## START

# MICROFILM COLLECTION OF MANUSCRIPTS ON CULTURAL ANTHROPOLOGY 

FORMERLY: MICROFILM COLLECTION OF MANUSCRIPTS ON AMERICAN INDIAN CULTMEAL ANTHROPOLOGY AND
MICROFILM COLLECTIONS OF MANUSCRIPTS ON THE MIDDLE AMERICAN CULTURAL ANTHROPOLOGY

# Series: XV No: _ 95 

Photographed by:
Department of Photoduplication - The Joseph Regenstein Library University of Chicago - Chicago, III. 60637
THE NATURAL HISTORYOFAN INTERVIEW
(edited by Norman A. McQuown)
with contributions by
Gregory Bateson
Ray L. Birdwhistell
Henry W. Brosin
Charles F. Hockett
Norman A. McQuown
Henry L. Smith, Jr.
George L. Trager
Part I: Foreword, Chapters I - 5
MICROFILM COLLECTIONOF
MANUSCRIPTS
ON
CULTURAL ANTHROPOLOGY
No. 95 -
Series ..... XV
University of Chicago Library
Chicago, IllinoisJune 30, 1971

| Toreword |  | (Mc Quown) |
| :---: | :---: | :---: |
| Chapter 1 : | Communication | (Bateson) |
| Chapter 2 : | Vocal Activity | (Hockett) |
| Chapter 3 : | Body Motion | (Birdwhistell) |
| Chapter 4 : | Implications for Psychiatry | (Brosin) |
| Chapter 3 : | The Actors and the Setting | (Bateson) |
| Chapter 6 : | Transcript, Transcription, and Commentary | histell, Hockett, Mc (̌uown) |
| Chapter 7 : | Communicative Base Lines and Symptomatic Features | (Birdwhistell, Mc Quown) |
| Chapter 8 : | The Fsychiatric Overview of the Family Setting | (Brosin) |
| Chapter 9 : | Collation (Bird | $\begin{aligned} & \text { vhistell, Brosin, } \\ & \text { McQuown) } \end{aligned}$ |
| Chapter 10 : | Summary, Conclusions, and Outlook | (McQuown) |
| Apperdix 1: | Paralanguage: A First Approximation | (Trager) |
| Appendix $2:$ | Symbology for Speech Transcription | (Hockett) |
| Appendix 3: | Symbology for Speech Transcription | (Mc Quown) |
| Appendix 4: | Microkinesic Transcription | (Birdwhistell) |
| Appendix 5: | Macrokinesic Transcription | (Birdwhistell) |
| Appendix 6: | Sample Kinesic Transcription | (Birdwhistell) |
| Appendix 7: | Retranscription and Collation Charts | (McQuown) |
| Appendix 8: | Machinery | (Mc Quown) |
| Appendix 9: | Citations from the Literature | (Brosin) |
| Appendix 10: | Bibliography | (Brosiz) |

In the month of November, 1955, at the Center for Advanced Study in the Behavioral Sciences, at the instigation of Dr. Frieda Fromm-Reichmann, then staff-psychiatrist at Chestnut Lodge, Baltimore, Maryland, Norman A. McQuown, participant with her and others (Alfred L. Kroeber, Gregory Bateson, Charles F. Hockett, Dr. Henry W. Brosin, Ray L. Birdwhistell, David M. Schneider) in an on-going seminar investigating the relevance of language behavior to research in other behavioral sciences, undertook to prepare a fine-grained analysis, transcription, and interpretation of the speech of participants in a tape-recorded psychiatric interview. The results of this attempt were made available in an article "Linguistic Transcription and Specification of Psychiatric Interview Materials" published in PSYCHIATRY in 1957 (Vol. 20, pp. 79-86).

Encouraged by the relative success of this initial erseavor, a team consisting of Fromm-Reichmann and Brosin, psychiatrists, Birdwhistell, kinesicist, Hockett and McQuown, linguists, and Bateson, anthropologist, undertook, in February, 1956, to carry out a similarly fine-grained analysis, transcription and interpretation of the speech and body motion of participants in a sound-filmed (and tape-recorded) family interview. In this second effort, although one member of the filmed family was currertly undergoing psychotherapy and the family environment was suspected of being schizophrenogenic, the focus was shifted from a strictly psychiatric one (psychiatrist and patient) to a less clinically oriented one (interviewer and members of the family). During a six-month period of part-time study progress was made independently by psychiatrists and linguists, and during a three-month period of intensive work on the filmed and taped materials, the kinesicist joined these for collation. In brief meetings of the team during 1956 to 1959, work continued, as it did in the home-institutions of the team-members. Fromm-Reichmann died in April 1957 and Hockett could no longer continue as a member of the team after 1960. Bateson turned to communicational research on dolphins, although continuing to maintain contact with other team members.

In three institutions, work continued in a systematic way: At Eastern Pennsylvania State Psychiatric Institute, under the direction of Birdwhistell (with the collaboration of Dr. Albert E. Scheflen), at Western Pennsylvania State Psychiatric Institute, under the direction of Brosin (with the collaboration of a sizeable team, including Dr. Felix F. Loeb, Jr., Dr. William Charney, and Dr. William C. Condon), and in the Department of Anthropology at the University of Chicago, under the direction of Norman $A$. McQuown (with the collaboration of William M. Austin, Raven I. McDavid, Jr., and Dr. William Offenkrantz, and, most recently, of Starkey Duncan).

The focus of effort at EPPI was on the description of body motion and on the macro-structure of interactional behavior. The focus at WPPI was on details of body-motion and their correlation with clinical history and on the creation of adequate machinery for the efficient manipulation of sound-film materials. The focus at Chicago was on the analysis and recording of speech and on the pulling together of all the materials bearing on the analysis of the family-film materials supplied by Bateson and worked over by all the members of the team.

Each center contributed substantially to the editorial labor, and each center produced trainees who went on to become efficient collaborators. In September, 1963, Birdwhistell's group completed a typescript of the protocols of the family interview materials. In June, l967, McQuown's group completed the editing of the explanatory materials ancillary to these protocols. In June, 1968, all materials were placed in the hands of Brosin's group (which had, since 1960, contributed substantially to their elaboration) for final revision and organization. In September, 1968, these materials were again in McQuown's hands. A training manual "The Natural History of an Interview" was ready for publication by September 30, 1968. This manual constitutes a general introduction to the theory of micro-analysis of interviews with a focus on overt behavior, to the individual systems of analysis of the speech and body-motion of participants in such interviews, to the techniques of manipulating taped and filmed materials in order to facilitate such analysis,
and to the theoretical frames suitable for the interpretation of the materials and for their use in psychotherapeutic and other practical applications. It presents a substantial body of analyzed and interpreted materials and a full record of the analytic and interpretive frames used for processing them. This manual may be used for the training of further adepts in the techniques of analysis and interpretation, and may be employed as a starting point for further research into analytic and interpretive frames and into their effective application to a wider variety of interview situations.

It has become painfully apparent, in the course of a decade of effori, that the descriptive frames currently available for undertaking micrcanalysis of interview behavior are in many ways inadequate to the purpose. The frame for describing and recording the varieties of the English language spoken in the United States and Canada (not to mention the rest of the English-speaking world) is in a continual state of growth and change; although in theory it is at present reasonably adequate for the description of any one regional or social dialect, in practice no full description of any one dialect is currently available, nor is there an adequate coverage of the salient points of difference characteristic of a range of dialects sufficiently wide to enable the micro-analytic interpreter to pick up, for example, the contrastive signals of differences in role and attitude, of group-adhesion and group-rejection, characteristic of participants in an interview. The frames for the description and recording of the varieties of paralanguage used in the English-speaking community are now two, that devised by Trager (1958) in the United States and that worked out by Crystal (1964) in England. Neither is complete, nor has either been widely tested on a sufficient variety of English speech. The pair has not yet been comparatively and contrastively applied to any single batch of interview materials to test for relative adequacy of fit and of coverage. The frame for the description and recording of the varieties of body-motion behavior in the English-speaking community devised by Birdwhistell (1952) has seen very considerable development since 1956, and is incorporated
into "The Natural History of an Interview." Since 1960 Birdwhistell has been engaged in perfecting the frame, and a training manual designed to teach the skills required for describing and recording body-motion in the English-speaking community is in process. Neither the original frame, nor its refined version, nor the two systems of transcription, graphic symbolic, and alphabetic, have as yet been adequately tested on a sufficient variety of bodymotion behaviors in the English-speaking community. Although general theories of the structure of language are currently available, no such general theories of the structure of paralanguage or of body-motion behavior have as yet been worked out. Indeed, it is doubtful that such general theories can evolve until the currently available frames for describing and recording paralanguage and body-motion are tested in a variety of non-English-speaking linguistic communities. Likewise, cross-cultural testing of these general frames for the description and recording of language, paralanguage, and body-motion is indispensable to an adequate integration of the three frames and to a general theory of the structure of human communicative behavior.

It is suggested, therefore, that basic research into the facts of English regional and social dialect, of regional and social varieties of paralanguage and of body-motion in the English-language speaking community, needs be carried out on an appropriate variety of sound-filmed or video-taped interview-materials gathered with a view to cross-cutting regional and social dialect boundaries. A major focus of this research should be on sentence-like and sentencesized units as these are revealed by the analysis of such crosscutting dialect materials. It is suggested, furthermore, that basic research into the facts of regional and social dialects of other languages, of regional and social varieties of paralanguage and of body-motion in communities speaking other languages, be carried out on an appropriate variety of sound-filmed or videotaped interview materials gathered with a view to cross-cutting regional and social dialect boundaries. A major focus of this research, too, should be on sentence-like and sentence-sized units in such cross-cutting dialect materials. It is suggested, finally,
that the results of such study in the English (and other) language materials be compared and contrasted in carefully controlled frames.

It is expected that, as a result of such investigations, the frames for describing language, paralanguage and body-motion in English (and in other) language communities will be perfected, that the linguistic, paralinguistic, and body-motion markers of sentence-like units manifest in these communicative behavioral channels will be uncovered, and that the foundations of a general theory of the structure of human communicative behavior, as manifest through these channels, and in such units, will eventually be worked out. It is hoped that the materials here presented may facilitate the first steps in this on-going process.

Norman A. McQuown

September 30, 1968

## CHAPTER 1

## Communication

O dieses ist das Tier, das es nicht gibt. Sie wusstens nicht und habens jeden Falls --sein Wandeln, seine Haltung, seinen Hals, bis in des stillen Blickes Licht -- geliebt.

Z war war es nicht. Doch weil sie's liebten, ward ein reines Tier. Sie liessen immer Raum. Und in dem Raum, klar und ausgespart, erhob es leicht sein Haupt und brauchte kaum
zıl sein. Sie nä hrten es mit keinem Korn, nur immer mit der Moglichkeit, es sei. Und die gab solche Stärke an das Tier,
dass es aus sich ein Stirnhorn trieb. Ein Horn. Zu einer Jungfrau kam es weiss herbei-und zwar im Silber-Spiegel und in ihr.

Rainer Maria Rilke, Sonette an Orpheus, II. Teil, IV.

O this is the creature that does not exist.
They did not know that and in any case

- its motion, and its bearing, and its neck, even to the light of its still gaze - they loved it.

Indeed it never was. Yet because they loved it, a pure creature happened. They always allowed room. And in that room, clear and left open, it easily raised its head and scarcely needed
to be. They fed it with no grain, but ever with the possibility that it might be. And this gave the creature such strength,
it grew a horn out of its brow. One horn. To a virgin it came hither whiteand was in the silver -mirror and in her.

Rainer Maria Rilke - SONNETS TO ORPHEUS
(Translated by M. E. Herter Norton, W. W. Norton and Co. N.Y.)
Second Part, Sonnet 4

At the time of the outbreak of World War II, the most promis ing insights in the behavioral sciences were those derivative from Freudian analysis, Gestalt psychology, and cultural relativity. Linguistics had begun to take on new life under the leadership of Sapir (1921, 1925, 1933a, 1933b) and Bloomfield (1933, 1939). Psychiatry was evolving away from the exclusive study of the individual patient towards the study of human relationships, most dramatically under the influence of Sullivan (1940); and already there were moves towards a mathematics of human relationship under Kurt Lewin (1935) and L.F. Richardson (1939).

During World War II and immediately following that period of confusion, a series of exceedingly important new approaches were evolving more or less independently in a number of different places, but the possible relevance to behavioral science of the work of George Boole (1854), Whitehead and Russell (1910-13) was still unexplored. All of these scattered advances were precipitated by the war-time development of electronic engineering. A partial list of names and locations of the principal advances will give an idea of what is happening.

Rosenblueth at Cambridge and in Mexico, and Wiener and Bigelow (1943) at the Massachusetts Institute of Technology, were laying the foundations of what has come to be called cybernetics, extending
what the engineers and mathematicians had learned about selfcorrecting mechanisms to the fields of biology and social organization. Von Neumann and Morgenstern (1944) at Princeton were laying the basis of the theory of games.

Craik (1952), in Cambridge, England, before his premature death, wrote "The Nature of Explanation" raising the whole question of how messages are coded in a reticulate central nervous system.

Attneave (1959), Stroud (1949), and others at Stanford, happened to see Craik's little book and by it were inspired to a new approach to the problems of perception and adaptive action.
.. In Vienna, Bertalanffy (1952) was building the beginnings of systems theory with a special emphasis upon those systems (e. g., organisms) which have a continuous source of energy derived from the environment.

Shannon (1949), and others working with the Bell Telephone Laboratories, were building the structure called information theory.

Ashby (1952, 1956), in Gloucester, England, was devising new models for theories of learning and the evolution of the brain.

Other names McCulloch and Pitts (1943, 1947), Lorente de No (1922, 1933), Rashevsky (1948), Walter (1953), Tinbergen (1953), Lorenz (1952) might be mentioned as contributing to this general trend.

What has happened has been the introduction into the behavioral sciences of a number of very simple, elegant, and powerful ideas all of which have to do with the nature of communication in the widest sense of that word. The steps and sequences of logic have been coded
into the causal sequences of computing machines and, as a result, the Principia Mathematica has become a cornerstone of science. The Natural History of an Interview

The present book is an attempt at synthesis. It is written by five persons who are professionally concerned with communication problems in diverse field s and we attempt a synthesis of a wide and abstract kind, starting from the most concrete data.

We start from a particular interview on a particular day between two identified persons in the presence of a child, a camera and a cameraman. Our primary data are the multitudinous details of vocal and bodily action recorded on this film. We call our treatment of such data a "natural history" because a minimum of theory guided the collection of the data. The cameraman inevitably made some selection in his shooting; and "Doris", the subject of the interview, was selected for study not only because she and her husband were willing to be studied in this way but also because this family suffered from inter-personal difficulties which had led them to seek special psychiatric aid.

These materials, then, while collected under circumstances unusual in human relationship, nonetheless provide the data for the natural history of two human beings over a brief span of time, and the data themselves are sufficiently uncorrupted by theory so that the five authors, each with a particular theoretical bias and interest, could simultaneously approach this mass of detail. Moreover, we shared something less tangible than the common data: certain theories
or preconceptions about what happens when two people interact. Theoretical Premises

My major task in this preliminary chapter is to outline those theoretical premises which were engendered in us by the recent advances in the study of human communication:

## Freudian

From Freudian theory we accept the premise (1) that only limited aspects of a part of what happens in human communication are accessible to the consciousness of the participants. Our position however differs from that of many early Freudians in two respects which are minor so far as theory is concerned, but major in their implications for method. The important corrective which the Freudian applied to man's thinkisf about human nature was an insistence upon the unconscious. The error to be corrected was the notion that in human beings the mental process is preponderantly or entirely conscious. This error had roots in eighteenth century culture and back into the Reformation and into earlier Judaeo-Greek philosophies of free will. But this error today seems almost fantastic.

It is now a platitude to state that mental process depends upon hierarchic organization. Whether we think of mental levels or of a brain evolved by a process of successive telencephalization, we envisage a hierarchy of both anatomy and function. And our knowledge of hierarchic function--in machines, embryology, physiology, and in human social organization--indicates as a truism that under no
circumstances can the upper echelons of any hierarchic system handle total information about the processes and events which occur at subordinate or peripheral levels. By the same token, the upper echelons can handle only limited reports--can be only partially conscious--of all that happens at their own upper level. To provide these upper. echelons with total reporting would be to add to the system still higher echelons--themselves, in turn, largely unconscious. To us, then, the fact that most mental process (including, especially, the process of perception itself) cannot be inspected by consciousness is a matter of course and what is surprising, and therefore needs explanation, is the fact of consciousness. Unconsciousness is a necessity of the economics of hierarchic organization (Sapir, 1927).

This does not mean, of course, that economy of effort or the economic use of the channels of communication to avoid jamming is the only factor determining what information shall be allowed to reach the upper echelons of consciousness. The analogy of human social organizations would indicate very clearly both that upper echelons are commonly "motivated" not to receive information about certain peripheral events and that there are many events which the subordinate echelons are "motivated" not to transmit upwards. The re are, therefore, many matters which remain "in the unconscious" for reasons other than those of economy, and the unconscious becomes a repository for material which is repressed in the in reudian sense.

The second difference between our position and the classical

Freudian results from our emphasis upon communication. We are interested in such questions as "what signals are emitted and what orders of a wareness does the signaler show by emitting other signals about these signals? Can he plan them? Can he recall them?" And we are interested to know what signals reach the receiver and what signals he knows he has received. Our emphasis is thus upon perception and communication rather than on the internal hierarchies of mental process. From where we sit, the distinction between conscious and unconscious becomes significantly comparable to the distinction between foveal and peripheral vision.

A second premise related to Freudian theory holds (2) that everything which occurs is meaningful in the sense of being a part of the interchange as well as non-accidental. The Freudian emphasis was upon psychic determinism--that no word uttered and no detail of a dream experienced can be accidental. A man cannot "just dream." Our emphasis in this book will extend this psychological idea into the realm of inter-personal process. We shall attempt to see every detail of word, vocalization, and bodily movement as playing its part in determining the ongoing stream of words and bodily movements which is the interchange between the persons. We shall endeavor to think not only in terms of psychic determinism but in terms of a larger interpersonal determinism. Two people cannot "just agree" or "just quarrel."

Also, from Freudian theory, we accept the idea (3) that all mes sages, whether verbal or non-verbal, are mediated in their creation by
primary process and therefore contain, either implicitly or explicitly, all the multiple reference characteristics of dream or fantasy. If it be possible for a man to seem to talk only about the overt subject of conversation, this is achieved only by vigorous ego-function which carefully excludes or conceals the multiple under-tones of implicit content. Further, we expect that the minute analysis of speech and movement will disclose that the messages in both the se modalities contain a large proportion of unconscious material with primary process characteristics, that, for example, an unconscious fingering of the dress is likely to denote (or to be a resultant of) sexual interest and/or its puritanical denial.

Also from Freudian theory, we accept (4) a generalized notion of transference: that any person emitting learned signals does so upon the (usually unconscious) assumption that the receiver of these signals will understand them "correctly"--i.e., he assumes that his vis -a -.ris at the given moment will resemble psychologically some former (or even fictitious) vis-a-vis from whom he originally acquired his communicational habits.

Closely related to the notion of transference is (5) the notion of projection. This explanatory principle differs however from transference in that it does not invoke some third historical or fictitious person. When A "projects" upon B, he is merely assuming that B's signals are to be interpreted as $A$ would interpret these signals if he himself had emitted them. That is, A assumes that B operates
according to systems of codification similar to his own. Both transference and projection may, of course, be carried into the future. A may expect that $B$ will exhibit meaningful action of a sort which some historical figure in A's life would have exhibited under similar circumstances (transference); or he may expect that $B$ will behave as he himself would behave in similar circumstances (projection).

Identification must also be mentioned. This explanatory principle invokes (6) the idea "if you can't lick 'em, join 'em' --or, at least imitate them as you see them. A is said to identify with $B$ when he starts to mold his own meaningful action in terms of what he thinks are B's principles of codification.

Notably, all of these principles--transference, projection, and identification--are likely to be unconscious in their operation and to be in some degree coercive. That is, any errors which A may make in his assumptions about $B$ are likely to cause $A$ to act in such a way that $B$ is put under pressure to validate these errors by acting as if A's assumptions were true. An especially interesting case arises when A acts in a way which will coerce $B$ into identifying with A's self-image-which may be false.

Moreover, it must not be supposed that the se explanatory or descriptive principles are mutually exclusive. In a given instance, A may consciously or unconsciously assume that $B$ is parental (transference). But A's technique for dealing with his parent may have
involved identification. ${ }^{1}$ He will then adopt towards $B$ that role which he formerly adopted towards the parent.

Gestalt
From Gestalt psychology, we have accepted a premise of very great importance: that experience is punctuated. We do not experience a continuum: on the contrary, our experience is broken up into what seem to us to be events and objects. In Gestalt psychology this idea is basic to the figure-ground hypothesis. And for us it is related to the premise that nothing never happens-i.e., that both sender and receiver of signals are so organized that they can and must use, for their understanding of what is going on, the fact that certain possible signals are not present. The first step in building the figure-ground hypothesis is a postulate of this kind. In order to recognize that there are stars in the night sky, we must use the fact that certain retinal end-organs are not stimulated by the darkness. In human relations, no silence is insignificant and the absence of tears may speak volumes.

More must be said concerning the punctuation of interpersonal events. Our whole procedure and, indeed, any analysis of communicational data is shaped by premises which define the units into which the stream of data is to be divided. First, in a macroscopic examination of the interview, we assumed that the 400 feet of film on which
${ }^{1}$ The word "identification" was perhaps an unfortunate choice for two reasons. In the phrase "A identifies B as father" is a statement of transference. And the phrase "A achieves ego-identity" suggests (as an ideal) A's escape from all the errors of transference, projection and identification.
the interview is recorded ${ }^{2}$ can be punctuated into incidents or sequences with beginnings and ends psychologically meaningful to the participants. As will be seen, we have chosen certain of these incidents for microscopic study. Our macroscopic study serves to direct our more particular attention. And, while we narrow our focus from the interview as a whole to an examination of incidents within the interview and then downward to the finer and finer detail of these incidents--we work throughout with similar assumptions about punctuation of the stream of signals.

The historical basis of this assumption will make clearer what is meant. Historically, scientific linguistics has progressed most rapidly since the time when certain popular and preponderantly occidental notions about language were adopted, made rigorous, and extrapolated into the study of minute detail. In their popular form, these notions are, for example, that speech is subdivisible into sentences which in turn are subdivisible into words, which in turn can be subdivided into letters. Profound modifications have been introduced into this hierarchy by the linguists who needed to describe speech rather than written language, but the essential idea that a stream of communicative material must, of necessity, be susceptible of such multiple resubdivision is fundamental in linguistics and in that part of communications theory which deals with coded communication--a much wider field than the conventionally linguistic. A major contribution of the
${ }^{2}$ The film also has irrelevant gaps while the camera was being reloaded after each 100 feet. The longest consecutive recording is about $3 \mathrm{l} / 2$ minutes.
linguists is the demonstration that the stream of communication contains positive signals by which its units are delimited.

