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REVIEWS

REVUES

## Speech and Cortical Functioning

by John H. Gilbert  
Academic Press, New York and  
London. 1972.  
Pp. ix, 271. \$9.00

Reviewed by  
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**Speech and Cortical Functioning** is the partial publication of the proceedings of a symposium on the topic "Speech Production, Speech Perception: Their Relation to Cortical Functioning" held at the University of British Columbia in 1972. This symposium was convened, according to the editor's brief preface, to review the scrutiny given by phoneticians specializing in speech acoustics, physiology, perception, and neurology to the "underlying phonetic theory" of Chomsky and Halle's *Sound Pattern of English*.

Four major papers were presented at the symposium, of which three are published in this book. Peter MacNeilage of the University of Texas spoke on "Speech Physiology," Osamu Fujimura of Tokyo University on "Acoustics of Speech," Ilse Lehiste of Ohio State University on "The Units of Speech Perception," and Brenda Milner of McGill University on speech and cortical functioning. It is this last paper that does not appear in the book; an unfortunate omission since its presence might have justified the otherwise rather pretentious title.

The three papers published are in the main summary reviews of recent experimental work with concomitant attempts to discover the status of a theory of speech which might underlie such work. Good bibliographies accompany all the papers; those of MacNeilage and Fujimura are especially extensive.

In addition to the major papers, the book includes the papers of five invited discussants: Victoria Fromkin of UCLA on physiology, Arthur House of the Institute of Defense Analysis and Sven Ohman of Uppsala University both on acoustics, Wayne Wickelgren of the University of Oregon on perception, and Harold Goodglass of Boston University on cortical functioning . . . included despite the omission of the paper he was discussing. As is typical in such symposia, the contributions of the discussants range from an actual critical commentary on the assigned paper to a discussion of some peripheral topic dear to the speaker's heart; what is not so typical is that in this case, all of the discussion papers are of considerable relevance to the given topic, although showing some variation in meatiness.

Two comments may be made about this book as a guide to someone considering buying and/or reading it. These concern 1) the actual content of the volume, in contrast to the advertised content, and 2) some points about the connection between data and theory in the field of speech. The theories in this case are both those

motivated by formal linguistic description and those motivated by other concerns.

The actual contents of the volume are at some variance with the advertised contents as indicated by the title and the editor's preface. There is very little on cortical functioning in the contents, due to the absence of the Milner paper. The Goodglass discussion, which is perhaps unfair to assess apart from the Milner review paper, is the most shallow and least informative of the discussants' contributions . . . a real disappointment in view of Goodglass' substantial contributions in aphasiology. MacNeilage devotes three pages to new techniques in recording from motor cortex neurons, but other than that, discussion of cortical functioning in the speech process is notable by its absence.

In the same manner, practically no significant attention is paid to *Sound Pattern of English*, which was ostensibly the genesis of the recent work discussed at the symposium (p. ix). This is not to say that no attention is paid to formal linguistic theory (see discussion below) but readers who do not control the complex formal phonological theory presented in *Sound Pattern* should not therefore be discouraged from dipping into *Speech and Cortical Functioning*.

For the fact remains that, despite its misleading title and rationale, *Speech and Cortical Functioning* contains a good deal of information on current research on the speech process which

should be of interest to clinicians. MacNeilage's paper discusses such topics as respiratory vs. laryngeal control of stress, as well as the articulatory dynamics of segment duration. Fujimura, in addition to a section on articulation, presents a long discussion of methods of observing the normal process of speech production and a shorter one on current functional models of this process; his discussant, Ohman, says of Fujimura's paper that it is "full of interesting facts about human speech and . . . also summarizes some of the most important experimental methods in our science" (p. 177). House and Wickelgren also present shorter discussions of current research topics, House on some problems of speech control and the question of physiological vs. non-physiological constraints on segment production, and Wickelgren on evidence concerning serial vs. parallel processing in speech production and speech recognition and the implications of this choice for establishing functional segment size. Experimental data of these sorts cannot help but be of interest to clinicians who daily confront the malfunction of such process.

The second comment about *Speech and Cortical Functioning* is that it reveals in a most instructive fashion (although perhaps not in precisely the way intended by the symposium conveners) the morass of problems that surround the connection between theory and data in the

investigation of human speech. The problems are of two sorts: 1) those arising from the lack of a unified theory of speech production and perception which accounts for known facts and encourages the testing of further hypotheses, and 2) those arising from the (to this reviewer's mind) misguided attempts to push a formal linguistic descriptive technique into the role of a theory of the speech process.

Of the first sort of problem, MacNeilage says in the opening sentences of his paper:

*"We do not appear to be in a position to formulate a general theory of the physiological control of speech production. In fact, although we have some theoretical models of aspects of the control of speech production which have had physiological implication, none has succeeded in engaging the support or perhaps even the interest of the majority of people working in this field. We are still primarily at a data-gathering stage, or at most, at the stage of formulating microtheories the authors of which would be well advised not to take their work too seriously."* (p. 1)

It seems evident that, however hampering the lack of such a theory may be at present, time and hard work will solve this problem.

However, the second sort of problem is a more insidious one, and only thoughtful evaluation of what actually constitutes a theory, and an appreciation of the difference between assertion and demonstration as investigative techniques, will

resolve it. Evidence of this problem may be seen especially in the Fromkin paper, in which the assertion is made that "physiological data can explain many facts (*sic*) and help to constrain linguistic models (but) linguistic models are also relevant and necessary in our search for physiological models" (p. 99), but where no convincing demonstration of this statement is offered.

