perhaps the role of the clinician in adult one-to-one treatment has correspondences to the role of the clinician in child treatment, i.e., an overemphasis on structure rather than function. Perhaps the responses of a group to an aphasic adults output is akin to the responses of a mother to a child developing language, i.e., an emphasis on semantic function--truth value rather than syntactic structure. Moreover, perhaps the case studies in aphasia should look more at the strengths and weaknesses of function rather than form--not sentence structure but instead semantic meaningfulness.

To repeat, it would seem we still need to assess the "syndrome" of aphasia. It is very true that all aphasic patients are not alike, perhaps even to the point of specific limitations of competence. My comments or response must end with more questions. Are semantic rules--categorization--teachable? If we do not need to teach (re. "lost language theory"), can we more specifically define the sequence of restimulation to better facilitate the language of aphasics? A stimulation approach need not be a return to the "general language stimulation" theory. Perhaps that method was rejected because the general stimulation did not account for the perceptual-performance levels of breakdown, and did not--because of lack of sophistication--sequence the linguistic stimulation in such a manner that the communication disturbed adult could generalize what was facilitated in treatment to other communicative situations. It is through constructive interchange, so well exemplified by this conference that we can better apply what we know to the multitude of "unknowns" relative to effective treatment of the brain-injured communication disturbed adult.

Robert L. Keith

I want to thank the committee for the opportunity to serve as discussant on Dr. Audrey Holland's paper. As I have listened to the papers presented, I feel that far too many of the clinical aphasiologists are thinking of aphasia first, not the patient. If we are to achieve our ultimate aims as clinical aphasiologists we must think of the patient first and then the aphasia. Perhaps the term "aphasic patient" should never be used but rather "the patient with aphasia". By using this term we place emphasis on the patient first.

The writings of Hippocrates (1) predate those of the Old Testament. They mention apoplexy which is Greek for to STRIKE DOWN.

A thousand years later, Paul of Aegina (2) coined the word hemiplegia. He also noted that in some patients the power of speech was lost, and that if it does not return in 14 days the physician should try to do something about it.

I have been unable to find any reference to the rehabilitation of stroke before 1851. In that year, Thomas Hun, Professor of Medicine at Albany Medical College retrained a 35-year-old blacksmith for loss of speech following stroke, by the tedious method of reading, spelling and repeating words. In reporting his success he gave credit to the wife of the patient: she having done most of the training. Dr. Hun referred to the loss of speech by two expressions then in vogue: aphemia and amnesia verbalis.

Raymond (3) in 1897 defined rehabilitation as "Programmed gymnastics which attempts to reestablish normal relationships between a conscious perception the Will".

In 1904, Mills (4) claimed that he had introduced a new concept of Speech therapy in 1880 but a review of that paper shows that the methods were not much more advanced than that of Hun or of several other workers of the last decade of the century. Interest was low because of the hard work of patients and therapists was not rewarding in aphasia as in other speech problems. The methods suggested were largely those used to develop language facility in normal children--mother's method of trial, error correction and repetition.

History has taught that the past is an unreliable guide to the future. The value of predictions depends upon current knowledge and the assumption that current trends will continue in linear fashion. Predictions fail to account for the genius of man, his inventions and new discoveries, by intention or accident.

Have we progressed since 1880, when the stimulation approach was really used, or 1897 when Raymond talked about the programmed gymnastics? Progressed yes, but still greater strides need to be taken in therapy with more documentation. No doubt great amounts of valuable information is lost because clinical aphasiologists have far too little time to research or write,

yet they are the ones that should be providing the information. Perhaps we should be looking into some of the studies in nonverbal communication, and see if some implementation of this would help our patients with aphasia.

The stimulation and programmed approach I feel are not entirely separable. We cannot implement the programmed approach without providing stimulation. It must provide stimulation or else it would not be effective. The difficulty perhaps is in the program. The increments may not take into consideration always the usefulness in communication. On the other hand the stimulation approach is not effective unless there is some program to the stimulation provided. Neither approach can work without the other. I think Dr. Holland has alluded to the fact we need studies in how patients with aphasias communicate in society, and that maybe, time should be spent on the usefulness of what is provided the patient with aphasia in therapy. Sarno's (Functional Communication Profile) is the instrument I'm most familiar with, but does it measure everything or does it leave much to be desired? We all have worked with patients that had aphasia, that communicate quite well, but were still significantly handicapped in language tasks, yet they could be classified as functionally adequate for communicative needs.

I agree with Dr. Holland we need to approach the patient with aphasia in regards to communication needs, then if ability permits, get into the niceties of our language concepts.

By non-verbal or paralinguistic communication, we mean transmission of messages without the use of, or in conjunction with, verbal language. Non-verbal messages are generally more primitive both phylogenetically and ontogenetically than linguistic messages. Thus, they carry much information about the emotional state of the sender. Nonverbal messages are also richly loaded with the cultural attributes of the sender and the receiver. They can be transmitted simultaneously with verbal messages and many times the information sent via the 2 modes is contradictory.