Moreover, Gestalt theory presupposes a hierarchy of subdivisions characteristic of the process of perception. We do not perceive the firing of unit end-organs but, from the showers of neural impulse started by that firing, we build images of identifiables and larger meaningful complexes of identifiables. We can argue from perception to communication: If an organism's perception is characterized by Gestalten and this organism is capable of emitting complex streams of communication, then these streams must be dissectible into a hierarchy of successive subdivisions. Many such analyses will be possible, and there will be one which will represent correctly the natural history of the organism.

We deal, after all, not merely with the fact that a communicational stream can be dissected but also with the question: in which of the many ways possible should this particular stream be dissected? What we know about language and communication in general indicates that there will always be one or more hierarchies of Gestalten which will be correct in the sense of describing how the message stream is created and/or how it is received and interpreted by the hearer. The Freudian findings also indicate that in any given instance several different analyses may be correct. A particular message may be simultaneously interpreted in different ways by different levels of the mind: we face problems of multiple coding.

The linguists are ahead of the other natural historians in their study of the hierarchy of Gestalten in terms of which a particular kind of behavior should be dissected. Their studies are being fortified by cross-cultural comparison, by dialectal (subcultural) comparison, and by statistics of individual variation. By way of contrast, kinesics-the study of body motion, position, and action as a modality of com-munication-is a relatively recent development which, like linguistics, is achieving a firm scientific base by the rigorous dissection of the kinesic stream into a hierarchy of Gestalten and subdivisions of Gestalten.

In a later chapter, Birdwhistell will outline the hierarchy of units which he is devising for kinesic description. He is proceeding in a manner comparable to but not identical with that methodology of description which has proved valuable in linguistics. The ultimate validation of this approach in kinesics will, of course, depend upon the results obtained, but there is very strong a priori argument in favor of the correctness of the approach from all that we know about communications theory in general and about human communication and perception in particular.

Returning for a moment to linguistics, other types of description which the linguists have achieved must here be mentioned. The very complex question of "meaning" is too large for discussion in this chapter but this much may be said--that a tape recording of human speech contains a great deal more than the signals correlated with the lexical meaning of what was said.

If a tape recording is transcribed into ordinary script, although some of this more-than-lexical content will be lost, some will still
survive in the transcription. Indeed, to reduce a speech to its merely lexical content would require very drastic procedure (in the course of which other and probably inappropriate non-lexical overtones will inevitably be added). It would first be necessary to strip the speech of all indications of the context in which it was uttered and by whom and to whom it was uttered. But there would still remain cadences and overtones of a non-lexical nature. To get rid of these it would be necessary to translate the speech into some other language and to use as a translator some hypothetical person (or machine) totally insensifive to non-lexical content both of the language from which he is transbating and of the language into which he is translating.

As we climb the hierarchic ladder of Gestalten from the most microscopic particles of vocalization towards the most macroscopic units of speech, each step on this ladder is surmounted by placing the units of the lower level in context.
"Meaning," as this word is vulgarly used, emerges only at a very high level in this hierarchy. We discriminate the initial phoneme of the word "peter" from the initial phoneme of the word "butter" but these phonemes are in themselves meaningless apart from their setting in a stream of phonemes. Even the syllables, "pete" and "but", are in themselves either meaningless or multivalent (except insofar as their possible meaning is restricted when we know how they are placed in a stream of syllables). With each step towards a larger unit --the larger unit being always the smaller unit plus its immediate
setting--there is a more and more drastic limitation of possible referents. "Meaning, " therefore, is a function of this restriction of possible meanings. Even the words "peter" and "butter" are still multivalent. When the word "blue" is added, the hearer may be pretty sure that the referent of "peter" is a flag. But still, there is room for doubt.

The "Blue Peter" may be referred to as an actual object of action or observation in the larger context of a ship about to leave a particular port. Or the reference may only be metaphoric if the term is used on land. Or the usage of the term may be neither metaphoric nor direct but may be part of a lesson in maritime communication. Or-as here upon this page--the words "Blue Peter" may be mentioned only as an example of communicational phenomena.

Meaning approaches univalence or non-ambiguity only when very large units of the communicational stream are admitted to examination. And even then, the approach to non-ambiguity will be asymptotic. As larger and larger bodies of data are admitted, the probability of a given interpretation will be increased but proof will never be achieved. The situation is essentia!!y the same as that which obtains in science where no theory is ever proved.

This book is concerned with trying to put together those parts of the communicational stream which the professional linguist studies (phonemes, morphemes, phrases, vocal modifiers, junctures, etc.)
with those parts of the stream which are studied in kinesics (kines, kinemorphs, etc.). A central question, therefore, which we shall have to face when we analyze the data is the extent to which there is a mutual relationship of "context" between kinesic and linguistic elements.

We face phenomena so structured that there is perhaps no definable upper limit to the size--either spatial or temporal--of the Gestalten. In practice, this would mean that no finite collection of data would confer complete non-ambiguity upon any item within the collection; that however widely "context" be defined, there may always be wider contexts a knowledge of which would reverse or modify our understanding of particular items.

## Context

These considerations force us to a method of inquiry which will postpone the question of "meaning". When faced with a given sequence of signals, we shall delay the question "what do these signals mean" for as long as possible. We shall ask, rather, the collateral question "would the meaning be changed by a given change in the sequence or by a given change in the context?" This is a question which can be asked and answered without too much difficulty. We shall, for example, not ask whether the word "Peter" refers to an apostle or a flag, but rather whether its meaning, when the word "Peter" follows the word "Blue", is peculiarly appropriate to the new context.

In kinesic analysis, we shall similarly delay the question of
what is meant by the rapid closing and opening of an eye which is visible to the vis a vis and shall ask rather, for example, whether the meaning of this signal would be altered (a) if the other eye were blinked simultaneously and (b) if the blinked eye were one which is invisible to the vis a vis. Parenthetically, we may also ask whether the meaning of the word "Peter" is altered by winking one eye.

It is, after all, only an historic accident--a past pathway in the evolution of science--that has lead to the circumstance that linguists study data which can be heard, while the kinesicist studies data wich can be seen. That the scientists have become specialized in this particular way does not indicate a fundamental separateness between these modalities in the stream of communication. It is for this reason that the work of this book starts from concrete natural history-from the recorded interaction between Doris' speech and movement and the speech and movement of Gregory. This placing of every signal in the context of all other signals is an essential discipline of our work.

A great part of the work which Birdwhistell, Hockett, and McQuown have had to do has involved a grueling process of synchronization. The audible stream for rhich Hockett and McQuown are specialists was recorded on tape and on film with an unsatisfactory sound track. The analysts had to work frame by frame through the film to establish the point in the audible sequence at which, for example, Doris turned her head or let her shoe fall away from her heel. I described our data loosely above as the aggregate of signals
recorded on the film. More accurately, I should have said that our data are the individual signals or messages, each in its immediate and extended context.

But the context of a signal emitted by Doris is not merely those other signals which she has recently emitted plus those which she emits soon after; it is also the room in which she is speaking, the sofa on which she is sitting, the signals emitted by Gregory with whom she is talking, and by the little boy Billy, and the inter-relationships among all of these.

## Interaction

At this point, our concept of communication becomes interactional and our intellectual debt is to G. H. Mead (1934) and to Sullivan (1940) rather than to Freud and the Gestalt psychologists. The system which we now study is no longer merely a descriptive synthesis of Doris' body motion and speech, but the larger aggregate of what goes on between Doris and Gregory.

This larger frame determines meaning for what each person does and says. Rilke's "Unicorn" is present in every conversation between persons and this fictitious beast evolves and changes, dissolves and is recrystalized in new shapes with every move and message. Denial of the Unicorn will not prevent its existence--but only cause it to become monstrous.

This poetic fancy must be made scientifically real to the reader if he is to understand what this book is about.

For every human being there is an edge of uncertainty about what sort of messages he is emitting and we all need, in the final analysis, to see how our messages are received in order to discover what they were. For the schizophrenic this is often dramatically and conspicuously true.

Let me illustrate by an example. A schizophrenic patient tells me that he built the China Wall, rowed across the Pacific and landed in Seattle. He then walked to California where he was "affriended by those people." This narrative he offers as if it were a statement of fact. But whether it is a statement of fact for him depends upon my response. If I say, "Nonsense. You were born in California," I have thereby verified for him the notion that his narrative is to be taken literally. I have denied it as if it were a literal statement and now it exists for him as a literal statement which must be defended. From there on, we shall get into an argument not about the question "is this narrative a statement of fact?" but about the red-herring question "is this a true statement of the facts?"

The response which we get tells us about the state of the hearer after he has received the signals which we emitted. It may be evident that he misunderstood the message either grossly or subtly. The status quo, however, which obtained when we emitted the message, no longer exists and merely to repeat the message will not do. We are now communicating with a person whose relationship to us is different from what it was a moment ago. And within the framework of this new relationship we must now speak.

Of all the elements and vicissitudes of formation and re-formation of relationships, perhaps the most interesting is that process whereby people establish common rules for the creation and understanding of messages. Whatever reply I may make to the patient's delusional narrative proposes a pact to govern.us both in our understanding of the message. If I deny the factual truth of the narrative, I implicitly propose that we agree to treat it as literal. If, on the other hand, I ask him whether he thinks his parents had a part in building the "China Wall" which separates him from them, I have proposed that we agree upon a different set of rules for the, creation and under standing of such messages.

The possible systems of rules which two persons may share are many and complex. Among them must be mentioned a system which has been characterized as symbiotic. Such a label, as I understand it, refers to a system of non-verbalized and usually unconscious pacts in which, for example, A and B "agree" to accept each other's messages in some spirit other than that in which they were coined. By ignoring overtones and implications, or by reading in overtones which were not intended, the persons maintain a strange semblance of understanding. Code Distortion

In this book we shall pay but little attention to those failures of communication which are due to the randomization of signals occasioned either by background noise or by imperfect resolving
processes in the receiving sense organ. We areconcerned with a more subtle phenomenon--the distortion of messages which occurs when the persons involved differ from each other in their rules or assumptions governing the making and understanding of messages-their explicit and implicit rules of coding.

Imagine a machine which has the function of transmitting a half-tone block, (a picture formed entirely of rows of dots), over a wire to another machine. The transmitting machine will transmit over the wire a sequence of electrical impulses such that each impulse or absence of impulse is a "yes" or "no" answer to the question "is there a dot in the given space?" When the transmitting machine comes to the end of a line of spaces, it will either transmit a special signal which will cause the receiving machine to go on to the next line, or the machines will have to have been so adjusted to each other, that they operate in terms of a common pact governing how many dots there shall be in a line. A discrepancy regarding the terms of this pact will introduce code distortion. In such a case, the receiving machine will create a picture which may be an absolutely correct record of the sequence of signals emitted by the sender but which, considered as a picture, will be distortion of the original.

## Figure 1

A is a picture to be transmitted, $B$ is the distorted version which is created when the receiving machine acts upon the premise that there are only 16 squares in each line instead of 17.

In Figure l, the effect of code distortion is shown, and it is worthwhile to stress the basic difference between such distortion and the loss of information due to entropic noise. In the case of entropic noise, the information which is lost is irretrievable, but in the case of code noise what has occurred is a systematic distortion which could conceivably be rectified.

All that is needed for this correction is that there be some means whereby the transmitter and receiver can communicate about the rules of communication. This presents special difficulties but it is a fundamental thesis of this book that at the human level such communication about the rules of communication occurs constantly. This, in fact, is the process whereby the "Unicorn" is continually created and recreated. When my patient tells his story of the "China Wall", whatever reply I make is a communication to him about how I received his message and therefore indicates to him (ideally) how he should restate it in order to have me receive that message which he wants me to receive.It tells him how to code his messages so as to elicit an appropriate response from me.

It is necessary again to insist upon the unconscious character of most communication. We are almost totally unaware of the processes by which we make our messages and the processes by which we understand and respond to the messages of others. We are commonly unaware also of many characteristics and components of the messages themselves. We do not notice at which moments in a conversation we cross and uncross our legs or at which moments we puff on our

Fig. I.A
cigarettes or blink our eyes or raise our brows. But the fact that we do not notice these things does not imply that all these details of personal interaction are irrelevant to the ongoing relationship. Just as we are in the main unconscious of the fleeting pacts which we enter into as to how messages are to be understood, so also we are unconscious of the continual dialogue about these pacts.

This dialogue is not only between persons and about the pacts which they form, it is also and more strangely a dialogue which governs what each person is. When $A$ makes overtures which $B$ brushes aside, this experience is to $A$ more than a hint about how to code messages when dealing with B. In everyday language we say that a person's selfesteem is enhanced or reduced by the responses of others. Or we say that "he sees himself differently." In communicational terms, we may translate this into a statement that the very rules of self-perception, the rules governing the formation of a self-image, are modified by the way in which others receive our messages. Learning and Pathogenesis

In part, this book is a study of how communication works between two persons, but it is also a study of how communication fails to work--that is, of certain pathologies of communication. Our collaborating team includes not only the two linguists and the founder of kinesics, but also two psychiatrists and the writer, whose initial training in anthropology has finally led him to study schizophrenic communication. It is therefore appropriate to examine a little more
closely the relation between psychiatric pathology in the individual patient and the pathologies of communication which may develop between persons. In order to keep the subject matter simple, I will exclude from consideration those psychiatric abnormalities which have an established base in organic lesion.

To build a bridge between the study of psychiatric functional pathology and the pathologies of communication, it is necessary to insist upon the existence of the facts of learning and conditioning. Two considerations become especially relevant. First, every failure of communication is painful. Second, the learning organism always generalizes from experience. Further, the business of communication is a continuous learning to communicate. Codes and languages are not static systems which can be learned once and for all. They are, rather, shifting systems of pacts and premises which govern how messages are to be made and interpreted. Every signal which establishes a new premise or pact bringing the persons closer together or giving them greater freedom may be a source of joy. But every signal which falls by the wayside is in some degree a source of pain to both. The ongoing stream of communication is thus, for each individual, a continuous chain of contexts of learning and, specifically, learning about premises of communication.

At this point, it is necessary to consider certain aspects of the learning process and to expand conventional learning theory to make it
relevant to an analysis of the interchange of signals between persons. A typical learning experiment involves two entities: an experimenter and a subject, and the theoretical conclusions derived from such experiments are commonly stated as psychological regularities descriptive of the subject. In contrast, I shall here view the experimental situation as an interaction involving two entities in whose relationship $I$ am interested. I shall regard their relationship as formally characterized by an interchange which is repeated in successive "trials" and shall assume that not only the subject, but also the experimenter is undergoing a learning process determined, at least in part, by reinforcements which the subject provides.

As a preliminary to this, it is necessary to define a hierarchy of orders of learning. This may be done as follows:

1. It appears that the simplest learning phenomenon is the receipt of information or command. The event of perceiving a whistle may constitute, for a dog, an important piece of information or a command. Before it heard the whistle, it was in another state. The change of state I classify as the simplest learning phenomenon. It is important to remark, however, that this phenomenon is excessively difficult to investigate and has not been an immediate object of experimental study. It has; however, been a major focus of theory. What seems to have happened is that in order to arrive at a theory to describe what I call the second order of learning, the psychologists have had to provide
some description of this first order process--some verbalizatin of what message the dog has received. The "effect" theory proposes that this message is a promise of reward or a threat of punishment, whereas the associational theory proposes a more automatic and less purposive description of the dog's response.
2. The second order is the learning or conditioning upon which the vast mass of experimental work has been conducted. Here the word "learning" refers to a change in the dog's ability to act upon percepts or signals received. What the experimenters study is changes in the dog's behavior resulting from a sequence of trials. The phenomena studied are of a different and higher order than those discussed in l above. The question asked is not "what change occurs in a dog when he hears a whistle?" but "what changes have occurred in the change which a dog undergoes when he hears a whistle?" This subtle difference in the question asked by the experimenter makes it formadly impossible for the theorists to deduce answers to the first question from data collected to answer the second. The behaveiorists had logic on their side when they insisted that we never ask about the subjective experience of the dog. To try to deduce the dog's experience from data which could only throw light upon change in his experience is to attempt the logically impossible. From the characteristics of a class, I can make
no deductions about what a member of that class might be.
3. The third order of learning is a familiar laboratory phenomenon but has received only slight attention from the experimentalists. If we describe the second order of learning as "learning to receive signals", then the third may be described as "learning to learn to receive signals."l What happens in the laboratory is that the animal having been subjected to experiments of the second order becomes "wise". That is, when faced with an entirely new experiment of this sort, the animal requires now a smaller number of trials to achieve that learning of the second order which the experimental situation demands. The animal has acquired a knack or skill for second order learning. This phenomenon has been measured by Hull (1940) studying rote learning of nonsense syllables, and by Harlow (1949) studying problem solving in rhesus monkeys.
4. There is no theoretical reason to deny the possibility of fourth and higher orders of learning, though none of these
${ }^{1}$ Unfortunately, in an earlier theoretical paper,(Bateson, 1942) I have used for this third order of learning the term "deutero-learning." This was due to my failure to recognize the receipt of a meaningful signal or the receipt of a bit of information as an example of the simplest order of learning. To achieve any analogy between the mechanical computers and the brain it is necessary to insist that any receipt of information is, in a broad sense, learning.
have been demonstrated. The nature of the hierarchy which we are discussing is such that there is no upper limit to the series other than that set by the limitations of brain structure. The number of neurons being finite, it is certain that for any organism there is a practical upper limit to the number of orders of learning of which it is capable.

Inspection of this hierarchy of learning reveals that the difference between any order of learning and the next higher order is essentially a difference in size of Gestalt. The higher order is always documented by demonstrating change which results from a larger Gestalt, this larger Gestalt being in general built up of a multiplicity of the Gestalten characteristic of the lower order. But while this generally seems to be the case, there is no theoretical premise by which we might estimate the multiplication factor, and it is necessary to consider as at least theoretically possible the case in which this factor would be unity.

A single increment in what appears to be a context of lower order learning might conceivably precipitate major changes of some higher order, whereby all experience of the lower order would be reframed and reorganized. We face here an unpredictability of a sort which I noted earlier when discussing the indeterminacy of meaning. Larger and larger bodies of data will provide greater and greater certainty of inter pretation but it is never possible to be sure that the next increment of data will not compel us to a totally new interpretation.

There is thus an analogy--perhaps amounting to identity--between those hierarchies of Gestalten which determine meaning and that hierarchy of Gestalten which we here call contexts of learning. These abstract matters become clearer when we state that learning of the third or higher order is, in popular parlance, called "change in character." Let us suppose that an organism becomes "wise" in dealing with contexts of Pavlovian learning. The change which we here refer to may be described both as a change in the organism's expectations and as a change in its learning habits. If we speak in terms of expectations, we will say that the organism now preponderantly expects the universe of experience to be punctuated into sequences resembling the Pavlovian context; i. e., sequences in which certain percepts can be used as a basis for predicting later events. Or, if we speak in terms of learning habits, we will say that this organism will respond to the predicted certainty of that which is to come, (e. g., by salivating), but will not endeavor to change the course of events. In a word, the organism has become "fatalistic" and examination of the formal characteristics of the learning context has provided us with a formal definition of one particular sort of "fatalism."

The psychiatrist is interested largely in learning of the third or higher order. If a puiient tells him that she can use a typewriter, the psychiatrist will pay but little attention. She has reported only a result of second order learning. But when the patient goes on to
describe the context in which she learned to typewrite and tells him that her teacher punished every error she made but never praised her for progress, the psychiatrist will prick up his ears. He will see in this narrative a statement of what effect the context of learning to type may have had upon the patient's habits and expectations-i.e., upon the patient's character. This enlargement of learning theory to discriminate orders of learning makes this body of experimental knowledge especially relevant to the psychiatrist. Actually the old barrier between experimentalists and clinicians seems to have grown out of this: that the experimentalists have mainly studied learning of the second order, while the psychiatrist is interested chiefly in effects of the third order. These effects he tries to evaluate in his diagnosis or to achieve in his therapy.

If this description of learning is substantially correct, that is, if there really is a hierarchy of orders of this phenomenon and the discrimination of these orders is something more than an artifact of description, then it becomes theoretically probable that there exist complex sequences of experience and action such that learning of one order will in some degree contradict the learning of some other order. We can imagine, for example, that a human subject might experience a long sequence of Pavlovian earnings but might be penalized (Bateson and Jackson, 1956) for exhibiting "fatalism." Or he might be trained towards obedience but be continually penalized for the finer detail of every obedient act. As between adults, this is familiar enough and
may make for bad "personnel relations." A between parents and small children, I believe that it is - under some circumstances pathogenic.

## Pathogenic Contexts

It is now clear, however, in an abstract and formal way, what patterns of interchange we should look for in our data. The discussion which preceded this reexamination of learning theory concerned the establishment of pacts and premises of communication. But evidently a premise of communication, a rule governing how messages are to be constructed or interpreted, bears the same relationship to the given message as occurs between a higher and a lower order of learning.

The acceptance of what $I$ have called a premise of communication is the same phenomenon as the acceptance of a role-a momentary or enduring shift in habit and expectation. And "role" is only a word for some phase of character change, be it brief or enduring. It is a description of the pattern exhibited by one person in that twoperson system which constitutes a context of learning.

It follows that what we have to look for in the data is sequences and, at the meta-level, sequences of sequences. The relevant units will be those segments of the stream which constitute contexts of learning. Problems of pathology within the stream will become recognizable when we see instances so constructed that learning in expect instances in which part and whole will be identical--where the multiplication factor relating the part to the whole is unity. A single context (seen in two different ways) may propose contradictory learning at different levels.

One other peculiar phenomenon must now be mentioned-namely, that the premises of communication are commonly selfvalidating. By their operation they may create that consensus which will seem to validate them. He who believes that all the world is his friend--or enemy--will emit messages and act meaningfully in terms of his premise. He will meet the world in a way which puts pressure upon this very world to validate his belief, which belief he acquired in the first place by the cumulative impact of those contexts of learning which were his communication with some earlier person.

An inquiry into the functional psychopathologies thus becomes an investigation of the dynamics of past communication. But, curiously enough, because of this fact that communicational premises are selfvalidating, it is often not necessary to delve into the past in order to investigate their etiology. The premises are self-validating in the present and therefore the disturbed--like the normal--is continually creating around himself that environment which provides the typical etiology for his communicational habits - -his symptoms. One has only to examine the present family relations of a patient to find working today the constellation which is etiologic for his symptoms. Indeed,
we may profitably examine the workings of any typical mental hospital for clues as to why its patients are mentally ill.

This broad description of the interchange between persons as a sequence of contexts of learning contains the possibilities for two kinds of psychopathological result: the learning of particular error and the disruption or distortion of the learning process itself. Historically, the first of these received most attention in the early days of psychoanalysis when emphasis was placed upon the fact that certain neuroses result from single and extremely painful experiences in childhood. In terms of what has been said above, we might rephrase this theory as a learning of error--the error being an inappropriate generalization from some terrifying, painful, or over-rewarding experience. Today, less theoretical importance is attached to this kind of pathogenesis, but its occurrence is still undoubted.