Ohman, whose discussion paper is subtitled "Linguistic Theory and Speech Research," discusses at length the misuse of formal linguistic description (Transformational theory) as a theory of speech. He says:

*"Since transformational theory has made great strides during the last decade, and since it claims to constitute the core of a complete theory of human linguistic behavior, there is every reason for us to ask where our own work fits into this theory and conversely how the theory can aid us in our researches. My own answer to both of these questions is quite negative."* (pp. 178-9)

He then points out the problems engendered by the mentalism, the formalism, and the formal linguist's view of *explanation* of language phenomena . . . all of which militate against the use of formal linguistic description as a mold into which experimental evidence about speech must be squeezed. This paper should be read with care by everyone who has felt that formal linguistics would provide the solution to all the difficulties of designing research into the nature of the speech process. It

makes explicit the very different concerns of the theoretical linguist with language from those of the investigator of the language process.

In summary, *Speech and Cortical Functioning* has much to recommend it to the clinician: on the positive side, as a review of some interesting recent experimental investigations of the speech process, and on the negative side as a moral lesson on the irresponsibility of lumping together a collection of people concerned with "language" and expecting that without further intellectual effort the phoenix of truth will arise from the ashes of talk.

### **Now See Hear! Applying Communications to Teaching.**

*by David S. Abbey.*

*Profiles in Practical Education #9; The Ontario Institute for Studies in Education, Toronto 1973. 74p. \$2.30.*

*Reviewed by Joyce Keating*

David Abbey begins his introduction with the words "I wish we could see one another," a statement which sets the tone for this 74 page booklet. Indeed, if, as the author says, the simplistic communication model of source plus channel plus receiver is adequate for broadcasting but not communication, then until or unless David Abbey receives some feedback, until he or we modify our behavior because of the words he has written, there has been inadequate communication. A more elaborate model of communication also

includes encoding, decoding, feedback, and noise, (defined simply as a "set of unintended or unwanted signals"). And lest this sound too theoretical, let me assure the reader that David Abbey has written a very practical guide for improving communication in the classroom.

The author discusses message systems: Our use of words, things, time, space, and body language, and why ambiguities arise. Unfortunately, he does not include voice, which is surely an important message system.

There is little doubt that many aural-visual aids are used in classrooms today without much thought. David Abbey has presented an assessment pattern which should help the teacher choose a particular medium for maximum effectiveness.

The author goes on to suggest ways of structuring communications which will meet objectives and be free of "noise." He sets up an excellent design for instructional materials. The design for persuasive materials is not so straight-forward. He appears to have contradicted himself by telling us at one point that most communications suffer because people cannot really get together, cannot "be themselves with another." Yet in the classroom, if we are to be persuasive, we must "create a little anxiety," we must "offer contrary positions in an offhand manner which discounts them as being worthy of consideration." The implication behind advice to use deceptive appeals is that what matters for the

speaker is personal success, not communication of ideas. Perhaps our students benefit by being able to recognize such tactics, but the ethics involved should not be dismissed so lightly in a few paragraphs.

The chapter about analyzing communications will probably be most helpful to the reader, particularly if it whets his appetite to read more of Interaction Analysis, Transactional Analysis, and what Wiener and Mehrabian have to say about verbal immediacy. One point neglected by the author in his discussion of reducing psychological distance is that verbal distance evident in some communication, is part of the message; an added cue to the decoder of what is really meant.

David Abbey ends his book with some practical suggestions for raising awareness of communication and its imperfections. He covers briefly mass media (one-to-many), person to person (one-to-one), and personal (sensory awareness).

**Now See Hear** is a practical booklet with excellent suggested readings. Indeed, it is almost too limited in scope, and could well be expanded. The book has accomplished the stated purpose: it "... is designed to survey some intriguing areas of theory, to relate these to practice, and to hook your interest." David, I too, wish we could see one another.

### **A Practical Guide to the Cree Language**

by H. Christoph Wolfart and Jenet F. Carrol

*Published by the University of Alberta Press, 1973. \$5.00*

*Reviewed by M. Christine Rickards*

The introduction to this simply and attractively produced paperback states that the book relates the sounds and structures of the Cree language to familiar patterns in English. The intent is to help newcomers in Cree-speaking communities learn about the Cree language so that they will have a better understanding of Cree-speaking peoples and of the features which will be encountered should they begin to learn Cree. An interesting and helpful feature of the introduction for the layman is a condensed discussion of language. The geographic distribution of the principal varieties of Cree dialects is displayed.

The first four chapters cover the sound system, grammatical categories, word inflection and syntax of Cree. Chapter five provides a summary of the first four chapters and chapter six provides an annotated review of supplemental readings.

The authors conscientiously attempt to explain the linguistic features discussed so that the monograph will be accessible to those without a background in linguistic terminology. The style is concise and efficient and should prove stimulating for anyone with a background in some aspect of communications or with a high level of vocabulary usage. Without the latter, the book might prove difficult for many newcomers to Cree communities. It would have been helpful to have the behavioural significance of some of the language features delineated, such as the effect of the difference in function of pitch and stress in Cree on the English speaker.

This book should be of interest to any speech pathologist who encounters bilingual patients in that it does promote the principle of a simple, structured comparative approach which one could attempt to apply whenever working with those possessing a non-English first language.