Several studies such as Blier (5) have investigated the creation of beneficial and/or dangerous emotional environments through body movements and tones of voice with special reference to the manner in which married couples communicate well being or unease to each other.

Others have studied the profile of Non-verbal Sensitivity with people of ages from 3 to college age and feel that there are varying abilities at understanding wordless communication via tone of voice and facial and body movements.

Touching is talking. A single, warm, human gesture like a hand on his shoulder can do more to help a patient with aphasia respond even though depressed-withdrawn than many sophisticated techniques. Perhaps we really need more research in this area.

Commenting on group treatment--particularly in the ages without families to interact. I've dabbled in group treatment in nursing homes. In justification of the type of therapy it was either described as restorative--meaning "gains are forthcoming", or maintenance. We're going to help keep what they have. I don't know if we are justified in doing what one might call maintenance treatment, but doing "Maintenance treatment", patients showed improvement in:

- 1) Socialization with patients and staff.
- 2) Broader interest in news.
- 3) Less psychosomatic complaints (according to nurse and physician).
- 4) Something specific to strive for (aim in life).
- 5) Greater attempts at communication with less frustration.
- 6) Functioning better in their environment.

and I feel that must be part of the goal of aphasia rehabilitation. Still how long can one continue on maintenance treatment?

To say that communication is important to human life is no doubt trite. Communication to many means life or death.

In talking about therapeutic approaches--it might be important to consider the categorization of individuals by their modes of communication:

- 1) Source orientation
- 2) Message orientation
- 3) Receiver orientation

The most frequent type encountered in a hospital setting is the "Message Centered Interactors". Too often I'm afraid that many aphasiologists are not as effective with the patient with aphasia because they are unable to become the receiver oriented type.

- 1) Perhaps the pressure of the tasks to be accomplished were too great to permit any meaningful one to one communication with the patient and family.
- 2) Perhaps the task had become so routine that there was no longer any joy or excitement to be found in it.
- 3) Or perhaps their preoccupation with other task requirements seemed all but to eliminate any possibility of dialogue with the patient and the family.
- 4) To achieve success in efficacy studies we need greater control of:
  - a. Aphasiologist--types
  - b. Site of lesion
  - c. Type of lesion (traumatic, neoplastic, embolic, thrombotic, or aneurysm) (They cannot be lumped into one group.)
  - d. Number of lesions within a single episode.
  - e. Existence of pre-episode mental deterioration
  - f. Number of episodes prior to the study
  - g. Degree of physical deficit

- h. Premorbid handedness
- i. Length of time since onset
- j. Amount and type of therapy
- k. Subjective evaluations to determine degree of improvement

The researcher often finds little satisfaction in the clinical aspects of treatment. They do meticulous research, make their scientific contributions to the literature and all too often the practicing clinical aphasiologist feels that of what clinical application is this pure research. I think it behooves us in the clinical field to delve into this pure research and develop concepts that can be implemented in therapy. Perhaps I'm just reiterating Dr. Holland's discussion, but I agree this needs more attention.

Rehabilitation is a complex, dynamic process of comprehensive patient care beginning at the time of the acute stroke and continuing until the maximum physical, psychological, social and vocational functions for each individual have been achieved. The rehabilitation of the CVA patient is based upon the concept that every disabled individual has the right to be treated by the best techniques within his society to the fullest extent of which he is capable. Yet we see another view of rehabilitation by Doctor William Poe (6). He calls himself a marantologist (the scientist of withering). He has called rehabilitation "a silly euphemism". He believes that instead of pressuring a seriously disabled patient to improve faulty function, he should be allowed to die in dignity. I have seen quite a few patients who were dying. Certainly, dying has been not very dignified, living can be, especially if the goal is greater independence through rehabilitation.



William R. Berry, Ph.D.

Before I make any specific comments, I want to thank Dr. Holland for being so considerate and helpful in sending me her paper in advance to catalyze my thinking. It was greatly helpful and it's a precedent that should be promoted when any of us are asked to make comments concerning a major address at a Clinical Aphasiology Conference in the future.

To my professional conscience, Dr. Holland's eloquent presentation provokes much thought. The phrase that the literature says a lot about aphasia and very little about aphasics certainly must be viewed as reliable by this audience. However, I must admit that I have been somewhat apathetic to this situation in the past. I guess that I have been systematically seduced by the literature as Dr. Holland suggests in thinking about the disorder of aphasia rather than about direct clinical issues related to aphasia rehabilitation. "So now I guess the issue becomes, "What are we going to do now?" Dr. Holland has provided us with quite an insight; quite an observation; almost an indictment. But how am I personally going to respond; how am I going to comment; how am I going to make references to both this indictment and the future of clinical aphasiology; what are the issues that this group must address itself to in the here and now?