In contrast, modern psychiatric theory insists more upon those psychopathological results which derive from continual and repeated experience rather than from isolated trauma. Here the probability that simple error will be generated in the 1 earning individual is much less, since, after all, his opinions, stemming from a multitude of instances, are to that extent validated by the repetition of instances. What is rather to be expected from such an etiology is the distortion of the learning process itself-a type of pathological result more abstract and intangible--and more difficult to correct by any therapeutic experience, since whatever
the patient learns from this experience will probably be learned by means of that process which is already distorted.

It is, however, necessary to give some substance to the phrase "distortion of learning". I have to indicate what sorts of interpersonal sequences might have this effect on one or both of the participants.

A context of learning is a definitely structured segment of the stream of interchange between persons. We know from experimental data that while the structuring of contexts of learning is extremely variable, some structuring is always present. The events of which the context is composed--conditioned stimulus, response and rein-forcement--may be variously related to each other and still constitute a structured whole. That is, we are here dealing with Gestalten (units of the interchange) and are therefore again face to face with the peculiar nature of all such units. Although they are in large part the creation of the individuals concerned, and are necessarily a product of the ways in which these individuals perceive and punctuate what is happening, their perception is inevitably guided by culture and convention. Such perception may be rigid or it may be flexible. But the essential fact is that the rules for this punctuation are a part of that system of pacts and premises upon which communication is based. For their learning communication must be viewed as a sequence of contexts.

What I am describing is a strangely retroflexed procedure;
a process which is in a way folded back upon itself. This may be said in many ways and perhaps most simply by stating that the communica tional stream is a sequence of contexts both of learning and of learning to learn.

At this point, the phrase, "distortion of the learning processes" takes on meaning. It would refer to all those cases in which an indride ual punctuates the stream of communication in a way different from his vis-a-vis but which are reinforced nonetheless by the pain resulting from his idiosyncratic view. From the point of view of the speaker, it will seem to him that he has incurred punishment for what he thought he was communicating, whereas he is in fact being punished for what his messages seemed to be, as perceived by the other.

It is clear that this line of thought, if substantially correct, will lead to a formal theory of stability and instability in human relations. We might therefore inquire into what the engineers call criteria of stability. Is it possible to classify the degrees and orders of misunderstanding if such a way as to separate those conditions which will be corrected by the participants, so that the system continues in a steady state, from those others which lead to a progressive deterioration? At the present time such a question can only be posed in the most general terms and no meaningful answers can be imagined. One relevant matter must, however, be mentioned--that we deal with entities whose behavior is by no means describable in terms of linear equations or monotone logic. What actually seems to happen in many
instances is that when what seems to be progressive change sets in, the situation becomes more or less intolerable for one or both persons and some sort of climactic outburst occurs. Following this, the system either returns to a state which existed before the change began or entirely new patterns of communication may be evolved. There are, after all, larger and longer sequences of interchange than any which we meet with in the brief spans of data upon which this book is based.

From what little we know of the relationship between the fine details of human interaction and the longer cycles of the career line, there is reason to expect that the longer cycles will always be enlarged repetitions or repeated reflections of pattern contained in the fine detail. Indeed, this assumption that the microscopic will reflect the macroscopic is a major justification of most of our test procedures. A
major function of the techniques of microanalysis is, therefore, to obtain from small quantities of data, accurately and completely recorded, insights into human relationship which could otherwise only be obtained either by long-time observation or from the notoriously unreliable data of anamnestic reconstruction.

In sum, we are concerned in this book to present the techniques for the microscopic examination of personal interaction. While, of course, the words that people say to each other have importance, the question with which we are concerned, the problem of describing the
relationship between persons, is not a question which can be answered by any summary of the dictionary meaning of their messages. There is a vast difference between the mechanical description "A gave $B$ such and such information" and the description of the interchange "A answere B's question immediately."

The ultimate goal of the procedures outlined in this book is a statement of the mechanism of relationships. No statement of meghanism without larger context can be of long -term interest; no statement of relationship, unsubstantiated by a statement of mechanism, can warrant confidence. In order to trace the path from mechanism to validated relationship, it is first necessary to lay out for the reader some idescription of how the flow of linguistic and kinesic material can be systemtically described.

Vocal Activity

Charles F. Hockett
2.0. Introduction
2.1. The design of a language
2.1.1. Introduction
2.1.2. Morphemes and grammar
2.1.3. Phonemes and Phonology
2.1.4. Speoking as a process
2.1.5. Morphophonemics
2.1.6. Idiolects and dialects
2.2. The design of American English
2.2.1. English phonology
2.2.1.1. Consonants
2.2.1.2. Vowels and nuclei
2.2.1.3. Stress and juncture
2.2.1.4. Intonation
2.2.2. English grammar
2.2.2.1. Furctors
2.2.2.2. Stems and their classification
2.2.2.3. Constructions and construction-types
2.2.2.4. Grammatical patterning in action
2.3. Nonlinguistic vocal communcative systems

### 2.0. Introduction

The vocal activity of a human being past earliest infancy is controlled to a large extent, though not exclusively, by a complex set of habits which we call his language. No two people have exactly identical language habits. To underscore this the total set of language habits of a single individual, at any given point in his life, is called his idiolect. It is obvious, however, that people who live together manage to understand one another's speech most of the time despite the differences. This common-sense observation leads us to speak freely of "English," of "French," of "Swahili," and so on--of different languages, each existing not monolithically but as a collection of more or less similar idiolects.

Not all vocal activity is linguistic (that is, governed by and conforming to language habits). We emit shrieks and groans, babbles and murmurs, laughs and weepings, when we are not talking--and sometimes when we are. We all stutter and stammer more or less as we speak or try to speak. Such disturbances in what would otherwise be a smooth flow of words are most easily dealt with in terms of a separate, nonlinguistic, layer of habits which have to do with the kinds of control ${ }^{l}$ we exercise over our linguistic habits proper. Finally, speech in any language necessarily implies speaking

[^0]at a certain rate, and with a certain loudness, pitch, and tone quality. Some ${ }^{l}$ features of these sorts constitute integral parts of a language; others ${ }^{2}$, however, are extralinguistic.

Our basic assumption is that all vocal activity audible to others--not just the linguistic segment--is communicative. That is: hearers pay attention, consciously or not, to the nonlinguistic features of vocal activity from a speaker as well as to the linguistic portion, and the former as well as the latter can be crucial in triggering responses. Our basic assumption is really broader than this, since we hypothesize that any human act detectable through any of the senses of other humans is communicative in the way described. In this chapter, however, we are concerned only with vocal activity. Our hypothesis assumes some kind of regularity and predictability in the responses of others. While we may for convenience focus on the behavior of a single person, we try always to see that person in his changing locus relative to others, triggering behavior on their part and being triggered by them.

A further assumption is that every aspect of vocal activity, nonlinguistic as well as linguistic, is learned and arbitrary, rather than innate or "natural." We must consequently expect the organization of nonlinguistic vocal activity

1
See 2.1.3. below.

2
See Appendix 1.
(and, indeed, of patterns of body motion) to vary from one society to another, just as the linguistic habits of a Frenchman are different from those of an American, and as Japanese landscape paintings do not look like those of the Western European tradition. All habits of vocal activity, and of responses thereto, are part of human culture, and, as such, are patterned, systematic, and therefore susceptible to analysis and description. We cannot be sure, of course, that these assumptions are entirely valid, but to assume the contrary would be an immediate counsel of despair-and this book would not have been written. To make such assumptions is easy. To carry on empirical research based on them is another matter. Our scientific information is uneven. As of this writing, we know a good deal of the workings of human language; and our control of the details of some languages, including English, while not perfect, is not too lamentably bad. Nonlinguistic vocal activity, on the other hand, is a largely unexplored wilderness. The trails that have so far been blazed carry us only into its edges; we do not know how much more may lie beyond the point of deepest penetration. This imbalance is inevitably reflected both in the present chapter and in the whole investigation of which this book is the report.

### 2.1. The design of a language.

### 2.1.1. Introduction.

Here, though examples will be drawn largely from English, we shall concern ourselves only with those features of design believed to be shared by all human languages.

In my opinion--not all specialists agree--one of the most important properties of all languages is duality of patterning. To describe this property we shall turn first not to a language, but to a much simpler human communicative system--a simple substitution code of a variety often devised by American schoolboys. The essence of the system is displayed in Figure 1. Here each of twenty-six simple geometrical figures is assigned an arbitrary letter-value: each figure means a certain letter of our conventional writing system. But the figures are also related, purely as to physical shape, in a systematic way. This is shown in the right half of the figure. Thus,

and so on. Another way to point this up is to notice that each of the twenty-six figures is built out of a small stock of ingredients--straight-line segments in one of four orientations, and a dot-arranged in a strictly limited number of ways.

This systematic interrelationship in shape has nothing Whatsoever to do with the meanings of the figures. If we concern ourselves only with the shapes, we can correctly assert such proportions as those given above. But these proportions do not hold between the meanings. Though one vertical segment, joining one horizontal segment at a right angle opening upwards and to the left, with a dot, means "Q",

Figure 1

the three ingredients themselves--the vertical segment, the horizontal segment, and the dot--do not mean anything. Rather, the elementary ingredients of the figures, and their arrangements, serve only to keep the whole figure apart--they inform the recipient of a message whether one figure or another was intended by the writer. We say that the whole figures, and sequences thereof, have a semantic function, whereas the smaller Ingredients have only a differential function.

The writer of a message in this system can afford to be fairly careless in his drawing of the successive figures, without giving the recipient too hard a task of decipherment. Thus if one writes

$$
\square<\square \neg \text { or even } \square<\Pi \neg
$$

the recipient will still quickly make out the intent as "SICK." In the first case, the second figure is tilted slightly counterclockwise from the norm given in the table (Figure l); but it is still closer to the norm for "I" than to that for any other meaning (say "X").

Figure 2


If the system included a larger number of two-segment figures (perhaps sixteen, as shown in Figure 2, instead of eight) then this much deviation from a norm would be confusing, and more care would have to be taken.

In the second case, the writing was so careless that the second figure is just as close to the norm for "X" as it is to that for "I". Here a further factor renders decipherment easy--a factor that plays a role in the first instance too, but a less crucial one: there is no ordinary written English word "SXCK," so that interpretation of the writer's intent as the figure for "x" yields an impossibility. What these examples show is that, in a communicative system of this sort, redundancy operates both within the realm of physical shapes and within the realm of meanings.

Any communicative system in which the smallest meaningful message-elements are built in a systematic way out of a stock of smaller meaningless but differentiating ingredients has duality of patterning. On one level, every whole message in such a system consists of an arrangement of minimum meaningful elements; on another level, every message in such a system consists of an arrangement of smallest differentiating ingredients.

Many systems either do not have duality, or have it in such a trivial or ultra-complex way as to be of no importance. As an exampie of utterly trivial duality, we can consider the system worked out by Paul Revere and his assistant for the transmission of one piece of vital information across the Charles River at night. One light was to carry one meaning,
two lights the other possible meaning. If we analyze the system with reference to meaning, we find just two minimum meaningful message-elements--namely, the two possible whole messages, one light and two. If we analyze purely with reference to physical shape, we discover, as the smallest differentiating ingredients, just the aame two things: one light and two lights. The minimum meanfngful message-elements and the smallest differentiating ingredients are identical, and there is thus no point in speaking of duality. Redundancy plays a role as in the system discussed earlier; but it plays that role only in one way--the light or lights can vary, without relevance, as to color, brightness, and relative placement. Or we can consider ordinary English writing with the Latin alphabet. Roughly speaking--admittedly there are many irregularities and complexities--the minimum meaningful elements in English writing are letters, which have, as their meanings, the sounds we produce as we speak English. In a few marginal cases, we can find proportions which hold between the letters purely as to shape. Ihus, in some type fonts, "p" is to "q", in shape, as "b" is to "d". But by and large there are no such simple relationships. Readers seem in the main to tell one letter from another in terms of total configurations. The duality of language can be illustrated with English, but the reader must think in terms of spoken English in order to understand the example, even though we must necessarily present it via writing. Consider the following set of English words:

| pit | bit | pin | bin |
| :--- | :--- | :--- | :--- |
| pet | bet | pen | Ben |
| pat | bat | pan | ban |

Each of these words is a meaningful element, recurring from time to time as we speak. None of the words can be broken down into small elements that are also, on this level, independently meaningful (this is not true of all words, but it holds for the twelve listed here). Thus each word is a minimum meaningful message-element. But in physical shape--that is, in articulatory motions as we utter them, and in acoustic shape as we hear them--they are systematically related: pit is to bit as pat is to bat, bet is to pen as bat is to pan, and so on. Every utterance in a given language consists of an arrangement of minimum meaningful elements, drawn from a large but strictly finite stock of such elements. At the same time, every utterance in the language consists of an arrangement of minimum meaningless but differentiating ingredients, drawn from a much smaller stock. In describing any language, or languages in general (but not dual systems other than languages), we call the minimum meaningful elements morphemes, the smallest meaningless but differentiating ingredients phonemes (Bloomfield, 1933, p. 264).

We have seen that duality characterizes language and some, but not all, other human communicative systems. No known system used by non-human animals has been demonstrated to have duality. It appears not unlikely that among human systems, language is the earliest to achieve duality. Moreover, wherever
the property appears in simpler and more recent human systems, it may be interpreted as having developed in them directly or indirectly on the model of duality in language. All this does not necessarily imply that duality is the most crucial property of language-another property of basic importance will be described later. We have put duality first because it affords the most logical basis of organization for the further remarks that must be made about language design.

We asserted in our introductory remarks that the vocal behavior of humans is only in part governed by language habits. In analyzing vocal behavior, how are we to determine which portion is linguistic? Duality gives us the most useful criterion for the definition of language, however hard it may be to apply in practice: that segment of vocal activity which analysis shows to be dually patterned, having both morphemes and phonemes, is linguistic. The remainder, whatever its communicative relevance, is by this definition not language. Here is a preliminary example. On two successive mornings, Jones comes into the corner drugstore and says to the clerk Coffee and doughnuts, Pete. The first morning, Pete merely fills the order; the next morning, as he is filling the order he remarks You sound tired this morning, Mr. Jones. Pete's observation may be quite accurate, in the face of absolute phonemic and morphemic identity between Jones's utterances on the two mornings. If so, then the response is triggered by nonlinguistic features of Jones's speech-a slower tempo, a "thinner" voice, less precise articulation of vowels and
consonants, and the like. Variations of these sorts are communicative, and are patterned--but they are not dually patterned, and are hence not part of language.

We are now ready to discuss, in turn, the two levels of patterning found in language and the relationships between them.
2.1.2. Morphemes and Grammar.

As we have said, the smallest individually meaningful constituent signals in a language are morphemes. In the English utterance She bought a new hat, as ordinarily spoken, there are seven constituent morphemes: she, bough- (the "same" morpheme as buy, for a reason we shall see later), -t (past timed, a, new, hat, and an intonation. Some acts of speech are broken off by intrusive elements--coughing, interruption by someone else, and the like. Setting aside such fragments, every utterance in a given language is composed wholly of an arrangement of an integral number of morphemes drawn from the morpheme-stock of the language.

In English, and quite possibly in all languages, at least one constituent morpheme of every utterance is an intonation; an assenting grunt Hml or a querulous Hm? from the point of view of the language consists wholly of an intonation. Every adult speaker of a language controls several thousand morphemes; in English, about one hundred of these are intonations. The language as a whole can be said to provide an even larger stock of morphemes, since there are always some known to some speakers but not to others.

As might be expected, the matter of meanings is much more complicated for a system as complex as a language than it is for the simple substitution code discussed earlier. Some morphemes have meanings only in an indirect way. The larger combinations in which they occur have meanings different from the meanings of the combinations in which they do not occur. One can describe, at least in part, the meaning of a morpheme such as boy, girl, table, by pointing to things in the world around us; one cannot do this for such morphemes as and, or, if, a, the. Yet the meaning of men and women is different from that of men or women, and the meaning of match and book is different from that of match book, and this is enough to show us that and, or, and the like must be classed as morphemes. The meaning of a whole utterance results not alone from the meanings of the constituent morphemes, but also from their arrangement: dog bites man versus man bites dog; match book versus book match. Thus arrangements, as well as morphemes, have meanings or contribute to the meanings of larger messages.

Physically, arrangements of morphemes in utterances are linear in time and with overlap (the intonation of our sample utterance She bought a new hat is delivered simultaneously with the words). Communicatively, however, arrangements are hierarchical. In a context in which the phrase old men and women obviously means "women of all ages, and elderly men," the speaker intends the and to join the constituent parts old men and women, and his hearers so interpret it. In a context in
which the same phrase means "elderly men and elderly women," the speaker intends old to go with the whole smaller phrase men and women.

Sometimes speaker's intention and hearer's interpretation are at odds, or the hearer is uncertain; this may or may not lead to further misunderstanding. Although structural ambiguity of this sort is not uncommon, usually the specific morphemes, and the linear sequence in which they occur, allow of only one interpretation within the economy of the language. The superposition of hierarchical organization on a physically linear arrangement by a hearer is a Gestalt phenomenon, like the reading of depth into what is physically an assemblage of line segments on a plane surface. Figure 3 shows this, and also displays one device for the graphic representation of hierarchical organization.

Figure 3


A


| old | men | and |
| :---: | :---: | :---: |
|  |  |  |

Gestalt perception in vision and in the hearing of speech. A, B, and C are all assemblages of line segments on a flat surface. We see depth in all three; furthermore, $B$ can be seen as more like $A$ or as more like C. E stands for the physically linear arrangement of morphemes as we hear the phrase. $D$ and $F$ represent two different hierarchical ways in which the constituent morphemes can be organized by the hearer.

There are always stringent limitations on the arrangements in which the morphemes of a language can occur relative to one another in speech. Thus, in English, John do-es not like Mary occurs; not-es Mary John like do is nonsense. In one sense, these limitations constitute constraints on speakers. Speakers are not free to speak in any manner they please. The truth of this is not altered by the fact that the constraints are probabilistic rather than absolute. In another sense, the limitations are not so much constraints as smooth grooves along which a speaker slides with minimum effort. In the same way, a net-work of highways enables one to travel easily wherever one wishes to go--so long as one keeps one's car on the road and within the network.

This comparison breaks down in one respect. One can
reach East Micro Junction by car only if a highway has already been built to or through that town. In a language, one can reach points that have never been reached before; for speaking a language is comparable, aat one and the same time, both to road building and to highway travel. That is, a speaker may say something that neither he nor his audience has ever
heard or said before, and be perfectly understood, without any of the participants being in the slightest aware of the novelty. As an example, the reader need only consider the present paragraph: every morpheme and every way of putting morphemes together that is involved in this paragraph is familiar, and yet the specific combination is new.

This property of languages as communicative systems is called openness, and it should be obvious that openness is a trait of even more fundamental importance than duality. Yet whereas no non-human animal communicative systems seem to have duality, at least one such system shows openness: bee-communication. Thus a worker can report to her fellows the location of a source of nectar at a place where neither she nor her fellows have ever found nectar before. Yet we search apparently in vain for open systems in use by our nearest non-human relatives. Gibbon vocalization, for example, is apparently constrained to a discrete choice from a small finite set of calls: no matter how novel a situation, the communicative vocal response to it can only be one or another of these calls, not a new call consisting of two old ones in sequence or of a blending of ingredients from two or more of the old ones. The practical difference between such a closed system and an open system like human language hardly needs underscoring.

The mechanism of openness is at bottom simple: a novel utterance is produced on the analogy of various utterances of various structures which have occurred previously (in the speaker's experience) in partly comparable circumstances.

Thus the new utterance consists of individually familiar elements (morphemes), put together by familiar patterns: only the total result is new.

A result of limitations or arrangement is that any single morpheme in a language is characterized by a certain roughly definable range of privileges of occurrence relative to other morphemes. Sets of morphemes which have approximately the same privileges of occurrence constitute form-classes. In any language, some of these form-classes are very large (English man, boy, child, woman, dog, cat, etc.). and some are very small (English a and an). The very small form classes usually include only morphemes of the sort that have an indirect bearing on meaning (and, or, etc.), rather than a denotation at which one can point.

The morpheme stock of a language, and the hierarchical arrangements in which the morphemes occur relative to one another in utterances, constitute the grammar of the language. Both elements and arrangements differ from language to language. That the elements differ, not only in sound but in range of meaning, is obvious: the central meaning of English chair, for example, is broken into two ranges of meaning in French, in which one says chaise or fauteuil depending on whether the sittable is hard or stuffed; what the Cree Indians express with the single word $\overline{\text { èskew }}$ has to be conveyed in English with the long phrase he makes a hole in the ice to hunt beaver.

Arrangements are wlso incommensurable from one language to another. If only the elements were different from language
to language, then all we should have to do to master a foreign language would be to learn its vocabulary, and anyone who has tried knows that it is not that easy. To translate English I do not have time word-by-word into German yields nonsense (ich tue nicht haben Zeitl); good German Das hat alles über den Haufen geworfen yields comparable nonsense when subjected to the same sort of translation in reverse- That has everything over the heap y-thrown. Nor is it valid to say-as we may be inclined to with reference to our own language, in which everything seems reasonable and proper merely because of familiar-ity--that arrangements of morphemes occur if they make sense. It is nearer the truth to say that they make sense--to those who speak the language--if they occur. Even this is not the complete truth, since the perfectly natural process of coining new utterances from time to time yields something meaningful to the speaker but cryptic to others.

Words are recurrent clumps of morphemes-ringle morphemes in the limiting case--which manifest a degree of cohesion greater than that shown in the same language between successive morphemes in different words. In English, we can in general rely on our orthographic habits of leaving spaces at certain points as a clue to word-identity: boy is a word of one morpheme; boys and boyish are words of two morphemes each; boyishly is a single word of three morphemes. The clue is not infallible: blackboard is two words (each one morpheme) whether written that way, or with a hyphen (black-board) or with a space (black board).

Some morphemes, especially all intonations, belong to no word, but form additional non-word constituents of utterances. Conventional English orthography does a very inadequate job of representing these. Therefore the non-word morphemes supplied by a reader as he peruses ordinary written English are often different from those used by the writer as he wrote. Languages differ as to the average number of morphemes packed into single words, and as to the precise kind of intraword cohesion. English thus averages more morphemes per word than Chinese, but fewer than Spanish, which in turn averages fewer than Latin, and Latin fewer than the Algonquian languages of aboriginal North America. Such differences are relevant for purely linguistic purposes, since a language with relatively more complex words has more morphology to be described (morphology being that compartment of grammar in which words are built out of morphemes) and comparably less syntax (the building of whole utterances out of words and non-word constituents), than does a language with relatively simpler words. But these differences have never been shown to correlate with any other aspect of the life of the speakers of the languages.

Certain combinations of morphemes--sometimes exactly one word in size, sometimes smaller or larger than single wordsa-have meanings not predictable from their constituent morphemes and the arrangements of the latter. Any such combination, and any single morpheme, is an idiom. Examples of longer idioms are white paper (governmental document), marriage of convenience, run out ("become depleted"), Statue of Liberty (in New York bay),
statue of liberty (in football). It is well to recall, too, that there are fixed longer discourses such as a poem or a cliché which are also idiomatic. Awareness and consciousness are obviously quite similar in meaning, and interchangeable in most contexts; the fact that self-awareness and self-consciousness have sharply different meanings shows that the latter two are both idioms. Idioms are learned and used as wholes; but, also, new idioms are coined in various ways, andold ones can become disused. If we measure vocabulary in idioms instead of morphemes, the count for the ordinary speaker runs to the tens of thousands: one ${ }^{l}$ estimate is that the average person past infancy controls about one thousand idioms for each year of his age, though perhaps with a decline in the rate of increase past the mid forties.
2.1.3. Phonemes and Phonology.

Phonemes are the smaller meaṅngless constituents out of which morphemes, combinations of morphemes, and whole utterances are built, and which serve to keep morphemes and whole utterances apart.

The words pit and bit, said in isolation as whole utterances, differ in sound only at the beginning, and are in certain aspects the same there. In terms of articulatory movements, the lips and the nasal passages are closed for both. For pit the vocal cords are quiescent (the $p$ is voiceless), while for bit they are in vibration (the b is voiced). There is no actual or possible third morpheme in English, differing from pit and
bit only in that the initial consonant is more strongly voiced than for pit yet less strongly than for bit. Out of the continuum of physiologically possible degrees of voicing, only two ranges are selected and assigned contrastive function in English. No matter how sloppy a speaker's control of voicing may be as he says one of these two words, a hearer who know the language is absolutely constrained to interpret the result as exactly the one word, or as exactly the other, or as so badly articulated that identification is impossible. The last of these alternatives is not a third possibility within the limits of the system, but a reparable breakdown of the system. Of course, hearers may notice the production of a mumbled and undifferentiable pit/bit by a speaker, as they may note, say, a bit pronounced with an unusually strongly voiced $\underline{b}$; and either of these may convey information of some sort. But the communicative function of such variations stands outside of language proper, within which only discrete ${ }^{l}$ contrasts between quantized points or ranges of speech sound are relevant.

The phonemes of a single language are thus not speech sounds, but rather ranges of speech sound--bull's eyes, as it were, at which a speaker aims his articulation. The phonemic system of a language is not so much a stock of "things" as it is a network of distinctive articulatory-acoustic differences. A particular phoneme in a system is defined functionally not so much by what it is physically, or what it sounds like, as by

1
Se Appendix $1, \mathrm{p}$.
what, in the same system, it differs from. This means that even if phonemes in two languages sound roughly the same, they may still differ radically in function. English makes systematic use of two degrees of voicing (voiceless, as $\underline{p}$, and voiced, as b), but Menomini, and many other languages, make no use of this scale at all, so that the Menomini phoneme which sometimes sounds to us like $\underline{p}$ is not functionally commensurate with either English p or English b. Phonemes in different languages are never commensurate; only phonemic systems can be compared.

No known language requires articulatory motions of any part of the body except the respiratory and upper alimentary tracts, for the production of its phonemes. A few languages do not use all the manipulable parts of this region: for example, in most of the Iroquoian languages the lips do not function; and in Quileute there is no distinctive contrast between nasal passages closed and nasal passages open, so that there are no phonemically separate "nasal" sounds like English $\underline{m}, \underline{n}, \underline{n g}$ (come, can, king).

What we ordinarily call "vowels" and "consonants" are kinds of phonemes (segmental phonemes), but there are other kinds as well. There are phonemes involving the pitch of the voice, the general strength of articulation, differences of timing and duration, and the like. The contrast between the noun PERmit and the verb perMIT is a matter of distribution of strength of articulation, not of vowels and consonants. In Chinese, a set of syllables all of which sound something
like English you mean "oil," "have," "again," and "swing," depending on the tonal contour which accompanies the vowels and consonants. Chinese uses pitch both in the way just illustrated and also as the raw material for intonation phonemes; English uses pitch only in its intonation phonemes.

A phonemic system, then, consists of a stock of phonemes and of the arrangements in which they occur relative to one another in utterances. There are always stringent limitations on these arrangements, just as, in grammar, there are for morphemes. Phonemic systems differ from each other in two ways: (I) as to the particular quantizing of the multidimensional continuum of possible articulatory motion, and resulting sound, into contrasting ranges of speech sound, and thus as to the number of phonemes in the system; (2) as to the arrangements in which the phonemes can occur.

Systematization on the level of phonemes is, if anything, even more rigorous than on the grammatical level. Standard German has twenty-seven segmental phonemes; American English thirty-three. German has no separate phoneme acoustically similar to the English th of thick; English has none similar to the German ch of Bach. German and English share acoustically comparable phonemes t (G Tag; E time) and s (G Wasser; E sing); in German the initial sequence ts occurs (Zeit, pronounced Tseit), but not in English; in English the initial sequence st occurs (sting), but not in Standard German. Finer (and trickier) differences of this sort appear among the dialects of a single language; coarser (but also trickier) differences
appear among languages less closely allied than are English and German--say, between either of these and Chinese.
2.1.4. Speaking as a Process.

When we examine an utterance via a written record, we are free to read it from beginning to end or to look back and forth from one part to another in any way we please. Of course, this is not the way utterances really happen, and our culturally imposed preoccupation with writing must not be allowed to mislead us. Language manifests itself first and foremost in the behavior of speaking. An utterance is not spoken all at once, but bit after bit in time: speech is not only unidimensional but unidirectional. Each successive bit is spoken and then vanishes into limbo, never to be recovered or unsaid.

It is convenient to pretend that a speaker "first" chooses the morphemes he wishes to transmit (perhaps very few at a time), arranging them appropriately, and "then" encodes the result into an array of phonemes for articulation--perhaps as he proceeds to the selection of the next few morphemes. Conversely, the hearer "first" interprets the incoming speech signal into an array of phonemes, and "then" decodes the phonemes into morphemes.

The convenience is twofold. First, we may thus imagine the process of morpheme emission as going on continually in any human past infancy. When not being directly guided by contemporary input from elsewhere in the person, it is driven, as it were, under its own power; but only sometimes does it "break through" to the surface to be audible to others. The progression
is probabilistic, not determinate. It is the arrival of a morpheme at "headquarters" that triggers the emission of the next morpheme, and it does not matter whether the incoming morpheme has been transmitted via feedback routes from the hearer's own "headquarters" or through the air from someone else. Thus, self-communication, either aloud or "thinking in words," mocks speech communication between people.

There is also only a probabilistic tie between the morpheme-flow within a person and other events within and around him. The tie is in both directions. Sight of a cat may or may not lead a speaker to say There's a cat: the probability that it will is conditioned by where his internal morpheme-flow is at the moment. If the self-driven probabilistic progression leads to the emission of the morpheme cat, that increases at least somewhat the probability that the speaker will look around for a cat.

Thus the "impact of language on thought and behavior," as discussed by Whorf, can be understood behaviorally; it will differ in kind, if not in degree, from language to language. So, also, can we understand one variety of Korzybskian "identification": if an experiential stimulus (say the sight of a plate of food of a certain kind) triggers the emission of a certain train of morphemes ("This stuff is Irish stew"), subsequent behavior may be controlled largely by the economy of the individual's idiolect--which, in its turn, derives from a whole history of previous experiences, of the individual and of his predecessors--rather than by the immediate idiosyncratic reality
("I don't like Irish stew"). It must never be forgotten that the generation of the stream of speech, even internally, involves work, and that it may be more work to force the surcession of morphemes to match specific novel facts than it is to let the progression follow geodesic lines of highest intrasystemic probability.

### 2.1.5. Morphophonemics.

The second convenience of the mode of description adopted above (2.1.3.) is that it helps us to specify the remaining aspect of language design: the morphophonemics of a language is the code by which arrays of morphemes are transduced into arrays of phonemes and vice versa.

In any single context of other morphemes, a given morpheme is represented by a specific arrangement of phonemes. Some morphemes are represented in the same way in all occurrences: pay in pay, pays, paying, paid, payer, etc., and in all the longer utterances which incorporate any of these words. Two morphemes may share a representation: pair "couple" and pare "to peel." A single morpheme may have more than one representalion, depending on linguistic environment: wife with a final $f$ in the singular, but wive- before the pluralizing morpheme -s; the latter is pronounced $s$ in cats, pits, but $\underline{z}$ in cads, ribs, wives; buy is changed to bough- when followed by the past tense ending -t.

Some such alternations in phonemic shape are imposed by phonemic habits. English phonemics allows us to say -ts and -dz
at the ends of words (cats, cads), but not -tz or - ds, so that the use of both $-\underline{s}$ and $-\underline{z}$ for the pluralizing morpheme is "natural" within the language (not in any more general sense, of course: some languages allow sequences like tz and ds). Other alternations are survivals of earlier historical accidents; buy and bough-, since there is nothing in English phonemics to preclude us from saying buyed. Any of the latter Is a morphophonemic irregularity.

Languages differ as to the number and importance of their morphophonemic irregularities. Russian ranks high in irregularity; German is less irregular, but still slightly more so than English; Hungarian is somewhat more regular than English, and Chinese is the most regular of the five languages we have just named. In language-learning, morphophonemic regularity is an obvious advantage. For an adult student of a second language, this advantage can be outweighed by other factors: e.g., German is easier for speakers of English to learn than is Chinese, because vocabulary and pronunciation are less alien. It has been suspected that for a child learning his first language these other factors can play no part, so that, for example, the Hungarian child should learn his language somewhat more rapidiy or easily than the American or Russian chila. This hypothesis seems reasonable to me, but so far as $I$ know it has never been supported by carefully controlled observation.

### 2.1.6. Idiolects and Dialects.

A person's idiolect is a product of a succession of different contacts: each period of residence in one or another
community, each period of interaction with a given set of friends and associates, contributes a layer, its importance depending on the length and intimacy of the contact and on the individual's receptivity at the time. Early habits can be apparently submerged by those acquired later, but they are perhaps never altogether lost. Special circumstances can bring them again to the surface. One woman, raised in the Bronx, went to the Middle West at the peak of her adaptability (age 20), and now, fifteen years later, usually speaks fairly typical Midale Western English, with a few generalized East Coast features but with no clear indications of the Bronx. But whenever this woman talks over the telephone with her parents or sister (who did not move west), typical Bronx features reappear. They also turn up when she is engaged in certain emotionally colored types of argument with her children. In the latter context, there is presumably some cue of similarity to her earlier relations with her own parents that elicits this shift in speechpattern.

A dialect is a variety of a language characteristic of a particular geographical-social region. Dialects vary from one geographical area to another, and from one social ${ }^{1}$ stratum or occupational grouping to another, sometimes slightly, sometimes radically. Regional and social dialect continuity seems to be

1 For social concomitants of dialect variation see McDavid, 1948, 1951, 1952-3.
maintained in this country in the face of considerable mobility of individuals. If a given dialect loses speakers through emigration or social-climbing, in compensation it gains the children of new arrivals. The idiolect of a person who stayed near his birthplace indefinitely might reflect features typical of the dialect of his region and social stratum. If all speakers were like this, then we could say that a dialect consists of a set of closely similar idiolects, just as a language, in turn, includes one or more fairly similar dialects. But this assertion does not hold for American English. Many an idiolect far exceeds in dialect affiliation the complexity of that of the woman mentioned in the preceding paragraph, including within itself features from two or more dialects, the speaker's environing circumstances eliciting now the features of one dialect, now those of another.

Dialect differentiation also shows certain partial correlations with age-grading and with what we may call sex-grading. In addition to purely linguistic features, certain typical "tones-of-voice" tend to be differentially associated with different age-grades and sex-grades. Age-grading is self-explanatory. For example, within many social strata in many parts of the country, the typical voice and speech of an upper-teen-aged girl are quite different from that of a matron in her thirties, and if we hear the teen-aged voice from a matron there is an incongruity. By "sex-grading" we refer not merely to male versus female, but to the two or three different culturally transmitted manners in which the fact of being a male, or a
female, can be acted out. The "locker-room male"--taught how to be a male by other males, in a context of emphasis on physical sports--acts and speaks differently from the male who has been conducted through childhood and adolescence largely by women. Statements of male homosexuality, as a "tertiary" (i.e., culturally developed) sexual characteristic sometimes unaccompanied by any overt homosexual tendencies, can show up in certain features of voice quality and of the articulation of vowels and consonants.

Interpersonal differences in speech habits are quite like interpersonal differences in all other varieties of communicative behavior. In observing and comparing people, we must remember, however, that interpersonal differences are of two orders. Obviously, what John Jones signals on a given occasion (in words or otherwise) differs from what Jim Brown might signal in the "same" circumstances, and from what John Jones might signal in other circumstances. But there are also interpersonal differences in the systems, and it is primarily to those that we refer when speaking of dialects and of idiolects. We cannot understand what John Jones means by his signals without knowing the idiosyncratic twists given to each communicative system by John. Thus a nod means "yes" to us, "no" to an Eskimo; homely means "pretty" in Australia, "ugly" in the United States; the intonation of a polite request in British English is that of exasperation in American English; lost in some Southern speech sounds exactly like loused for some Northerners. Children whose control of their language is not yet fluent often answer yes or no for lack of the machinery for a more precise response:
parents may take this as a falsehood when it is not. Blood--the word, not merely the substance named by it--connotes laboratory work to a serologist; it may send someone else jnto a iaint.
2.2. The design of American English.

A complete description of any language--one spoken by hundreds of millions of people, like English, or one spoken by a few dozen people in some New Guinea village--is a lengthy and laborious matter. A complete description of English is impossible here; fortunately, it is also unnecessary. What follows is an outline ${ }^{l}$ or frame of reference, describing the basically important habits of the language, and supplying appropriate points of attachment for the multitudes of details which have to be omitted.

Grammar is always more complicated than phonology; consequently, our discussion of English phonology will be relatively less sketchy than what we say about English grammar.

### 2.2.1. English phonology.

What we shall present on phonology is not the exact system of any single idiolect or dialect, but the overall pattern of (General) American ${ }^{2}$ English: a system incorporating all (or almost all) of the contrasts functional in any idiolect, so

1
For fuller treatments, see Trager and Smith, 1951, and now, since this writing, Hill, 1958, and sledd, 1959.

2
For a fuller treatment of American dialect variation see McDavid, 1963.
that the precise system of a single idiolect is a weighted selection from the overall system. The logic of the overall pattern approach will become clear from the examples. Certain Southern and Canadian varieties of American English may require slightly different overall patterns, but this possibility has not been sufficiently explored for consideration here.

Any utterance in (General) American English is built out of a selection from a stock of forty-four phonemes. In presenting and describing these phonemes, we also supply symbols for their graphic representation. Since many of the symbols are identical with letters of ordinary English spelling, they will regularly be cited between slant lines (thus: /a/), except in tabular displays.

## Segmental phonemes:

## Consonants:



Nonsegmental phonemes:
$\begin{array}{ll}\text { Juncture: } & + \\ \text { Stresses (written over a vowel): á a a a }\end{array}$
Intonation phonemes:
Pitch Levels (PLs): $\quad 1 \quad 2 \quad 3 \quad 4$
Terminal Contours (TCs):

### 2.2.1.1. Consonants.

The first eight of the full consonants are illustrated by the following words:
/p/ pull/púl/, lip/líp/ /b/ bull/bül/, sib/síb/ /t/ tell/tél/, let/lét/ /d/ dull/dál/, led/léd/ /X/ chili/Xil/, rich/ríx/ /Y/ Jili/Yil/, ridge/ríj/ /k/ cull /kól/, luck /lók/ /g/ gull/gál/, lug/lág/ These eight are stops: they are articulated with closed nasal passages and with a complete closure somewhere in the oral cavity. For /p b/ the oral closure is between the lips (bilabial), for /t $d /$ between the tip of the tongue and the alveolar ridge (apico-alveolar), for / $\not \subset /$ between the blade of the tongue and the general region of the alveolar ridge (lamino-alveolar), for $/ \mathrm{k} \mathrm{g} / \mathrm{b}$ (tween the back part of the upper surface of the tongue and the velum (dorso-velar). /b d $\mathrm{Y} \mathrm{g} /$
 such a way that the air passes between the blade of the tongue and the alveolar ridge to produce audible friction; for this reason these two are called affricates. The other six stops
are not affricates.
The next eight full consonants are illustrated in the following words:
/f/ full /fúl, cuff/kóf/ /v/ vat /vót/, live /IIv/ $/ \theta /$ thumb $/ \theta$ óm/, myth $/ \mathrm{mi} \theta /$ /ठ/ thus /סós/, scythe/sáyo/ $/ \mathrm{s} /$ sell /sél/, less/lés/ /z/ zip /zip/, haze /héyz/ /צ/ shell/Yél/, mesh/méz/ /Z / Jeanne/zán/, rouge /rúwž/, vision/vizan/

These eight are spirants (or fricatives, whence the term "affricate" for / $\not \subset Y /$ ): the nasal passages are closed, and a partial closure is made in the oral cavity so that the air, in passing through, is forced into turbulence. For /f $\mathrm{v} /$ the partial closure is made between lower lip and upper teeth (labio-dental); for $/ \theta \mathrm{o} /$, between the front edge of the tongue and the backs of the upper teeth, the air escaping through a transverse slit (apico-dental slit spirants); for $/ \mathrm{s} \mathrm{z} /$, between tip of tongue and alveolar ridge, the air escaping through a tiny hole in the median ine (apico-alveolar rill spirants); for $/ \mathbf{K} / \mathbf{z}$, between blade of tongue and the region of the alveolar ridge (Iamino-alveolar). /f $\theta$ s $\bar{S}$ / are voiceless, /v oz z/ voiced. Some speakers do not use/z/either initially or finally (they do not use the "French" pronunciation of Jeanne, and end rouge, garage with the affricate / $/$ /); this is why we have also given an example in medial position above.

The next three full consonants:

$$
\begin{aligned}
& / \mathrm{m} / \text { mull /mól/, dumb /dóm/ } \\
& / \mathrm{n} / \text { null /nól/, dun, done /dón/ } \\
& / \mathrm{y} / \text { singing/sínin/. }
\end{aligned}
$$

These three are nasals: a complete closure in the oral cavity, but with the nasal passages open. For $/ \mathrm{m} /$ the closure is bilabial, for /n/ apico-alveolar, and for /y/ dorso-velar. All three are voiced. / $/$ / does not occur initially. Note the diffference between singer /signor/ and finger /finger/: some speakers With a direct or indirect background of certain Central and East European languages say singer/singər/, sing/sing/, singing /singing/, and have no /y/ except directly before /g/ or /k/ (sink/sink/).

The last two full consonants are sometimes classed together as liquids, a term which makes no particular reference to articulation:

$$
\begin{aligned}
& \text { /r/ red /réd/, tar/táhr/(some speakers /táh/) } \\
& \text { /I/ led /léd/, dell /dél/ }
\end{aligned}
$$

For /r/, the tip of the tongue is curled back, but does not touch anything (a retroflex glide vocoid). For /I/, the tip of the tongue touches the alveolar ridge, but the sides are not in contact with the sides of the mouth, and the air can pass through Without any friction (apico-alveolar lateral). Both are voiced, and for both the nasal passages are closed. Many speakers, in parts of New England, the Hudson Valley and New York City, and certain regions in the old south, have /r/ only before a vowel.

The three semiconsonants occur before vowels, as follows: /y/ yes /yés/, yacht /yát/ (or /yáht/)
/h/ hem /hém/, hut /hát/
/w/ wet /wét/, wind /wind/
For /y/, the blade of the tongue approaches the hard palate and is pushed forward in the mouth, for /h/ the position of the tongue approximates that of the following (or preceding) vowel, and for /w/ the back part of the tongue approaches the soft palate. The lips for /y/ are spread, for /w/ rounded, and for /h/ accommodated to the lip position for the following (or the preceding) vowel. Both /y/ and /w/ are voiced, whereas /h /is voiceless before, but voiced following, another vowel.

The full consonants and the semiconsonants occur in various sequences uninterrupted by any vowel. These combinations are called consonant clusters. Initial clusters have as many as three constituents: sigh, spy, spry /sáy spáy spráy/, well, quell, squelch /wél kwél skwélé/. Final clusters have as many as four: sing, sink, sphynx, jinxed /sin sink sfínks Yínkst/. Of the thousands of mathematically possible consonant clusters, only a few hundred actually occur, and some of these are extremely rare. Thus some speakers use initial /ts/ in a few uncommon words (tsar/tsáhr/, tsetse/tsíytsiy/, Tsimsian /tsím ${ }^{\text {Kinin }}$ /), while many speakers do not use this initial cluster at all.
2.2.1.2. Vowels and Nuclei.

Consonant clusters directly after a vowel do not have a semiconsonant as first constituent, because when a semiconsonant
occurs directly after a vowel the combination of vowel and semiconsonant forms a complex syllable nucleus or complex syllabic. A vowel with no following semiconsonant constitutes a simple syllabic. Since there are nine vowels and three semiconsonants, there are thirty-six syllabic in all:
simple complex /-y/ complex /-h/ complex /-w/


It is not unlikely that most speakers of American English use most, if not all, of these thirty-six nuclei. But in any single idiolect some of them are commonest and a few are very rare, and the distribution of common and rare varies widely from one variety of English to another. We illustrate here all the simple nuclei and the most widespread of the complex syllabics:
/i/: hip, bit, kick /hip bit kick/
/é/: bet, neck, kept /bét nék képt/
/æ/: cap, hat, batch /kǽp hǿt bǿx/, except that some speaker (egg., in Western New York State) have /ooh/ or /éh/ in almost all such words.
/i /: just / Gist/ in I just got here (not in a just man,
which has /Yest/); often in this / $\partial \mathfrak{i f} /$ ); common in children,
silver / Xildrin silver/; in parts of the South in sister, dinner /sfista(r) $\mathrm{d} \ddagger \mathrm{n} \boldsymbol{\mathrm { n }}(\mathrm{r}) /$; the commonest syllabic in unstressed syllables.
/á/: but, bud, bun, buzz /bát bád bán báz/; southern British English has /af/ in such words.
/á/: cot, lock, hop /kát lák háp/, except that in Eastern New England, as in southern British English, these words have /of/.
/ú/: book, put, puss /búk pút pús/.
/o/: most widespread in gonna /gonna/ (mooing to: Ism gonna stop now), whole /hól/ (the whole thing, not make me whole again, which has /ów/) , because /biykóz/(also with /á/ or /óh/); in parts of rural Eastern New England in home, road, coat and some other household words /hóm ród kót/, elsewhere most generally /ow/.
/of/: not common, except for the British use in cot, lock, hop, etc. (See above under /af/); some New England rural types may have this rather than /o/ in home, road, coat; I have it before /l/ in balm, calm, psalm, alms /bólm kólm sólm ólmz/. /ivy/: beet, peep, leak, reach /bíyt piyp link rift/. In bee, bean, seem, leave most speakers have /fy/, but some in the region of Philadelphia and Baltimore have /áy/.
/éy/: pate, cape, sake /péyt kéyp séyk/.
/áy/: I, lie, tight, spike /áy láy táyt spáyk/.
Many New York City speakers have /óy/ in these words; in the South, /áh/ is common; in Central and Western Canada /áy/ is usual before a voiceless consonant, as /táyt spáyk/, but /áy/ otherwise.
／by／：boy，hoist，coil，oil／boy hơyst kbyl odyl／． Some Southern speakers have no cases of this，sometimes using ／oh／instead（as before／l／：／kohl óhl／），sometimes／áy／ （boil，＂heist＂／báyl háyst／），sometimes pronouncing two syllables where other speakers have one（boy／bówiy／）．
／eth／：commonly in yeah／yeah／；in the Central Atlantic Seaboard in can＂container＂／kéhn／，in contrast with can＂be able＂／kan／．Many Middle Westerners have this or／fin or ／by／almost to the exclusion of the／$⿴ 囗 十$／found in the East and in New England in words like cab，cad，fad，sand，ham （／éh／or／mi／），bag，ashes，back（／⿴囗十y／）．
／aah／：speakers（mainly New England and the East）who distinguish between bomb／bag／and balm／báhm／have／ah／ also in words like father，starry（vs．sorry with／a／），Dali （vs．dolly with／af／or／b／）．In the Middle West／ah／is more usual before a voiced consonant，／af／before a voiceless（egg．， bomb and balm both／barm／，but／af／in pot）．Everywhere words like spa，fa，la，rah，pa，ma end with／ah／，except that some speakers say rather paw，maw with／Sh／．
／Sh／：widespread in law，saw，ought，haul／lith ssh St horthy／and the like．But in New York City these words usually have／oh／；in the Northwest including Central and Western Canada，they have／afn／or／a／（so that cot and caught are identical．，／kart／，and cod and cawed are both／káhd／）；and in many parts of the South they all have／ $5 \mathrm{w} /$ ．
／aw／：house，cow，about，loud．In parts of the South one hears／$\neq \mathrm{w} /$（or even／ $\mathrm{mh} /$ or／$\neq y \ddagger /$ ）in these words；in the Virginia Tidewater／bu／is customary．In Central Canada and
the Northern Middle West, /大w/ is usual before a voiceless consonant (house /háws/) but /áw/ otherwise (houses /háwziz/). /úw/: boot, spook /búwt spúwk/. In too, boom, moon most speakers have /úw/, but some in the region of Philadelphia and Baltimore have / $\mathbf{x}$ w/.
/ठw/: cope, boat, roach, poke /kówp bówt rowx pówk/. Some speakers (East?) have /áw/, also common in British English In these words; an extreme Britticism is /éw/.