One of the things that has been implied and discussed throughout this Conference has been treatment, non-treatment studies versus efficacy studies. This is certainly a salient subject; so my left hemisphere said, let me talk about that for a while. I thought maybe I could comment on the role of the scientific aphasiologist in providing information on treatment versus non-treatment studies because I didn't feel that the clinical aphasiologist in general was grasping the responsibilities inherent in this issue. In the past, I am afraid that we saw ourselves as temperamental artists whose judgment was above reproach. The pendulum is swinging, however, toward a data based clinical orientation. In this age of accountability, it was my thought to review the proposal of some clinicians that we should use the scientific principle model for therapeutic intervention. But now time and lack of frontal lobe tissue dictate that I turn to other matters.

Maybe what I should discuss is our "waste basket" concept of treatment; you know, throw them all into the Clinic and treat them all. For years, we have had trouble convincing our colleagues in Neurology that our treatment methods were efficacious. We certainly do nothing to support these contentions by lack of discrimination in patient selection for goal oriented treatment. It's no wonder that Martha Taylor Sarno's much quoted paper on the efficacy of treatment with severe aphasics was seen as courageous by medical professionals; though her conclusions are

often misquoted or at least misinterpreted. We need better predictive tools so that even the "rookie clinician" can treat reliably. Maybe Dr. Porch's proposed VA Cooperative Study of aphasia recovery will be a step forward in this direction. This is truly an issue worth discussion, but time does not permit me to bring this to your attention.

Perhaps I should get into the concept of dismissal. Just a few moments ago, Bob Keith alluded to maintenance therapy. Maintenance therapy versus dismissal is a sometimes controversial topic; however, I think the concept of maintenance treatment is extremely important. In this sense, I think we could learn a great deal from those clinical aphasiology researchers who are utilizing the patient as his own control design in studying the efficacy of various treatment plans. If this type of design were used during the ongoing treatment process, the clinical aphasiologist would be able to gather data that would indicate not only which types of treatment are most effective but the data would also reveal recovery plateaus that would indicate the necessity for a shift in emphasis in treatment. You'll note that I didn't say dismissal because I feel that it is our responsibility to design or promote maintenance programs that will encourage life commitment and involvement from the patient. This is a subject that needs much more elaboration, but time doesn't permit.

Well, since I can't discuss these topics, maybe I should bring out the need to learn much more about the dynamics of the use of body language, the effect of tactile input in communication, gestural facilitation of verbalization, and a manipulation of prosody to affect language changes. Information in these areas may provide a radical change in the therapeutic orientation with the severely involved aphasic patient. Certainly the work that Dr. Holland referred to concerning Melodic Intonation Therapy holds great promise. Who knows, we may even discover that we don't need to be so terribly discouraged about the severely involved aphasic. Knowledge from the general field of psycholinguistics may even help further in this process. Dr. Ulatowska's presentation on markedness is extremely appropriate in this regard. However, I think psycholinguistics many times has a tendency to by-pass language studies involving non-verbal communication. Peggy Malone's presentation concerning the alterations in sex relations of the aphasic patient becomes quite pertinent here. We need more information that can provide us with a new emphasis when verbalization or standard modes of communication are not available to the patient. Here, however, we may be a bit too close to the limbic system in that fourth F to which Bruce Porch referred. But I would be too embarrassed to discuss that topic.

I am sorry, but I just don't have time enough to cover any of these clinical issues. There is, however, one issue that I really would like to talk about; I really would! I am afraid

that often I am viewed as a bit of a fanatic when it comes to the use of diagnostic labels in clinical aphasiology. Maybe a more accurate term for my position would be that I am a "hypocritical agnostic." Certainly in the past, I have been a fighter for the use of behavioral terminology in describing patients rather than the use of the semantics of group classification. Even yesterday you witnessed my rebellion to our discussion centering on phonologic disorders. When I heard the argument beginning again concerning whether a syndrome was "apraxia of speech" or "Broca's aphasia", I suddenly found myself experiencing a *deja vu* to every Academy of Aphasia Meeting that I have ever attended.

I'm an agnostic, because in most of these arguments, there seems to be a data based stand-off which promotes only the status quo and the egos of those involved in the arguments. But I'm a hypocritical agnostic because I, too, use diagnostic labels at times. Hopefully, though, you will never discover one of these general diagnostic labels in one of my clinical evaluation reports.

Certainly, there is great economic appeal in the approach to treatment that is promoted by the use of group labels. As an administrative clinician, as I affectionately "label" myself, I must constantly keep such economic matters in mind. Imagine the economy of having a room in your Clinic labeled "Broca's." Remember how we used to pin or tape labels on everything in the treatment room for aphasia therapy: "This is a chair; see the word chair; say chair." With a "Broca's aphasia" or an "apraxia of speech" room in your Clinic, you could shovel all patients who fit one of these labels into this room. Therefore, your Clinic now need only find one clinician skilled and experienced in treating this label. There certainly would be no need for individual therapy, since all of these patients can be described with one term. Just think of the manhours saved and the greater number of patients who can be seen by one clinician. Maybe, I need to reappraise my biases. I could report hundreds of visits in excess of my present fiscal workload statistics with this economic mode of treatment. You know, just standing here and talking about all of this has been a revelation to me. I think I've been saved and I have this conference to thank for my salvation.