From these examples we can describe the pronunciation of the vowels and semiconsonants in articulatory terms. The three vowels /i e $\quad$ / are all pronounced with the tongue bunched towards the front of the mouth (all are front vowels): but they differ in that /i/ has the tongue high / $m$ / has it low, and /e/ has it at an intermediate height (mia). As shown by the arrangement of vowel symbols on the Table of English Phonemes, the same three-way difference of tongue-height distinguishes among the members of the triad/i $\partial a /$, and also among /u o o/. For all six of these, the bunching of the tongue is towards the central or back part of the mouth instead of forward: all six are back vowels. /u o o/ are perhaps typically a bit further back than /i $\quad$ a $a /$ more important is the fact that the lips are slightly rounded for /u $0 \mathrm{o} /$, but not for /i $\quad$ a/ (nor for /i e $\quad$ ( ) . After a vowel, as part of a complex syllabic, /y/ is a glide of the tongue towards (not necessarily to) high front position; /h/ is a glide towards mid or low central unrounded position; and /w/ is a glide towards high back position, accompanied by an increase of lip rounding. As parts of complex
syllabics, all three semiconsonants are voiced, as are all vowels. Before a vowel, the three semiconsonants are glides from rather than towards the positions just described: /y/ and /w/ are voiced in this environment too (except that speakers who say hue, white /hyúw hwáyt/ may have voiceless /y/ and /w/ after /h/), but /h/ is here voiceless (compare hot /hát/ with voiceless /h/ and spa /spáh/ with voiced/h/).

### 2.2.1.3. Stress and Juncture.

In utterances longer than a single syllable, some syllables are louder than others. Thus in our transcription of the word singing, used above to illustrate certain segmental phonemes, we placed the mark' over the vowel of the first syllable to indicate that the first syllable is pronounced more loudly than the second: /sígin/. Some pairs of words do not differ at all in segmental phonemes, and yet are different: in my speech, the noun permit /pármìt/ versus the verb/pərmít/ (in some parts of the country the noun is /páhrmit/, showing a difference in segmental structure also; and for some speakers the noun is pronounced / parmit/, just like the verb). This pair shows that differences of stress or loudness are distinctive, but does not show how many distinctively different levels there are. There are in fact four: from loudest//, called loud or primary stress, through secondary /^/, tertiary /'/, to weak (usually no mark; but $\smile$ when needed for clarity). The following examples show the contrasts and the unpredictability of distribution of the four levels:
(He lives in a) white house. (any house of the specified color)
(He lives in a) whíte house, (not a green one). (contrasting colors)
(He's living in the) White hôuse. (the house that belongs or once belonged to a family named White)
(The President lives in the) White House. (a specific structure in Washington, D. C.)
Lòng Íslănd (is a) lông íslănd.
(He's our) nêw ŭndĕrtàkĕr.
(It's a) nêw ùndĕrtáking.
In general (though not without exception), the pronunciation of what are ordinarily thought of as "single words" does not contain instances of the juncture phoneme / $+/$, and consequently our transcriptions of single words for illustrative purposes have not yet illustrated the $/+/$. But compare:
(That's sodium) nitrate. / .. náytrèyt/
(After six you get the) night rate. /...náyt+rêyt/
(Dr. Gerald Nye discovered that, and it is called the)
Nye trait. /...náy+trêyt/
Shés (going.) y siyz.../
Béa's (going.) /biy+z.../
and for many speakers:
(I want a) tomato /...təméytow/
(The Republic of) Plato /...pléy+tow/
where the single word Plato is pronounced exactly as though it were a compound of play and toe.

The juncture phoneme $/+/$ consists regularly of a slight lengthening of the segmental phoneme represented in transcription directly before it--that is, that segmental phoneme is held slightly longer than it would be under the same circumstances but without the juncture. Its presence is usually marked also by certain additional features, depending on just what segmental phonemes flank it: thus in night rate the /t/ (of night) is inaudibly released, as it is at the end of an utterance, and the /r/ is fully voiced, as it is initially in an utterance; whereas in nitrate the medial/t/ is released with a slight puff of breath which also partially devoices the /r/. Any segmental phoneme directly after $/+/$ is pronounced as it is at the beginning of an utterance, rather than as it is medially not flanked by / //, or finally.
2.2.1.4. Intonation.

The English intonation phonemes (PLs pitch levels and $T C s=$ terminal contours) occur only in certain combinations called intonations. An intonation involves one and only one $T C$, at least two PLs, and may (at least in theory) involve as many as five PLs. An intonation occurs most usually (certain "grunts" of acceptance, rejection, and the like, may be exceptions) simultaneously with a sequence of segmental, junctural, and stress phonemes; the whole combination we shall call a macrosegment. We shall label the five positions for PLs with the letters a through e. The following examples show the positions:

(The spacing out of the symbols is designed only to show the PL positions. Each of the four "sentences" could, of course, be intoned in various other ways.)

Position $\subset$ is at the syllable which bears primary stress. There is always one and only one such syllable in a macrosegment, and there is always a PL accompanying it.

Position $E$ is at the end, where the $T C$ also occurs. There is always a PL at this position.

Position a exists only in those macrosegments in which there 1 s material befoze the syllable with primary stress. Whenever position a exists, there is a PL at it.

Position bexists only when position a does and when, in addition, at least one syllable between positions and a carries secondary stress. Under these circumstances, some intonations have a PL at this position and some do not.

Position $d_{\text {d }}$ falls between positions c and e. Relatively few intonations involve a $P L$ at position $\underline{d}$, and those that do are relatively rare.

No sure examples have yet been observed of intonations with PLs at all five positions. It is possible that the occurrence of a PL at position $b$ precludes the occurrence of one at position $d$ and conversely, but this is not certain.

Phonetically, the four PLs are four rather narrow ranges of pitch. They are relative, not absolute: a woman's lowest PL may be higher than a man's highest, and a single speaker may switch register from time to time. $/{ }^{1 /}$ is the lowest and / ${ }^{4} /$ the highest. The actual pitch of the voice, in the intervals between the points at which the PLs occur distinctively and must be marked in transcription, varies somewhat, but is largely determined by the bounding PLs, by the distribution of stresses, and by the length of the interval. Thus, for example, if the last syllable of a macrosegment carries primary stress, so that position c is at its beginning and position e at its end, and If $/{ }^{3} /$ occurs at $c$ and $/{ }^{1} /$ at $e$, the pitch will fall quite rapidly during the syllable. If, on the other hand, position $C$ Is several syllables from position $E$, with no $P L$ at a and the same distribution of $/ 3 /$ and $/ 1 /$, then the pitch may fall fairly rapidly immediately after position $c$, and stay down, or it may slide down more slowly; the difference may be nonlinguistic or it may involve the presence of a PL at position . To 1llustrate:
/3h5hlt ${ }^{3} \#$ (Halt1) contour
 Of the TCs, /\#/ and /\|/ are characterized by quite distinctive properties, while /// is marked largely (not exclusively) by the absence of any of the properties distinctive of the other two. /\#/ involves a certain amount of stretching and fading. The segmental material directly before it is articulated somewhat more slowly than it would be with no TC, and the
force of articulation decreases. When the PL at position e is / ${ }^{1 /}$, /\#/ also involves a lowering of pitch below the ordinary level for $/{ }^{1} /$ in otherwise similar circumstances. It is mnemonically helpful to note that the combination / \#/ almost always carries the implication "I am done speaking, at least for the moment: your turn." This implication is strongest if the intonation ending with / $\#$ / has $/{ }^{3} /$ at position c. Thus:

$$
\begin{aligned}
& \text { / àym+ }{ }^{3} \text { fáyn }{ }^{1} \# / \text { (I'm fine.) }
\end{aligned}
$$

/I/ involves some stretching, as does /\#/, but without any fading; and the pitch of the voice rises to a point higher than that of the PL at position e though not so high as that of the next higher PL. The combination $/{ }^{2} \| /$ or $/{ }^{3} \| /$ occurs very often in questions which call for yes-or-no answers, though by no means exclusively here:
$/{ }^{2}$ ahry $\partial+^{3}$ gówin ${ }^{3} \| /$ (Are you going?)
/// involves slight stretching, but neither fading nor lowering nor raising of pitch. When /// occurs followed by silence, the impression is usually that of hesitation or incompleteness. Medially:

$$
/^{2} \text { in }+^{3} \text { б́́t }+\left.k \hat{e n y s}^{2}\right|^{2} \text { ahl }+^{3} \text { gów }^{1} \# /(\text { In that case I'll go.) }
$$

### 2.2.2. English grammar.

In Figure 4 is displayed the sentence She bought a new hat, in a diagram that shows much of its grammatical structure. Like any other utterance, this one is built wholly of morphemes, put together wholly by recurrent patterns of combination called constructions. The ultimate constituent morphemes of the
utterance do not participate directly in the whole. Rather, they are put together two-by-two, or few-by-few, into somewhat larger forms, which in turn are put together a few at a time into still larger forms, until we =each the whole. Thus the immediate constituents of the whole sentence, as the iagram shows, are (1) its intonation and (2) the non-intonational remainder. The non-intonational portion in turn has, as its IC ( $=$ immediate constituents), the smaller forms she and bought a new hat. She is a morpheme; but bought a new hat is composite, and has the finer-grained structure shown in the diagram.

No English morpheme is ever represented phonemically by a combination of intonational and non-intonational phonemes. Intonational phonemes occur only in recurrent combinations which represent intonational morphemes; all other morphemes are segmental.

Figure 4.


The marks " $\epsilon$ ", " $>$ ", and so on, represent types of structural relationships; see 2.2.2.4. below.

Despite their regular simultaneous manifestation in speech and despite the extent to which intonation marks the structure of the segmental material it accompanies, the intonational and the segmental parts of English constitute, in a sense, two separate communicative systems, each characterized by duality. What Iittle we know of the intonational system so far, beyond its phonology, concerns mainly how it jmpinges on and marks segmental structure. Beyond this we are not ever certain of the identity of intonational morphemes; it is only a matter of convenience to assume that each intonation, as defined in 2.2.1.4., is a morpheme. So the discussion which follows will deal mainly with the segmental system. In the first two sub-sections we describe the kinds of elements (morphemes and small idiomatic combinations of morphemes) used in English; in the third sub-section we describe the constructions by which they are put together.
2.2.2.1. Functors.

The segmental system of English Involves morphemes, and small idioms, of two basic kinds: functors and contentives. Examples of functors are and, if, he, in, on, the -es (/z/) of goes, the -s (/z/) of umbrellas, the -ly of quickly the./'t'/ stress-and-juncture pattern of blackbird. Examples of cóntentives are black, bird, umbrella, quick, go, boy, boyish, boyhood.

Functors are of two kinds: markers and substitutes. Markers are elements which signal the grammatical relationships of surrounding forms. The ICs (=immediate constituents) of men and

Women are the forms men and women; and is a marker. The ICs of John's hat are John and hat; 's (/z/) is a marker. These two markers (and and s) are pure: they signal the relationships of surrounding forms, without themselves having any position in the hierarchical structure of the larger forms in which they occur. Other pure markers are the or of men or women, the Either and or of either John or Bill, the neither and nor of neither John nor Bill, the both and and of both John and Bill, and the $/{ }^{\prime}+' /$ of blackbird.

Impure markers participate in the hierarchical structure of the larger forms in which they occur, but still mark structural relationships. The in and on of the pencil in the desk and the pencil on the desk are examples. The ICs of the former are the pencil and in the desk; the ICs of in the desk are in and the desk. In acilition to standing in construction with the desk, the impure marker in also signals the fact that the whole form in the desk stands in a certain relationship (here attributive: see 2.2.2.3.) to something else--in the example, to the pencil. Other impure markers are the if of if John comes, the when of when you get there, the is of John is tall.

Cutting across their classification as pure or impure is another classification of markers: as free or bound. Free markers are separate words, called particles: and, or, elther, neither, nory both, in, on, if, when. Bound markers are less than whole words, and are called inflectional affixes: the /z/ of (he) goes, the $/ \mathrm{z} /$ (a different morpheme) of umbrellas, the -er of poorer, the -ed $(/ \mathrm{d} /)$ of begged, the -ly of quickly.

The 's of John's hat is on the boundary between bondage and freedom, and can be classed either way. stress-and-juncture patterns are neither words nor parts of words, and thus fall outside the free-bound classification and are separately designated as superfixes.

Substitutes are special forms the meanings of which are redefined on each occurrence by (I) the selection and structuring of nearby linguistic material, or (2) certain elementary features of the communications situation, or both. Thus the denotation of $I$ and me depends entirely on who (or what) is speaking; the denotation of you depends entirely on who (or what) is being addressed. If one says John took his car, his means John's (linless special features in a larger context force his to refer to comeone else); if we say Bill took his car, then the same form his refers to Bill's. In John doesn'thate her, but I do, do means "hate"; but in John doesn't like her, but I do, the same form means "like."

All English pronouns (personal, demonstrative, interrogative, relative, negative nobody etc., indefinite anybody, somebody etc., and inclusive all, everyone, etc.) are substitutes. So, probably, are the numerals one, two, etc., and the articles a/an, the; pro-adverbs here, now, there, then; the pro-verb do as illustrated above; so (a pro-adverb in He did it so, a clause substitute in if so); then also as a clause substitute, as in if he comes, then we must leave.

None of the classifications mentioned and illustrated above are airtight. Some forms appear now in one function, now in
another; or, if one prefers, some forms come in pairs identical in shape but different in function. Is is a functor in John is poor or God is good, but a cóntentive in God is or That which is, is. The terminal /z/ of goes is an inflectional affix, and hence a marker; but it is also a substitute, since it indicates that the subject of the verb is singular and other than speaker or addressee. Any form is used on occasion as a designation for itself; "And is a functor", as we have said earlier. When so used, the form is of course a cóntentive.

Allowing for such uncertainties and boundary-line cases, we define a cóntentive as a form which is not a functor.
2.2.2.2. Stems and their Classification.

A stem is what is left of a word when all inflectional affixes, if any, are stripped from it. Thus the stem of boys is boy- (where we write a hyphen to show that we are not designating the word boy), and the stem of the word boy is also boy-, since there are no inflectional affixes to be deleted. Some stems are functors: the i- which is left when the inflectional affix /z/ is stripped from is. But most stems are cóntentives (e.g., boy-), and it is with the latter that we are concerned here.

English (cóntentive) stems fall into seven basic classes depending on their privileges of occurrence in larger forms: that is, on the inflectional affixes that are used with them, and on the constructions in which they participate.

One set of privileges of occurrence is the noun pattern: inflection for plural (boy : boys), though not invariably; use
after a or an, the, this or these, that or those, unstressed some (/sim/) (a boy, an elephant, the boy, this boy, these boys, some boys, some milk). English stems which follow this pattern, or much of it, but do not also follow either of the patterns of usage yet to be described, belong to class N. Examples are strength, food, action, day, friend, art, danger, music, boy, elephant.

A second pattern is the adjective pattern: inflection for degree (pretty : prettier : prettiest) or use after more and most to yield phrases (more beautiful : most beautiful) which are then used in much the same way in still larger combinations; inflection with -by for adverbial use (prettily, beautifully). Stems which follow this pattern, but not also the noun pattern nor the third pattern to be described, belong to class A: long, false, likely, certain, icy, sleepy, short, soft, civil, beautiful.

Some stems follow both the noun pattern and the adjective pattern, but not the third pattern to be described below. These stems belong to class NA: American, sweet, savage, private, male, white, red, innocent.

The third pattern is the verb pattern: many stems have five inflected forms, as sing, sang, sung, sings, singing: most have only four, as describe, describes, described, describing; a few have even fewer, as can, could, or must and ought with only one form. Syntactically, the typical verb uses are as verb in objective constructions (saw John; the syntactical terms used here are all expounded in 2.2.2.3. below); as verb in intransitive
predicates (I see, John was singing loudly); and as connector in a connective construction (seem tired). Stems which show this pattern, but not the noun or adjective pattern, belong to class V: describe, admit, punish, bury, strengthen, falsify, penetrate, collaborate, denazify.

Stems which show both the noun and verb pattern, but not the adjective pattern, belong to class NV: walk, love, cure, change, air, eye, nose, beard, elbow, finger, cut, build. Stems showing both adjective and verb patterns belong to the sixth major class, class AV: clean, dry, thin, slow, clear, busy, idle, true. The seventh class, class NAV, includes stems which show all three patterns: fancy, faint, black, yellow, blue, brown, tray, damp.

Any stem of any of these classes, in a specific occurrence in which it is functioning by one of the three basic patterns, is, in that context, a noun, a verb, or an adjective, as the case may be. Its momentary usage does not alter its basic affiliation: fancy is of class $\mathbb{N} \mathbb{A} V$ whether appearing as a noun (Her head was full of strange fancies), as a verb (She fancies herself a dancer), or as an adjective (a fancy dress, a fancier dress). Some positions of occurrence do not indicate whether a stem is functioning by one pattern or by another: Milk! is an NV stem combined with an intonation, and is ambiguously a command (="Milk the cow nowl") and thus a verb, or an exclamation ( $=$ "Why, it's milk!") and thus a noun, but nothing in the utterance tells us which.

The seven major stem classes include many smaller subclasses of stems marked by one or another peculiarity or limitation of usage. We give only a few examples. Scissors, shears, trousers,
pants, clothes are always plural. Some nouns, such as music, are almost invariably singular. Some nouns are used syntactically as either singular or plural without any overt inflection: sheep, deer, trout, bass, carp, fish, people. Such features of behavior place these stems in special subclasses of class $\mathbb{N}, \mathbb{N} A$, NV, or NAV.

A great many English stems are not single morphemes, but are built from smaller stems by the addition of certain elements called derivational affixes. Thus girlish and boyish, stems of class A, are built from the class $\mathbb{N}$ stems girl and boy with the derivational affix -ish; the class $N$ stem actress is formed from the class $\mathbb{N}$ stem actor with the affix -ess; actor is in its turn formed from the class $N A$ stem act with the affix -or. Some stems larger than a single morpheme do not contain a smaller stem, though derivational affixes are present: the in- and re- of infer and refer are derivational affixes, but -fer is not a stem. Derivation--the patterns of formation of stems larger than a single morpheme--constitutes a lengthy chapter of English grammar, about which, fortunately, we need here say no more.
2.2.2.3. Constructions and Construction-Types.

The number of constructions in English is very large, but most of them fall into certain fundamental construction-types, and it is these that we shall describe.

A construction is either centered or uncentered. A construction is centered if the larger forms built by it have much the same privileges of occurrence, in still larger combinations,
as at least one of the ICs. Otherwise the construction is uncentered. The constructions involved in black cat, blackbird, ran quickly, quite clear, men and women, either John or I, Lake Michigan, Queen Elizabeth are centered; those involved in saw John, seems a shame, with Bill, if so, I ran are uncentered.

To show that the construction by which black cat is built is centered, we note that the form black cat can in general be substituted for the smaller form cat: I saw a cat or I saw a black cat; a big cat or a big black cat; and so on. The constituent cat is called the center (or head) of the larger form; similarly bird is the center of blackbird (and of black bird, which involves the same constituents in a different but also centered construction), clear that of quite clear, and ran that of ran quickly. If a centered construction has only one center, its other constituent is called an attribute and the construction is of the attributive type; the examples given in this paragraph are all attributive.

Some centered constructions have two (or more) centers or heads, and no attributes. Such double-headed (or multiple-headed) constructions are of two subtypes: coordinate and appositive. Examples of the former are men and women (with heads men and women; and is a marker, not a constituent), men or women, two plus five, either John or I. Examples of the latter are Lake Michigan and Queen Elizabeth, in which, though both constituents are centers, also each constituent seems to modify the other.

Centered constructions appear at all "size-levels," as it were. In the sentence If he gets here soon enough we'll all go
together, the portion If ... enough is attributive to the remainder. In any form which consists of an intonation morpheme and a string of segmental material--say our diagrammed example, She bought a new hat (Figure 4)--the construction of intonation and remainder is centered, probably with the intonation as head and the segmental part as attribute.

The major types of uncentered constructions in English are directive, connective, and predicative. Directive are the constructions of in $\mid$ the box, on $\mid$ the table, if $\mid$ he is going, While | we were there, saw | John, asked me | a question, asked $\mid$ me. Connective are the constructions of is 1 a big man, is $\mid$ tired, became $\mid$ excited, lay in the corner $\mid$ motionless. Predicative are the constructions of He $\mid$ is a big man, She $\mid$ sings beautifully, $I$ | saw him, That man $\mid$ I just don't like, (She watched) us $\mid$ cross the street. A vertical line separates the ICs in the above examples; parenthesized material is to indicate context.

Directive constructions are prepositional, conjunctive, or objective. In prepositional constructions the first IC is a preposition: in | the box, on $\mid$ the table. The form built by a prepositional construction occurs most often as an attribute in a larger centered construction: e.g., the pencil $\mid$ in the box; but also as predicate attributes (see below) in connective constructions: (The pencil) is in the box. Conjunctive constructions have a subordinating conjunction as first constituent: if | he comes, when | you see him, if | so. Forms built by conjunctive constructions are also used mainly as attributes in
larger centered constructions: if he comes | we can go. Objective constructions have a verb (single word or phrase) as first constituent: saw $\mid$ John, asked me 1 aquestion, asked 1 me. The forms built by objective constructions occur typically as predicates (second constituents) in predicative constructions: I saw John. But if the verb is in certain forms, there are other uses. Thus to see John can be used as subject of a predicative construction (To see John $\mid$ is my only desire), or as object in an objective construction (want $\mid$ to see John).

Connective constructions have a verb of a special kind, or one particle ( $\underline{a s}$ ), or, in certain contexts, zero, as first constituent. There are three subtypes based on the nature of the second constituent: a noun predicate attribute, as in (That) is $\mid$ John; an adjectival predicate attribute, as in (He) grew large; or an adverbial predicate attribute, as in (He) is | here. The forms built by connective constructions are used like those built by obejctive constructions: mainly as predicates (That \| is John), but sometimes otherwise (wants | to be good). In (select him) as | our president, the connector (first constituent) is the particle as. In (elect him) president the first constituent is zero, but is allied to the verb be, as shown by comparison with (choose him) to be $\mid$ president.

Predicative constructions have as their ICs a topic and a comment: John ran away; That new book I haven't read yet; (the man) whom you visited here yesterday. In the first of these three examples, the topic is what is traditionally called the subject, and the comment is the predicate: this is true
perhaps in the majority of cases, but not in all, as shown by the second and third examples.

Forms built by predicative constructions are clauses. Independent clauses are those to which one need only add an intonation to produce a complete simple sentence: John ran. Independent clauses can be rendered dependent with a subordinating conjunction: if John ran. Otherwise, dependent clauses are shown to be so by the verb: John is there is independent, but John be there, John were there, John being there, John to be there, John there are dependent. That is, clauses of these latter varieties occur as constituents in larger segmental forms, not, as a rule, alone. Thus a dependent clause with -ing on the verb occurs: as a subject or topic (John singing that song annoys me); as object of certain prepositions (Don't count on John singing that song) ; and as object of certain verbs (I heard John singing that song).

Independent clauses are also classed by order. In direct order, the subject precedes all of the verly John is going. In inverted order, part of the verb, at least, precedes the subject: Is John going? and Has John been going?, where the verb is the interrupted phrase has been going. There are also some special orders (e.g., that of Away ran John) found under limited circumstances.

A sentence is a form which is not in construction with any other form. This requirement does not preclude certain kinds of ties between parts of successive sentences, which are not technically constructions but cross-cutting connectivities. Thus one
sentence may be a question and the next an answer. Or a word like he in one sentence may refer back to a name, say John, in the preceding sentence. Or a second sentence may begin with some loose connective, such as but or and. Thus: John did arrive, didn't he? -- Yes, but he forgot his books. Mainly, the selection and distribution of intonations marks the limits of sentences: thus any intonation ending with / ${ }^{3} 1 \# /$ marks the end of a sentence, and no intonation ending with / // marks the end of one.

Many sentences, at least of formal discourse, are built around an independent clause consisting of subject and predicate (or other type of topic and comment). Such sentences are called favorite. Sentences which are not of this type are of various minor types: Oh? Heyl Bring that herel Well for goodness's sake! There is a sharp difference between any sentence, favorite or minor, and a fragment which the speaker breaks off without completing. If one begins with I was going to--and then simply stops, one has a fragment, not any kind of sentence; this is usually obvious because only part of an intonation has been produced.

### 2.2.2.4. Grammatical Patterning in Action.

In terms of my earlier definitions, the grammatical structure of an utterance emerges, for a hearer, as the successive elements of the utterance are received. The first element sets up certain limitations on what may come next, and certain expectations as to what is more likely or less likely to come next. The same is true of a speaker, except for those occasions on which he has
planned an utterance in detail in advance of starting to speak it aloud.

To illustrate this, let us assume that we are listening to a formal lecture, and that the first word we hear is empathy. We shall assume also that the production of the word is not accompanied by an utterance-closing intonation. Our expec-tation-pattern after reception of the first word, before we hear the next one, can be graphed as follows: empathy
$\longrightarrow<+\equiv \mathrm{E}$

The marks have the following meaning. " $>$ " means that the next thing spoken might be something to which the part already spoken is an attribute; empathy methods ... or the like. "<" means that the next to come might be a postposed attribute and modifying empathy: empathy of some sorts or empathy in psychotherapy. " + " means that the next to come might stand in a coordinate construction with what has already been said: empathy and intuition. "三" means (though this is less likely) that the next to come might stand in apposition with empathy: empathy, the method used in... Finally, "E" means that empathy may be all of a topic, the next element in the sentence beginning the comment: empathy is often used in ineffective ways. Now this is a wide range of grammatical possibilities, but it does not include everything-rfor example, it is entirely precluded that the next element should be the object of empathy (in an objective, prepositional, or conjunctive construction), since empathy is not a word which can occupy the first position in any such construction.

The next word we hear is as; and the expectation-pattern is restructured:


Most of the possibilities left open by the uttering of empathy have now been eliminated. As begins a grammatical form which will stand as a postposed attribute to empathy; this is indicated by the mark " $<$ " at the junction of the boxes in the dia. gram for empathy and for as.... As must itself be followed by something standing to it in the relation of object; this is the meaning of the mark " $\rightarrow$ ". The other three marks have the same meanings as before; they are put in parentheses because they do not indicate what can happen next--the possibility of a further postposed attribute, or of something in apposition, or of a comment, is temporarily in abeyance, until the materials demanded by as have been spoken.

The next word we hear is a:


What comes next must be something modified by a. Next we hear technique:

--and this opens up the possibilities again. What comes next may stand in construction only with technique, or with a technique, or with as a technique. The first would be the case In Empathy as a technique in psychotherapy; the second in Empathy as a technique or a method; the third In Empathy as a technique has challenged many of us.

The next four forms are of, behavioral, research, and designates, and we present the expectation-diagrams for the four resulting situations without comment save about the last:




Note, particularly, the difference between the openness of the possibilities after research and the decisiveness of structure which results when is is added: the adding of is (or, of course, of seems, designates, 1mplies, appeals, strikes or the like) finally establishes that all the forms so far constitute a unit, and that anything further in the utterance will relate to that whole composite unit, not to any of its individual components.

Such "growth diagrams" thus show some dynamics which the mere diagramming of a whole sentence, after the fact, cannot reveal.

Two related points must be added. Not infrequently, a
speaker will simply abandon an emerging structure, and start over again. This is always a possibility, though it is not represented, in the foregoing diagrams, by any positive mark. Also, the emerging structure may become so complex that the speaker forgets some of the "hang-over" irresolutions implied by his earlier words, so that the resulting whole simply does not structure. Such a "hang-over" irresolution is the need for a predicate, which is established in our example by the very first word. By the end of research, this could have been lost, the speaker going on to produce an imparsable sentence like Empathy as a technique of behavioral research developed particularly by psychiatrists, but also taken over by anthropologists, who adapt it for use with people with vastly different cultural backgrounds. Our strong habit of editing out such structural irresolutions in written material should not close our eyes to their very high frequency in oral communication, even of a technical and formal sort.
2.3. Nonlinguistic ${ }^{\text {l }}$ Vocal Communicative Systems.

The nonlinguistic features covered in the following discussion were observed from speakers of English. Some of them are doubtless much more widespread, in connection with many languages; but insofar as we have been able to see the systematic patterning

1

```
See Appendix l for a somewhat more recent (Trager, 1958) and somewhat fuller treatment, and Pittenger, 1960, \(285-206\), for further modifications of the system presented here.
```

of any of these features, our description must be interpreted as applying only to speakers of English.

Some vocal activities take place not accompanied by any linguistically organized behavior: coughs, belches, sneezes, laughing, crying, humming, and the like. Some of these, of course, occur also during linguistically organized speech: as when a cough interrupts speech, or a laugh either interrupts or is simultaneous with it. In transcribing recorded vocal behavior, it is convenient to use a symbol for laughing:

I
repeated as necessary over the transcription of the relevant sequence of words or syllables. Other interrupting effects of this kind are perhaps best taken care of via added notes. There are, of course, various kinds of laughing, and no doubt the variety is culturally patterned; but we have not yet subjected this range of phenomena to closer analysis. Certain types of activity incorporate linguistically organized speech with certain limitations. In singing with Words, the segmental portion of language is fully represented; the stresses are sometimes undistorted but sometimes modified (depending on the style of song); the intonational system of the language does not clearly manifest itself, since the raw-material in which it normally is made evident-mitch--is preẻmpted by the conventions of singing. In whispering, of various different kinds, the intonational system is also distorted. The segmental phonemics is maintained, though the actual sound of some of the phonemes is quite different from
normal unwhispered speech. In transcription, whispered passages are marked

$$
X-\quad-X
$$

For most of the above phenomena, and for those to be discussed below, there are two sets of features which can be classed under the terms vocal quality and vocal set. Without attempting to define either of these with absolute precision, we can say that both have to do with longer-termed features of the quality of the voice. Thus women's voices are different from men's (yet some men can mimic women's voices, and vice versa); the voice of a child sounds different from that of a young girl, or a woman in her twenties, or a matron of thirty-odd, or an old woman (yet young actresses can play old-woman roles). A cold in the nose affects voice quality. These "biological" or quasi-biological manifestations are matters of voice quality. Most speakers adapt to the size of the room in which they are speaking, and the size of the audience, and the amount and variety of extraneous sound, in such a way as to establish a personal norm for the specific circumstances: these adaptations are matters of vocal set.

It is within the range established for a relatively larger period of seconds, minutes, or hours, that the variations take place which we analyze in terms of vocal qualifiers. The system of vocal qualifiers consists of a number of dimensions of variability of voice quality (acoustically speaking) or style of articulation, each of which is more or less independent of all the others. On each scale, the "norm"--the most colorless placement--is roughly in the middle, while deviations from the
norm in either direction constitute significant signals. We are not certain of the exact number of dimensions; the writer has found it feasible to work with the following nine:
(1) Iempo: oversiow, normal, and overfast. Symbols, the following, used like brackets through the passage effected:

| overslow | $\ll-$ | $-\ll$ |
| :--- | :--- | :--- |
| overfast | $\gg-$ | $-\gg$ |

(2) Syllable control: clipped, normal, and drawled: clipped $\quad-\quad$ drawled - - -
(3) Volume: oversoft, normal, and overloud:

| oversoft | $\boldsymbol{\imath}-$ | $-\boldsymbol{v}$ |
| :--- | :--- | :--- |
| overloud | $\hat{\wedge}-$ | $-\hat{\wedge}$ |

(4) Height of register (the bandwidth of frequencies within which the pitch levels are pronounced): overlow, normal, overhigh:

| overlow | $\downarrow-$ | $-\downarrow$ |
| :--- | :--- | :--- |
| overhigh | $\uparrow-$ | $-\uparrow$ |

(5) Width of register: from overnarrow or "muted" through normal to overwide (also called "singing," but this is a questionable application of the latter term):

| overnarrow | $\downarrow$ | - |
| :--- | :--- | :--- |
|  | $\downarrow$ |  |
| overwide | $\ddagger-$ | - |
|  | $\ddagger$ |  |

(6) Pitch control: glissando (slurring from one pitch level of the intonational system to the next), normal, and portamento (sharp stepwise motion from one pitch level to the next):
(7) Glottal tension: rasping, normal, and open:
rasping $\quad Q-\quad-\quad$
(8) Air flow: breathy, normal, and squeezed (or
"overvoiced"):
(9) Precision of supraglottal articulation: overdose
("sloppy"), normal, and overprecise.
Each of these is, as indicated, a scale along which ovarian
sion is possible. It is not yet known just how many points
along each scale are communicatively distinctive. In the early-
est work done on vocal qualifiers, it was believed that for each
scale there were three and only three contrasting points: those
assigned labels in the above listing. That is, as to tempo for
example: speech was either normal, or enough faster than normal
to count as distinctively overcast, or enough slower than normal
to count as distinctively overflow. More recent work has con-
vince several investigators independently that, at least on some
of the scales, more degrees are distinctive. It may, indeed, be
the case that there is no exact small finite number of contrast-
ing points along each scale, but rather a genuinely continuous
range of variation. For transcription purposes, at present, how-
ever, our only practical source has been to use only the symbols
listed above.
Akin to the vocal qualifier system, yet distinct from it in one way, is a set of dimensions in which the norm is at one end of the scale instead of in the middle. Whispering can be classed as one of these dimensions: normal speech is not whispered, and whispering has no "opposite" which also deviates from the norm. A second is breaking: normal speech has no breaking, which is added as a rapid turning on and off of the vibration of the vocal cords (a sort of "chatter" or nervous "giggle"). Laughing can be interpreted as a third. Symbols:

| whispering | $X-$ | $-X$ |
| :--- | :--- | :--- |
| laughing | $L-$ | $-L$ |
| breaking | $\delta-$ | $-\quad \delta$ |

Quite different from either of these systems is the system of boundary phenomena (also called vocal identifiers--a term with no mnemonic value). The items of this system appear typically at the boundaries of actual linguistically organized utterances-as one starts an utterance, as one finishes one-rand during hesitations either between grammatically organized utterances or in the middle of utterances as the speaker is (as it were) deciding how to go on. I'he analysis of boundary phenomena is far from complete; all we can do here is to list the symbols which, it seems, are minimally necessary for transcribing them: voiceless aspiration (sometimes a "sigh") h voiceless intake of air (a "gasp") d voiced aspiration through mouth ə

> (without the articulation of vowels and consonants)
> Glottal catch release into. speech, or glottal closure breaking off speech

Thus a very common way of saying the assenting "grunt" (conventionally spelled $M-h m$ ) begins with the last of these and has the first of them in the middle.

Tentatively $I$ find it convenient to distinguish between "quarter-speech," "half-speqch," and full (completely linguistically organized) speech. In quarter speech, neither the segmental nor the intonational portion of language is represente: "utterances" in quarter-speech involve the system of boundary-phenomena described above and some of the system of vocal qualifiers. In halfaspeech, intonations are present in addition to boundary phenomena and vocal qualifiers, but not linguistic segmental material. In full speech, of course, intonational and segmental linguistic material are both present, in addition to the fon-linguistic features.

## CHAPTER 3

Body Motion

Ray L. Birdwhistell
"Every little motion has a meaning all its own." This line, from a song popular in the twenties, has been suggested as expressing the theme of the work of the student of body motion. Reflecting the growing self-consciousness of our culture, this line contains within it the challenge and the promise which motivates such a student. Like Bateson (p. ), we are convinced that 'everything which occurs in a social interaction is meaningful in the sense of being part of the interchange as well as non-accidental.' At the same time, however, "Every little motion has a meaning all its own," carries with it an implication which is probably the major impediment to the analysis of communicative systems: the assumption that not only does each motion have a meaning but that the relationship between that movement and that meaning is precise, integral and universal. It is the task of this chapter to make clear that while body motion behavior is based in the physiological structure, the communicative aspects of this behavior are patterned by social and cultural experience. The meaning of such behavior is not so simple that it can be itemized in a glossary of gestures. Nor is meaning encapsulated atomistically in particular motions. It can be derived only from the examination of the patterned structure of the system of body motion as a whole as this manifests itself in the particular social situation. It should be evident to the reader that this is precisely the same point which has been made by Hockett, as a linguist, in

HIGHWAY SCENE
Time: Estimated 5 seconds
Characters: Soldier No. I, Soldier No. 2 and Driver
Soldier No. 1 :

Head
Forehead-Brows
Eyes
Nose
Cheeks
Mouth
Chin
Neck
Shoulders
Trunk
Hips
Right Arm
Hand and fingers
Left Arm
Hand and fingers
Right Leg
Foot
Left Leg
H> $I^{\circ}$
Hftb-b
00
driver
Mz
L-L
$" \geq 1^{\circ}$
TpTp
RAN[RA2:45 $\leq \geq 3: 45 n$
R/1?4P
LAn-15'3uI[A;TA]
$\frac{\mathrm{L} / \mathrm{lc} 2 \overline{\mathrm{c}} 3 \overline{\mathrm{C}} 4 \mathrm{C} 5 \mathrm{C}}{}$
Y45Y
Y45Y

Foot
Soldier No. 2:


## Driver*:

| Head | $\mathrm{H} \geq$. | $\mathrm{H} \cdot \mathrm{nq} \wedge$ |
| :---: | :---: | :---: |
| Forehead-brows | 2 | $\mathrm{Hfb}-\mathrm{b}$. |
| Eyes | OO | OO. |
| Nose | road | soldiers |
| Mouth | L/L | tL-L |

- Hffibbz
- $\frac{=00=}{\text { car }}$
- oMo
- t1-1

. $\mathrm{H}>\mathrm{I}$
- Hffbbz
- 0000
- 0000

0000

- 0000
- Txpivot

LAnnn
$\mathrm{L} / 14 \mathrm{cP} \geq$
- $R Y \leq 3^{\circ}\left(Y 45+30^{\prime} Y\right)$ Ly $5 \geq \operatorname{Ly} 3^{\circ}$
- $\quad\left(Y 45+30^{\prime} Y\right) \mathrm{Ly} 5 \geq \mathrm{Ly} 3^{\circ}$

Cheeks
Chin
Neck
Shoulders
*Driver maintains upright, bi-manual driving position throughout scene.
(Sample)
Shoulders $\quad \| \geq 1^{\circ}$.

Shoulders
$\| \geq 1^{\circ} . \quad$.

- ||
||
the preceding chapter (p.). It is the task of this chapter to review the present status of kinesics, the systematic study of body motion, in such a manner that the nature of the relationship between the two communicative systems will be adumbrated--if not entirely revealed. Based on the same assumptions, the two modes, kinesic and linguistic, have parallel, even at time analogous, structures. They are, however, infral -communicational systems, not directly meaningful in themselves, and the reader should not be surprised to discover that their correlation brings difficulties into the analysis of the communicative process.

In the pages to follow an example of a non-verbal communicative system will be presented. This is designed to sensitize the reader to the kinesic scene. The second sub-section will contain a general review of the present status of kinesic theory and research. Finally, a discussion of the problem of systematic interpretation should prepare the reader for the experiment with which this present work is concerned.

## Example

Just west of Albuquerque on Highway 66 two soldiers stood astride their duffle bags thumbing a ride. As a large car sped by them, the driver jerked his head back signifying refusal. The two soldiers wheeled and one Italian-saluted him while the other thumbed his nose after the retreating car.

1
See $p$.

## Macro-kinesic Translation

The two soldiers stood in parallel, legs akimbo with an intrafemoral index of 45 degrees. In unison, they raised their right upper arms to about an 80-degree angle with their bodies and, with the lower arm at approximately a 100-degree angle, moved the arm in an anterior-posterior sweep with a double pivot at shoulder and elbow; the four fingers of the right hand were curled and the thumb was posteriorly hooked; the right palm faced the body. Their left arms were held closer to the body with an elbow bend of about 90 degrees. The left four fingers were curled and the thumb was partially hidden as it crooked into their respective belts.

The driver of the car focused momentarily on the boys, raised both brows, flared his nostrils, lifted his upper lip, revealed his upper teeth, and with his head cocked, moved it in a posterior-anterior inverted nod which in its backward aspect had about twice the velocity of the movement which returned the head and face to the midline and, thus, to driving focus.

Without apparent hesitation the boys rightstepped posteriorly, one of the boys moving in echo following the movement of the other. Facing the retreating car, one of the boys raised his upper lip to expose his teeth, furrowed his forehead, lowered his brows, contracted the lateral aspects of his orbits, and flared his nostrils. His right arm swept from its posteriorly thrust position, on a shoulder
pivot, to rest, fist clenched, upper arm across the right half of the body and the lower right arm thrust up and slightly anterior to the body line. The left hand left the belt and the lower arm swept right and upward to meet the descending upper (right) arm. The left hand grasped the right biceps as, fist still clenched, the right arm moved quickly in an anterior-superior thrust in line with his shoulder and the retreating automobile.

The other boy dropped his face into "dead pan," pivoted his right arm at the elbow, flared and straightened his Iingers into crooks, and, as the already hooked thumb crossed the midline of the body in the lower arm's downward sweep, the apex of the thumb made contact with the apex of the nose. Without hesitation the arm completed its sweep across the body and came to rest hanging, palms slightly forward, at his side. The left arm, on an elbow pivot, swept downward and came to rest mirroring the right.

## Discussion

These three portrayals, the brief statement, the macrokinesic transcriptionfigure 1 , and the kinesic description derived from the macrokinesic recording, all tell the same story with varying degrees of fullness. Some readers may feel like the little boy who received a birthday book about penguins from his aunt and felt it contained more about penguins than he ever wanted to know. However, such a record as is provided by these latter descriptions makes it possible for us to do extended analysis of the transaction.

The initial descriptive statement is totally inadequate for such purposes.

This scene contains much more than three men gesticulating at each other. In the time it takes an auto to pass a fixed point at seventy miles an hour, a communicational transaction has taken place. In five seconds a social group is established, a social ritual is performed, and, presumably, the lives of three human beings are somehow affected. This is patterned activity; its components were learned in a multiple of comparable but differing situations by the participants. Yet this is no mere mechanical performance. We cannot, for the moment, "explain" it; nevertheless, it is a piece of microculture whose natural history we may attempt to relate.

We have no way of telling how the driver felt or what he thought about as he approached the soldiers. Our only evidence comes from the driver's compressed mouth ( $L / L$ ). Our experience with other American scenes suggests that this orifice compression scarcely indicates receptivity to their plea. We have for the purposes of this example elected to limit the scene to that period during which all members of the transaction could "see" each other. The "why" of the transaction may rest upon the boys' previous experience that day which occasioned the particular stance which they maintained. Perhaps as the car came into view it swerved almost imperceptibly toward the soldiers, thus alerting them to the driver's attitude. Interpersonal space are often definitional of communication situations. Within the range of our abstracted scene, the driver's face was clearly visible to the soldiers for scarcely two seconds, and his head and face movement took less than a half second to complete. The observer has no way of finding out exactly what the soldiers "saw." Yet their unhesitating reaction indicates that the driver's analyzable act was transmitted to them. Both soldiers responded with acts of the same class as that used by the driver. Further, Boy No. 2 selected his from the same South European (post-World War II American male overlay) diakinesic ${ }^{l}$ system as that expressed by the driver. This supports the conclusion that theirs was a response to the driver's activity and not simply an idiosyncratic reaction to being refused a ride. Further questions arise from the analysis of this microcosmic scene. Was the driver initially stimulated to his insultingly rejective activity by the spread-legged stance of the boys? And/or were the left thumb in the belt combined with the spread-legged stance (often part of the pre-fight or pre-sexual advance behavior of adolescents) dominant as parts of a definitional act whch challenged him, a male, into his negative response? Obviously, only by observing this driver and these soldiers in a series of contrasting scenes would such questions as these be answered. There is a strong suspicion, however, that if the driver had

1
Analogous to a dialect system in language.
responded with a back nod of less ascending velocity, raised his eyebrows bi-laterally and lowered the corners of his lips in a "I would if I could, but if $I$ can't, I can't," the boys would have carried out their activity in a considerably less hostile manner.

This scene is illustrative of the extent to which a human communicational event, a transaction, can be completed without recourse to verbal behavior. At the same time it demonstrates the fact that communication within even one modality is seldom a simple affair. The student of body motion behavior is not always so fortunate as to have a scene so clearly defined for him. Nor do most transactions have their interactional tempos so neatly marked, as in this case, by the explicitly conventionalized "gestures." Notwithstanding its relative simplicity, the scene provides a useful point of departure for our present discussion. The ritual of "thumbing a ride" is familiar in American culture, yet a closer analysis of this special incident is illustrative of the hidden complexity of such scenes. In the soldiers' persuasive activity with the "thumbing a ride" gesture as the ostensible action proposition of this scene, we are provided with an excellent example of the extent to which an act can be modified by incongruent movement complexes which complete it. The spread-legged stance, congruently modified by the thumb-in-belt complex, contains two components which combine in a larger act. At the same time this act is, at one level, incongruent with the gesture of thumbing. As Bateson has suggested, such
components may modify, that is, may constitute commentaries on, each other. What they mean is another matter. At the moment we are concerned only with their relationship to each other and to the package act of "thumbing."

By careful cross-context analysis, we can derive a series of working hypotheses concerning the soldier's initial act and its incongruent components. The stereotypic "thumbing" gesture is deceptively familiar.

We must remember that the same gesture in another actional setting is conventionalized as the insulting or mock-insulting directive to "Get lost:" In fact, the complex act described above, if it took place on a street corner in Los Angeles or Chicago, could have just this explicit interpretation. Through contrast analysis, we are able to say that the "thumbing" action as produced is itself incongruent with its context--if we postulate that the dominating purpose of the boys was to persuade the driver to give them a lift. The recognition that communicational behavior can be congruent in one setting and incongruent in another should serve as a warning against any theory of meaning which suggests that the particles carry meaning in and of themselves.

Contrast analysis permits us to define this particular combination of movements in this context. We postulate the arm and thumb as an "appeal for a ride", the spread-legged stance modified by the thumb-in-belt as "male defiant," and the whole as an act conveying a "defiant appeal for specific assistance." This complex of behavior is consistent with
the role of these late adolescents, in uniform, who are avoiding "begging." These young soldiers are in no position to play the role of the college boy who "thumbs" a ride but whose college sticker and clothes belie the ingratiating stance and head cock plus smile with which he modifies his petition. ${ }^{l}$ We could pursue such contrastive examination throughout the entire scene, and in the final analysis the social meaning of the individual movements, gestures, acts, and action must be phrased in terms of the entire scene. These are all susceptible of analysis if the activity is seen as a transaction, in the context provided by the various participant social roles an defined by American male sub-culture. The scene may be viewed as a role-stating ritual in which the component activity is such that it negates the central gesture. The boys must wait for another car and driver in order to get to Los Angeles. It is probably safe to say that the boys either must amend their activity or wait until a driver with a different set toward such messages comes along if they hope to get a ride.

## Background to Kinesics

Kinesics is the systematis study of the communicational aspects of human body motion. The methodology of kinesics is still extremely crude. At its present stage of develop ment, kinesics may claim to be a science only by virtue of

1
For an interesting analysis of the complex social psychological aspects involved in such "presentations," see Goffman (19.: ).
the canons which dominate its operations and by virtue of the postulates upon which these operations depend. As a body of knowledge, it cannot yet be judged worthy of the appellation kinesiology. Yet five years of research which has utilized and constantly refined the methodological procedures of kinesics have been so fruitful that it is without qualms that the present investigation, employing those procedures, is attempted.

It is entirely fitting that psychiatrically oriented Interview material be the subject matter for this initial attempt to apply practically the data derived from kinesic Investigation。 Psychiatrists and psychologists have for over a century been aware that body motion and gesture were Important sources of information regarding personality and symptomatology. All port (1), Dunlap (2), James (3), Krout (4), Lersch (5), Ombredane (6), Groddeck (7), and Wolff (8) are but a few of the students of personality who have contributed to a considerable body of literature concerning expressive movement. The brilliant observations of Felix Deutsch (9) on what he calls "posturology" must be especially noted. His is one of the clearest statements concerning the diagnostic value of body motion and posture. Kinesics, however, represents both a theoretical and a methodological departure from studies such as these which stress personal activity and individual performance. It is our hope that communicational research and, particularly, kinesic research, will provide a methodology, an annotational
system and a set of norms against which these kinds of intuitional systems can be checked. It is our conviction that significant statements concerning the behavior of particular individuals must be based on an understanding of the patterns of intercommunication of more than one actor. The significance of particular individual variation can be assessed only when the range of permissible group variation has been established.

There is nothing new about the recognition that formalized gestures play a role in communication. Theatrical performances, whether centering around dancing, drama, opera, or the mime have long emphasized the role of gesture, particularly in its stereotyped or conventional form. Integral to every religious ritual, the gesture is stressed in all novitiational training. A considerable bibliography has been collected with representation from almost every literate country and extending back in time to early India, which evidences the international character of the interest in gestures, and their proper performance. Most of these writings are of collateral interest to the kinesicist.

The concentration upon the particular gesture and its meaningfull performance teaves most of these writings of primary concern to the folklorist. Perhaps when extended research into the kinesic systems of particular areas has provided a body of background material, much of this earlier material will become relevant in a new way, just as linguistic
research consistently opens new perspectives upon old data of a verbal nature.

Of these earlier publications, most relevant have been those which have dealt with the development of systems for annotating body movement. Before the publication of the Introduction to Kinesics ${ }^{1}$, we carefully reviewed a series of annotational systems and were particularly impressed by those of Craighead (1942), Lifer (1940) and Pollenz (1949) and these doubtless influenced our system of microkinesic recordingg the logic of which is presented in Appendix 3. These annotational systems are all extremely useful for recording the conventionalized patterns present in the dance, modern, classical, or folk. They are, however, somewhat too limited in scope for use as instruments of broad kinesic research. Perhaps the most complete and extensive recording system in usage today
 industrial studies, this system has been used effectively both for stage and for general movement recording. The decision to develop the specialized system presented here rests finally upon the conviction that annotational conventions which signal the specific operations governing their abstraction are probably desirable. In short, recording systems should derive, in the first instance, from considerations of theory and methodology, rather than the reverse. As

1 Birdwhistell, 1952.
2 See Laban, 4
research and theoretical re-evaluation continues, such recording procedures must necessarily be revised.

Both the microkinesic system outlined in Appendix 3 and utilized on pp. to pp. and the macrokinesic system demonstrated above in Figure 1 and outlined in Appendix 4, have been revised a number of times and must be further revised as body motion research continues. Certainly any system which is as accurate and which would permit still easier and weifter notation would be more desirable. As the annotational system for microkinesic recording now stands, only a relatively large, well-trained (and thus expensive) team could record live micro-cultural material with any degree of completeness and accuracy. Designed for the analysis of filmed material, the kinegraphs are useful only for checking kinesic research with live subjects. They are insufficiently flexible for primary microkinesic research on such subjects.

This is not the occasion for an extensive presentation of the background to kinesic research. However, to put the present work into perspective, some reference should be made to a series of men whose work bears directly upon the development of kinesic theory and methodology. The pioneer work, Darwin's Expression of Emotions in Man and Animals, contains many lucid suggestions which foreshadow the theories emergent in the present-day fields of ethology or comparative psychology or kinesics. The rigor of his observations combined with his

[^1]nascent sense of the dynamics of social interaction make many of his statements seem contemporary. One cannot help but wonder how far Darwin would have gone with this work if he had had the tools of descriptive linguistics, of communication and information theory, and the technical aids to precision provided by the tape recorder, the sound camera and the time-motion analyzer.

The interdependent nature of linguistic and kinesic research is anticipated by Edward Sapir, ${ }^{l}$ who, a little more than a half century later says,
"Gestures are hard to classify and it is difficult to make $a$ conscious separation between that in gesture which is of merely individual origin and that which is referable to the habits of the group as a whole ... we respond to gestures with an extreme alertness and, one might almost say, in accordance with an elaborate and secret code that is written nowhere, known by none, and understood by a.11."2

Sapir aid not follow up his own lead, but it is his students and other linguists strongly influenced by his work who have contributed most to the systematization of body motion research. George L. Trager and Henry Lee Smith, Jr., at the time doing research in the structure of American English at the Foreign

[^2]Service Institute, provided an atmosphere and the special guidance which encouraged the originalformulation of kinesics as a science. John Broderius, another student of Sapir's, worked cooperatively with me at later stages of the refinement of kinesic principles. His constant insistence that kinesics be firmly based in pre-kinesic research and not be lost, as he phrased it, "in the thin stratosphere of intuition," helped to maintain the frame which early association with Smith and Trager had produced. The present research with the linguists is another logical step in the necessarily interdependent companionship of descriptive linguistics and kinesics.

Parallel to these influences and consistent with them, have been the writings of a series of anthropologists whose field experience, as did my own, led them to the conclusion that body motion and facial expression were strongly conditioned, if not largely determined, by the socialization process in particular cultural milieux. While affirming the ultimate biological basis for all human behavior, trere seems little doubt that out of the vast range of possible combinations of muscular adjustments, perhaps a quarter of a million in the facial area alone, each society "selects" certain ones for recognition and utilization in the interaction process.

Probably the pioneer anthropological analysis of gestural activity is Efron ${ }^{1}$ 's test of the hypothesis that there is a direct correlation between the previous social environment of European immigrants to America and their gestural systems. and hands, Efron contrasted the gestural systems of Italian and Southeastern European Jewish immigrants. Although his thesis correlating certain ecological factors with the respective gestural systems remains inconclusive, his work effectively demonstrates the social genesis of the evident variation in the gestural systems of these two groups.

While Efron's experimental approach has not been pursued by other investigators, Labarre ${ }^{1}$ and Hewes ${ }^{2}$, with quite different emphases, have directed the attention of field workers to the importance of recording and analyzing the gestural behavior of human groups. However, the most important anthropological contributions to the development of the study of body motion as a communicational system have come from the work of Mead and Bateson ${ }^{3}$. Their concern with the relationship between socialization and communication, assisted by considerable skill with and appreciation for the camera as a research instrument, set the stage for the development of kinesics as a behavioral science. Not only has their field work provided a body of materials for cross-cultural study but their insights into the systemic quality of the communicational process have prevailed upon the writer to take up his profitable association with the linguists.

These few paragraphs were not intended exhaustively to relate the contributions which underlie the present status of kinesic research. The recognition that body movement contributes to interpersonal understanding (and misunderstanding) is probably as old as man's interaction with man. Yet kinesics as a systematic approach to such phenomena is still relatively untested. The brevity of these remarks does not represent a failure to appreciate the extensive scholarship from which kinesics has emerged but rather a feeling on my part that our present experiment demands an assessment of the infant discipline rather than a genealogical legitimatization of it. The scientific history of a discipline should be concerned with the tests and modifications of its theory and methodology; until investigators are trained and experiments are performed, kinesics will have no history.

In seeking to comprehend and to make intelligible those aspects of human body behavior which contribute to the communicational process, the kinesicist-anthropologist employs a set of procedures which are special only in the sense that they must be adapted to the peculiarities of the system under examination. Dealing with a universe which he has pre-defined as ordered and interdependent, his primary task is that of developing a methodology whereby units and sub-systems can be abstracted and manipulated. From the seminal insight that kinesic activity constitutes an infra-communicational system is derived a plethora of data

Which, unless explicitly and methodically ordered, drowns the investigator in a myriad of shapes and sizes and orders of behavioral pieces. Having fixed his eyes upon the behavior which constitutes the human interactional scene and having adjusted himself to the outrage of the recognition that communication is continuous, he must resist a series of temptations which would shortcut and, coterminously, predetermine the results of the observational process. Some of these temptations are suggested in the discussion above but their subtle influence upon the work of those concerned with "non-verbal communication" has been such that they are probably worthy of explicit delineation.

## Temptations

The "carrier" temptation

This derives from a linguistic naïveté which assumes that each gesture, whether as gross as a thumbed nose or as tiny as a first degree right lid droop, has a "real" meaning just as "words" are supposed to have. If the investigator succumbs to this, his attention is directed into a kind of dictionary wherein he draws up lists of moves and their meanings only to discover that most human beings are kinesically illiterate and move improper English. As shall be demonstrated below, even a preliminary approach to kinesic data reveals that no abstracted body motion, gesture or kine, has a precise and absolute maning apart either from its position in the kinesic system or from the social context
in which it appears. The question "What does $X$ mean?" can only be met by the counter questions of "At what level of analysis and in what contexts?".

The "closer to nature" temptation
This category really covers two companion but differing hidden assumptions. One of these is that body movement is somehow more primitive and thus closer to biological nature than is verbal behavior. Animals move and animals don't talk. Humans move and talk. Ergo, moving and kinesthetic-visual communication came earlier in evolutionary history than did talking and thus remain unpatterned. Depending upon the predispositions of the writer, this same assumption has permeated the work of the individualists who feel that body motion and facial expression reveal the "true" feelings of a communicant, the writings of the racists who confuse social variation in response pattern with genetically determined "stoicism", "vivacity" or even rhythmicity, and the universalists, who assume that since there is minimal biological variation in homo sapiens and since moving came early, there is species-fidelity and universality in all movements. The way in which these assumptions are expressed varies from that of some of the individualists who say that everyone is so different from everyone else as to preclude generalization at all to that of some of the universalists who optimistically anticipate a movement catalogue. Whether simply nihilistic or modern pastoralist these assumptions do not hold up as we examine the communicational situation. Not

Not only is kinesic activity systematically patterned but this pattern varies significantly from culture to culture and even from sub-group to sub-group. While eventually we may find that the special physiological patterning of special groups may influence to a considerable degree the characteristic tone of the kinesic activity of such groups, we expect also to find a reciprocity of influence between the biological and social systems rather than any pattern of basic priority of a simple genetic nature.

More subtle and more seductive than these assumptions which deal largely with the total membership of society are those which see infantile behavior as more natural than adult behavior. Those so persuaded see maturation as somehow artificial and distortional of infantile naturalness or, accepting maturation as a natural process, these writers seem to feel that those behaviors which are characteristic of the infants of a group (or of all infants?) are somehow truer representations of the feelings of the communicant than are those more characteristic of adolescence or maturity. So long as generalizations such as these are related to the examination of individual responses and deal with the documentation of personal histories they are not of direct concern to the kinesicist. However, if they are permitted the dignity of becoming basic to all systemic interpretation it is well to point out that our knowledge of the ontogenetic development of individual kinesic systems is less than fragmentary. There exist a number of suggestive--even exciting--
studies of maturational behavior. But we lack the cross-cultural longitudinal analyses which would permit any safe generalization of "how" humane learn to become communicators or give us more than an intuitional feel for the sustaining strength of infantile response.

It must be pointed out that this does not in any way affect the validity of the regression hypotheses. It is evident to any observer that adults will in special situations behave incongruently with their level of maturation. However, to assume in an a priori manner that this proves the strength of the infantile response is to ignore the communicational function of the act.

As we shall discuss below, while a body curl or a thumb suck may on one level of analysis be incongruent with other kinesic behavior being exhibited by an acțor, such behavior may be quite congruent in the total communication situation. In the sections below on body set and motion quality the differences between "ageing" and "age grading" will be discussed. Suffice it for the moment to say that it is the present premise of kinesics that considerable research on the social learning patterns of infants and children must precede any security on our part concerning "basic" bahavioral manifestations.

## The "modifier" temptation

As professionally literate members of a culture devoted to literacy, we are strongly tempted to believe that words carry the meaning and that all other non-word behavior merely
modifies it. Thus, there are those who feel that words form the natural center of the communicational universe and that all other modes of communication are to be studied as sub-systems subordinate to it. Such a decision predetermines the nature of the communicational process and $I$ am as yet unwilling, from the situations which $I$ have examined, to assign any such priority to any of the infra-communicational systems. For the kinesicist, silence is just as golden as are those periods in which the linguistic system is positively operative.

As shall be seen below in the discussion of kinesic markers, there are aspects of kinesic activity which have an infra-communicational function only heuristically separable from the vocal activity. Correlated with the process of verbalization, these markers, whether an aspect of the speaker's production of the message or the listener's contribution to the transaction, deserve special attention in an assessment of an interview like the one presented below. Indicating position, temporality, special emphasis, subject, object, etc. ${ }^{2}$ the markers, like many gestures, are often so closely bound to linguistic behavior as to seem like extensions of it. Further research may well force a special categorization of this kind of kinesic behavior. At present, however, with the recognition that during much of human interaction verbalization is absent, it seems proper to study the two systems as of comparable weight in the communicational process.

This temptation has received stress because of its implications for communicational theory and research. When do humans verbalize? Is there a correlation between intimacy, for instance, and a reduction of conversation? Is there a correlation between the culture of a group and its dependence upon one mode of the communicational process? What are we talking about when we say that one person is verbal and the other taciturn? Even such a subjective term as "good listener" may now be within the reach of objectification. It seems unlikely that such questions as these can be answered until we have considerable understanding of the nature and the role of the infra-communicational systems and their relationship to each other. To assume priority for one or the other sub-system prior to such research would be to oversimplify the problem in a manner already too familiar in so-called "content analysis."

## The "central movement" temptation

Somewhat more technical than these temptations is the tendency on the part of the investigator to assume that one part of the body "carries the meaning" and other parts "modify" this central message. This is particularly seductive because we "know" intuitively as a member of a particular diakinesic system that certain movements seem to take precedence in the presentation or reception of a message. The eyes, the mouth, the face, the hands, the posture, the shoulders have all been listed by informants as being the
primary carrier of meaning. To accept such statements
would be a little like accepting an informant's conviction that nouns or verbs or even consonants or vowels are the most important part of language. Further, as is true in Iinguistic analysis, simple particle counting does not give us a score revealing system importance. I have no doubt but that research will reveal that given cultures will, by sheer count, tend to produce more movements from one body area than from the remainder. Such counting does not, however, permit the investigator to assume a correlation between the incidence of usage of a body area and its functional importance either to the infra-communicational system or to the communicational process. Redundantly, I must again insist that only following systematic analysis of kinesic units and patterns can so-called central movements be established.

Even with the minimum of cross-cultural data at our disposal, the evidence is clear that cultures will tend to concentrate activity in certain body areas and permit the activity of others only under certain very limited circumstances. It seems evident that this will have momentous implications for students of national character. However, it does not follow that we can make statements like "Spanish women use their eyes and Russian Jewish women their hands and American stanographers their feet to say what they really mean." Such statements as these will remain at best brilljant intuitions until we comprehend the respective
kinesic systems of these women and the role of these systems in the communication processes of their respective cultures.

## The "analytic informant" temptation

Kinesics, like the other behavioral sciences, uses informants as well as direct observation in gaining control of the data of the discipline. Like Iinguistics, however, it insists that the informant be an informant and not a fellow analyst. The young investigator is particularly prone to ask the informant what he has done or what the movement meant and to forget that the answer provides further data for analysis, not an acceptable conclusion to his analytic research. Even those investigators too sophisticated to rely on such subjective contributions may in lieu of behavioral description and analysis substitute the "multiple judge" technique. Often little more than a pooling of ignorance, such a technique is perfectly valid if the investigator is concerned with questions of establishing patterns of recall; it contributes little to the final abstraction and analysis of the kinesic system.

Kinesics is concerned with the abstraction of those portions of body motion activity which contribute to the process of human interaction. Much, if not the overwhelming proportion, of such behavior is learned by a member of any society quite out of awareness. It is my belief that not only is much of such behavior not within the range of recall but that the learning pattern may carry within it positive prohibitions on recall. Kinesics is not concerned, as such,
with the movement potential of the human species, but rather with those portions of the movement spectrum which are selected by the particular culture for patterned performance and perception. At the same time, as is true with other cultural behavior, much of what happens and which is necessary to the proper performance of a social act cannot be recalled by the actor or the untrained spectator. I said above that $I$ had a belief that as the child is taught to move, to view and meaningfully to reproduce movement, an integral part of this education is concerned with enhancing or preventing recall of much of this activity. Preliminary observation of "flat-land" southern contrasted with New England children in Louisville from comparable socio-economic positions supports the conclusion that, even within a single culture, sub-groups may experience socialization processes sufficiently different to create misunderstanding between them. Not only was the southern "raised" child encouraged to engage in gender-identifying behavior earlier than his or her Yankee cousin, but it had far greater recall in this area both as actor and as viewer than did the northern child. The need for skilled observers in kinesic research is evident, but even training is at times insufficient guarantee of objectivity in certain situations. One of the critical scenes discussed below of the Billy-Doris-Gregory interview contains extensive intrafemoral hand play on the part of Billy. I must confess that it was only after some thirty viewings and with the demand for micro-kinesic recording that $I$ allowed
myself to see that his hand play was patterned. I venture to suggest that early training which precluded my "seeing" male play in the genital area contributed to my concentration of attention on the little boy's eyes and head.

Suffice it to say that an informant should be used as a window into a culture. As shall be seen below, his contribution to the research is indispensable. The investigator must constantly remind himself, however, that his informant is an adherent, not an objective interpreter, of his communicational system. Not only one but fifty million Frenchmen are likely to be wrong in their view of their own communicational system.

## Methodology

Having determined the systematic nature of human interaction and having recognized that membership is attained in a social system only after patterned experience in this system, it is the task of the behavioral scientist to ascertain what it is that is learned which provides any particular system with its particular dynamic. It is not my task, but that of the psychologist to determine how the organism incorporates the experiences which make him a human being. Neither is it my task to map the internal relationships of the physiological systems out of which emerge the perceptible shifts in the various parts of the body. As an anthropological kinesicist $I$ am concerned with the learned and visually perceptible shifts in the body which contribute to the peculiar communication systems of particular societies. Kinesics is
concerned with abstracting from the continuous muscular shifts which are characteristic of living physiological systems those particular groupings of movements which are of significance to the communicational process and thus to the interactional systems of particular social groups.

The human body is capable of producing literally thousands of distinguishable positional shifts per second. Even at "rest" the body is not inactive. A high speed movie camera, the so-called slow motion camera, as it is speeded up, records more shifts or motions the faster it is set. Obviously, on some level of analysis these are of significance. The question which immediately confronts the kinesicist is whether or not his minimal unit of activity is in the last analysis to be determined merely by the speed of his film and camera and the patience of the recorder.

There is a considerable body of data concerning the speed of neural transmission. An even larger bibliography is concerned with the psychological study of visual perception. Neither of these, unfortunately, provide us with a statement of biological potential which might in any apriori way delimit the raw material of kinesics. In short, the body of one human being produces a volley of signals, an indeterminate proportion of which may excite the optical nerve of another human being. Observation of the two over any extended period of time will reveal that, if the two were selected from a common social group, each adapts his behavior to the activity of the other. The intra-personal activity which results in
such adaptive muscular shifts and electro-chemical activity in the visual area are pre-kinesic in nature.

This is not to say that the behavior of the physiological system is isolated from the social environment. Even the most cursory examination of the cross-cultural or ontogenetic data indicates that the developing system is influenced, if not shaped, by its patterned interaction with its environment. The reverse is equally evident. In the same way, the knowledge that member $X$ of sociaty $A$ will tend to be more active in one area of the body than is member $Y$ of society $B$, is of obvious concern to the kinesicist, but such interest is still pre-kinesic. The data of kinesic's is not derived from the observation of intra-personal behavior. A product of systematic social interaction, the kinesic system is a social system. Out of the range of muscular adjustments produced by a human being some are utilized by the social system for communicational purposes. Thus, to say it simply, no human body produces a kine (least kinesic unit); it moves or adusts in a set of muscular relationships. In social interaction, certain of these have demonstrably special utility in the communicational process. That is, under analysis, they emerge as kines. Every visible body movement, accordingly, is not a kine any more than every audible noise made by the vocal apparatus is a phone. Only after analysis has revealed that the presence or absence of a given movement in a particular context systematically affects the interactional process do we assert that that movement has kinesic significance.

A kine is an abstraction of that range of behavior produced by a member of a given social group which, for another member of that same group, stands in perceptual contrast to a different range of such behavior. While, theoretically, within certain limits provided by the physiological structure, a given complex of muscular reactions may produce a continuous series of positions, in actuality, any social system patterns these into a discontinuous or discrete series for reception or reproduction. Thus, while, for example, the membership of culture $A$ will report only two degrees of lid closure, culture $B$ may recognize as many as five. As a skilled spectator under optimal conditions $I$ can record or reproduce fifteen degrees of lid closure quite distinct from each other but most middle majority informants "see" only three. Similarly, while a finger of even the distal joint of the finger can produce a continuous arc of position in relation to the remainder of the finger or hand, four degrees of finger position on this axis are all that elicit the report of a perceptual contrast from a midde majority informant.

Thus, a kine is not a point or position of articulatory activity; it is a range which the unsophisticated informant reports as "the same". In a previous publication ${ }^{1}$ points within this range were described as being in allokinic

1
Birdwhistell, 1955.
relationship to each other. I propose now that these be called kine variants, since they may be substituted for each other and are, thus, symbolizable by a single class denoting symbol. At the risk of being repetitive $I$ must restress the point that these equivalences are culturally defined. Each kinesic system will have differently shaped kinic classes. As a demonstration, we may use laterality as a special test of kinic significance. All indications are that, at least on the level of the kine, American movers do not necessarily, in awareness, distinguish laterality. Given individuals may favor the fingers of the right hand, the right eye or the musculature of the right side of the face. Two American middle majority movers, one favoring the right side of the body, the other the left, can, as far as we now know, interact without translating "right lid droop" into "Ieft Iid droop" or vice versa. This seems to hold for all body parts considered on the kinic level. This is not to deny the obvious fact that handedness is of social significance. What we are here concerned with is whether we can record, say, the movements of the right or left lid as variants of the same kine. We must test whether $R \sim$ is equivalent to $L \sim$ and whether they can be regarded as variants of a kine class (3). It is obvious that they are distinguishable on the level of articulation. The test is not, however, whether the informant tells us that the right or left lid is used. What we need to discover is whether they function interchangeably in larger kinesic oontexts.
stand for a specific lid kine; $Z$ stand for a specific lateral orbit kine:
Are $\frac{\frac{L X}{R Y}}{\frac{L X}{L X}}, \frac{\frac{R X}{L Y}}{\frac{R Z}{L X}} \frac{\frac{L X}{L Z}}{}$, and $\frac{R X}{\frac{R Y}{R Z}}$ equivalent
to each other in a manner which permits us to establish a


If it is inconsequential whether the right or left eyelid is involved in each of these structures, we have no need to establish $R Y$ and $L Y$ as members of different classes since they are variants of (Y). The fact that the difference between $R$ and $L$ may not be of significance on this level does not however preclude the possibility that on other levels of analysis they may function contrastively.

## Kinemorphics

In earlier formulations of kinesics, to expedite recording, yet with the intuitive feeling that the particular division of the body "made sense", I arbitrarily divided the body into eight specific areas. Systematic investigations, utilizing contrast analysis, have since justified this body division--when applied to American movers. However, even a few hours of work with Indonesian and Bombay Indian
informants makes it clear that the specific divisions will not hold up cross-culturally. The eight areas, head and neck, face, shoulders and trunk, right arm, left arm, pelvic region, right leg and left leg, will probably be differently subdivided according to the body conception of a given social system. The particular range of such segmentations can only be determined by further research. Nevertheless, the kinemorph was defined then as an assemblage of movements (kines) in one such area.

A kinemorph is not merely an assemblage of movements in a given body area. A moving picture of such an area would not provide the investigator with a kinemorph. Such a picture or abstraction from it in the form of an exhaustive list of micro-kinegraphs or articulations would provide us with relatively little concerning the kinesic system of the actor. We must again use the method of abstraction and contrast analysis. As soon as we begin to contrast, with the aid of an informant, a series of kine assemblages, it becomes possible to abstract those which form unitary complexes. To return to the example which we used in the test above: We may find that we cannot set

$\frac{\mathrm{LX}}{\frac{\mathrm{LY}}{\mathrm{LZ}}}$. Further, we may discover that $\frac{\mathrm{RX}}{\frac{R Y}{R Z}}$ and $\frac{\mathrm{LX}}{\frac{\mathrm{LY}}{\mathrm{LZ}}}$
are kinemorphic variants to which informants react as substitutable for each other at this level. Similarly,
$\frac{R X}{\frac{L Y}{R Z}}$ and $\frac{L X}{\frac{R Y}{L Z}}$
each other. We may then conclude that we have two kinemorphs, which may be recorded as [XYZ] and [XYZ].

While this example gives some idea of how the kinesicist deals with contrast analysis, it will be exceedingly misleading if it is not seen as over-simple. For while all of the kines which compose a kinemorph are to be found within a given time frame (while will be discussed below), they are not necessarily coterminous. I have thus far been able to abstract three kinds of kinemorphic constructions, their definition dependent upon the order behavior of the component kines:
(1) synchronic kinemorphs; in which the component kines are simultaneous and of equal duration;
(2) series kinemorphs, in which the kines follow one another in time; and
(3) mixed kinemorphs which have both synchronic and series features but in which all component kines are not of the same duration.

Figure 2
(1) $\underline{x}$
(2)
(3)
$\underline{Y}$
W
$\xrightarrow{X Y W} \quad \frac{X Y}{W}$

Each of these meets our definitional criterion of taking place within one body area and each forms a complex in which all components are necessary for the production of the unit and all are to be found within a given time frame. In the discussion of the kine we did not deal with the durational aspect of its definition, since by extended test, it is clear that performance not duration determines the kine.

A raw movement becomes classifiable as a kine at any time that its performance (of whatever duration) suffices to change the contrastive function of the complex in which it operates. The same kind of test is utilized on the kinemorphic level since the kinemorph is morc than an arbitrary grouping of kines. We can establish the kinemorph, not only because the informant tells us that "these movements fit together", but also because we find transition devices which mark its initiation and terminus, and because we are able to establish its unitary function in larger contexts.

The most readily apparent kinemorph is one which begins with the body at zero (Z) and ends with it at zero (Z). Zero is defined as attention without specific movement, or, in the appropriate context as an arbitrary norm from which all kines are traced. Such kinemorphs can be described as pause-marked (=). A second type is characterized by onset of activity in one body part and is terminated by the introduction, from zero, of activity in another part. The term areal transition ( $X$ ) seems useful here.

There is a third type of transition, the bound
transition $(+)$, which marks kinemorphs which can only be detected by extended contrastive research. This occurs when one kinemorph is replaced in the same body part by a different kinemorph which utilizes the same points of articulation but by rearrangement of order and/or duration establishes a complex with a meaning demonstrably different from that of the previous complex. The fact that these types of kinemorphs are differently marked by differential transitional behavior indicates that future analysis may reveal their special roles in the kinesic system. On the other hand, it is within the range of possibility that they are functionally equivalent and are merely contextual variants.

The linguist will see that the kinemorph and the morpheme are in some ways comparable. For several years I have been hopeful that systematic research would reveal a strict hierarchical development in which kines could be derived from articulations, kinemorphs from complexes of kines, and that kinemorphs would be assembled by a grammar into what might be regarded as a kinesic sentence. While there are encouraging leads in the data, I am forced to report that so far $I$ have been unable to discover such a grammar. Neither have I been able to isolate the simple hierarchy which I sought.

While, by count, a major proportion of the kine
assemblages of the American kinesic system may be meaningfully segmented in one body area, there are many occasions when the restriction of contrast analysis to one area leads only to confusion. This occurs when kines from two or more areas form a complex, which, under contrast analysis, behaves precisely like a kinemorph. These $I$ have chosen to call complex kinemorphs. The complex kinemorph and the simple kinemorph seem to be on the same level of analysis in that they may both be directly analysed into kines. By definition, of course, the complex kinemorph differs from the simple kinemorph both in its placement and in the fact that we cannot utilize simple shift of body area as a transition marker. Letting (A), (B), and (C) stand for kines in one body area and $(X),(Y)$, and (Z) stand for kines in another, we may specify the shape of the complex kinemorph as $[A, Y, B]$, while the shapes of simple kinemorphs are $[A, B, C]$ or $[X, Y, Z]$.

To complete the description of this level of analysis, I must include those single kines which emerge as kinemorphs: thus (A) becomes [A], (X) becomes [X], and so on. The test for kinemorphic function continues to be one of abstraction and contrast analysis. Our testing context is the kinemorphic construction. The raw unit of body motion is classifiable as a kine when it is seen to have differential value in a kinemorph. Ultimately, the existence of the simple kinemorph, the complex kinemorph, and the kine as
kinemorph must all be established in the kinemorphic construction.

Figure 3

Kinemorphics Kinemorphic construction $\dagger$
Complex (Simple) Kines as

Kinemorph Kinemorph Kinemorphs $\uparrow$
$\downarrow$ Kines Kinics $\ddagger$ Kine Variants Pre-Kinesics Arbitrary Raw Units of Body Motion

In Figure 3, the reader will note the succession of two-way arrows. This indicates that at each level of analysis a unit not only must be abstractable from non-significant variation, but must be seen to have differential meaning in the complex in which it operates.

The term kinemorphic construction is suggested to cover the next order of combination in kinesic behavior. As kines combine with other kines to make isolatable units
(the kinemorphs), or as single kines emerge as kinemorphs, these forms combine with each other in a variety of kinemorphic constructions. The simplest of these is the kinemorphic combination. A kinemorphic combination is constructed of two or more kinemorphs--either in parallel or in series. Recorded initially as [A, Ba C] [X, Y, Z], if the combination can be tested for unit existence, i.e., as having differential meaning in a wider context of body activity, it can be recorded as $/[A, B, C][X, Y, Z] /$. We further find that complex kinemorphs can combine with other complex kinemorphs in complex kinemorphic complex combinations / [A, X, C] $[Y, N, Z] /$, and with siagle kinemorphs to form kinemorphic compounds /[A, B, C] [X, N, Z]/. Finally, constructions of the shapes / [A] [X Y Z]/ and [A] [X, N, Z]/ have been abstracted.

The existence of a kinemorphic construction is determined by exactly the same procedure as has been utilized in the abstraction of the kine morphic or kinic combinatatons. We abstract an assemblage in which the components repetitively appear in conjunction with each other. Then by substituting behavioral events of a comparable shape within the combination we establish the kine morphic function of the components and, by extension, the reality of the morph, on one level, and that of the construction on another. Thus, the kinemorphic value of kines is revealed when we discover that / [A] $[X, Y, Z] /$ stands in contrast to / [B] [X, Y, Z]/ in exactly the same way as /[A] [X, Y, Z]/ stands in contrast to
/[A] [M, N, D]/. Thus, recording /[A, B, C] Z [X, Y, Z]/ signifies that the construction has been abstracted from a larger action sequence and that during its duration the rest of the body has remained at what one of my students aptly referred to as "ready rest." The ( $Z$ ), in this case, serves to remind the analyst that he is dealing with an included construction. When a full actional sequence is dealt with, (//)'s are utilized to mark the initial and terminal aspects of the sequence and all segments within the double slashes are bound constructions and form a unit on the next level of analysis.

I have not yet found any way of determining whether or not there is a conventional limitation, in terms of the number of component morphs, to the size of a kinemorphic construction. In the examples above two-part constructions were used. The reader must not be misled by this. I have seen kinemorphic constructions which contained as many as seven morphs. The test for the unitary nature of a kinemorphic construction takes place in the larger field of body movement which we call action.

In the definition of the kine, I said that zero does not stand for no behavior at all but for behavior which does not have variational kinic or kinemorphic significance.

Analysis of the American kinesic system has led to the tentative conclusion that in the probable absence of cross-referencing systems similar to those of linguistic grammar and syntax, meaningful segmentation and binding together of kinesic construction sequences if handled, in all likelihood, parakinesically the medium of stance. Stance is a term designed to cover a pattern of total body behavior which is susiained through time, within which one or a series of constructions take place, and which contrasts with a different stance. Stance subsumes position ( $p$ ), (which is a statement of the relative position of all the body parts in space) locomotion (1), (the movement of the body through space) and velocity ( $v$ ) (which covers sustained velocity of movement of the total body).

A stance change is said to occur when any one of these or combinations of these is varied to such an extent that there is a marked shift in the total message. In a major proportion of the interactions which we have observed these shifts coincide with a transition $(+)(X)$ or $(=)$ on the construction level. Our problem would be a good deal simpler if we could say that action-sequence transitions always coincide with inter-construction sequences. Certain of these stance changes, however, take place within what appear to be bound constructions as well as within an included construction. Such stance changes

1
See now Birdwhistell, 1960.
may or may not be coterminous with morph transitions. The term stance shift is used to indicate this variety of stance variation which may, as research develops, turn out to be parakinesic in nature.

While our research in this area is far from exhaustive it seems probable that stance variation may serve at least a dual function. On the kinemorphic level, stance ${ }_{\boldsymbol{\lambda}}$ serves to mark the beginning and end of action sequences. In such cases (//)'s mark the action sequences and all elements included within are analysed as bound components in an interactional system. Thus, we might record a typical action sequence according to the notational logic, //[A, B, C] $[N][X, 0, Z][e t c.] / /$. The type of stance change is marked by a small letter at the upper right of the double slash notations: $\left(/ /^{p}\right)$, $\left(/ /^{1}\right)$, or $\left(/ /^{v}\right)$. When a stance shift occurs within a sequence of bound constructions, a capital $S$ is used with the identifying marker. Thus: $V / /[X, Y, Z]$ $[N][P, Q, R] S[A, F, C][e t c.] / /^{V}$ indicates an actional sequence bounded externally by two perceptible shifts in velocity and containing a stance shift (S) of one of the other two variants (position or locomotion).

Only further research can reveal the functional nature of these internal shifts for the action sequence. As shall be seen below, the gross behavior noted on the microkinesic level as stance, contains behavior which, on tre macrokinesic (i.e. probably parakinesic) level, emerges as posture, demeanor, pose, and presentation. It would be desirable to
have the evidence which would give assurance that all internal stance shifts can be ignored on the microkinesic level. However, for the time being such a conclusion must be postponed. In discussing the interpretation of kinesic systems more will be said about the incidence and relative placement of stance shifts and changes. The fact that communicants react unfavorably toward "too many" or "inappropriately" placed stance shifts suggests that these are especially patterned.

## Interaction

While it is hardly the function of this section to develop a social-psychology of human interaction, the data to follow are perhaps illuminated by establishing exactly what it is we mean by interaction. Review of the existent literature on social animals gives us some security in making a generalization which states when social animals of a common species make sustained sensory contact with each other they must engage in behavior which identifies each to the other as a species member, a group member, and as being in a particular state of readiness. Ethologists and comparative psychologists have presented us with an impressive array of behavioral data which indicates that some term like "Iearned" or "conditioned" or "released" must be applied to this behavior. That is, behavior of identification is not only necessary for the adaptation of the species but is apparently patterned by the particular experiences of the group. This is hardly the place to review the evidence, but it seems clear
that a member of any social group must "recognize" and "emit" certain signals in order to sustain association with that group. The data are at the present time too sparse to indicate the range of discrimination of in-group and out-group identification signals.

The fact that animals engage in species, group, and state readiness signals does not give us the right to call this complex of identifying signals animal behavior with the implication that it is somehow instinctual. I prefer to call such behavior social, since it emerges from the patterned association of species members with patterned activity systems. The fact that we use the same term to cover an aspect of kinesic behavior does not make such behavior "more biological". It rather emphasizes its functional importance to the social system.

The term encounter will be used to cover that communicational situation which occurs prior to interaction. The duration of an encounter will depend upon the nature of the communication systems exhibited by the participants. An encounter becomes an interaction when the participants become communicants. That is, the participants interact rather than counteract when they find it possible to introduce cross-referencing signals into the scene in such a way as to sustain continuing adaptive association.

This difference between an encounter and an interaction is stressed because it so clearly sets boundary lines between those situations in which mutual cross-referencing signals are
appropriately used and those in which none yet exist or if they exist, are inappropriately used by the participants. It is probably evident to the reader that with this definition few encounters are ever of sufficient duration to be recordable. It may well be that "encounters" have no real existence and that "encounter" (or non-communication) refers to the subjective feelings of distress which we have when we do not comprehend the communication situation in which we are participating. There are cross-cultural situations in which an "encounter" becomes an interaction by the introduction of the cross-referencing signal that the participants shall search for cross-referencing signals. Such a sequence may be no more complex than the joint presentation of palms followed by squatting, buttocks resting on heels, with the weight balanced on the ball of the feet and the toes. This set of signals gives evidence of the willingness to participate in some sort of sustained interaction. This simple action sequence stands in sharp contrast to a scene in which participants may not engage in a sustained encounter because one or more of the participants use only internal cross-referencing signals and thus prevents the emergence of an interaction.

Kinesics and linguistics provide recording and analytic techniques which should give new insight into the processes of acculturation and group-formation. At the same time such situations should provide micro-cultural laboratories for sharpening the tools of these disciplines. In a seminar at
the University of Buffalo, the authors of this present book working closely with Smith and Trager, who had originally suggested comparable though by no means identical classification of similar vocal phenomena, developed a methodology for the analysis of visual recognition patterns. The skeletal structure of this aspect of communicational behavior is presented below with full recognition of its crudeness. However, even in this unrefined state, such abstraction provides a tool which has proved invaluable in the establishment of actor base-lines (see Chapter 7).

## Visual Recognition Patterns

While we do not wish at this time to become involved in status and role theory, we must note that the broadest cross-referencing behavior in the communication system relates directly to these aspects of interaction. In the section above we discussed the function of stance shift (or change) in providing structural frames for extended stretches of kinemorphic constructions. Such cross-referencing behavior gives us data for recognizing that even on the kinemorphic level human beings do not communicate through an additive series of independent messages. In kinemorphics we were concerned with demonstrating that the system contains a variety of behavioral shapes which tie together least pieces of activity. We are now reversing our procedure to examine those cross-referencing signals which tie together the broadest possible amount of inter-actional behavior. Among such behavior, that which we call body base is, theoretically, sustained
Figure 4
Body-Base Types
Position
Sex
Age
State of Health
Body Build
Rhythm Phase
Territoriality
Mood
Toxic State*
N-States
and organic confusional and deficit states.

This list of body-base types has been derived from a set of recognition behaviors some of which probably occur in all social groupings, animal or human. As we originally worked with these categories, it seemed to us that not only were these the broadest of the cross-referencing patterns, but also that they were somehow "closer" to the physiological base of the species. Certainly, with the exception of "position", which related to the order participation of a member of a group vis a vis his or her group associates, and "territoriality", which refers to systematic space occupation, all of these types seemed to have primary, physiologically constituted accompanying behavior. It seemed justifiable, therefore, to refer to these as "primitive"--somehow implying priority in an evolutionary sense. As $I$ worked with these categories increasing confidence was gained that such states are characteristic of social groups--at least of mammalian groups--and probably of a number of fowl groupings. I had the opportunity to talk at some length with Dr. Konrad Lorenz who concurred in the tentative conclusion that these are probably requisite to sustaining the basic division of labor necessary for adaptation in the animal groupings. In the light of this, it may be suggested that if we are justified in calling these recognition states "primitive", it is with reference to the order of their appearance in social groups rather than in terms of anatomic characteristics.

The detailed description of the body-base types has been purposely avoided since these types are kinesic categories--not behaviorally specific constructs. Body-base
constitutes the basic image of other members of the social group which must be internalized by the group-member in the socialization process. Body-set constitutes behavioral derivatives from the expectancy pattern of an associated member against which are measured the body qualities or situationally variant signals basic to any interactional sequence. Body-base, then, constitutes the zero line which any communicant must have internalized in order to recognize the special cross-referencing message carried by the body-set signal-complex.

No member send or expresses any of the types as a unitary activity to the exclusion of others. Even the limited survey of films which $I$ have attempted makes it clear that these types are neither specific (in an organic sense) nor independent from each other. In every case that we know anything about there is a complex relationship between the various types. Until further extensive cross-species research has been carried out we can only say that body-set is complexly patterned and learned. As we gain more knowledge cross-culturally, both about the patterning of these types and the predominant shapes of body-set in particular cultures and in particular individuals within the group, we shall be able to provide a more substantive base for cultural character and temperament studies.

In the discussion*above, body-base was described as the patterned, learned zero-line against which body-set is measured. Body-set represents the particular cross-referencing
signals introduced in the particular interactional scene.

A brief glance at Figure 5 below will make clear the relationship between the body-base zero-line and the body set which appears in the communicational sequence. It will be noted that for each of the body-base types we have derived a parallel body-set of social recognition value.

## Figure 5

| Body-Base | Body-Set |
| :--- | :--- |
| Position | Status |
| Sex | Gender |
| Age | Age Grade |
| State of Health | Health Image |
| Body Build | Body Image |
| Rhythm Phase | Rhythm Image |
| Territoriality | Territorial Status |
| Mood | Mode |
| Toxic State | Toxic Image |
| N-State | N-status |

Before discussing body-set states a word of caution
must be introduced. While it is possible heuristically to abstract the ten states and to use these as frames for the collection of data, such abstracted units are never behaviorally isolated categories. Communication, intrinsic to culture, is patterned and systematic. As such it is constituted of a number of interacting sub-systems, the appearance of which is determined by the complex demands of the particular interaction situation. Since a particular (in space-time) cross-referencing system is shaped by the exigencies of a particular interaction system, it would be surprising if any specific state could be reacted to without modification by other state representations.

In the process of the establishment of actor and interactional baselines, $I$ have found it necessary to analyze large stretches of behavior on a base-set model. In every case, at least five and at times all ten set-states categeries are represented. The particular kinemorphs or kinemorphic constructions, the organization of stance shifts and postural positions, as well as the selected body motion qualifiers (to be discussed below), all combine to give us a cross-referencing statement of the quality of the interaction.

To avoid confusion, I have purposely avoided examples in the preceding discussion. Since this present chapter is not designed to provide the reader with data for the analysis
of particular sub-cultural situations but is aimed at orienting the reader to the Doris-Gregory-Billy interview, the discussion has been purposely general and theoretical. However, the reader may gain more perspective if a somewhat stereotyped example is presented at this point.

If we were to consider a situation in which a 35 year old junior Vice President talks to the 63 year old Chairman of the Board of his firm, we might find the following states manifested in the two participants in the interactional scene. These states cross-reference the discourse within the situational frame. While the problem of representation makes the diagram below appear like parallel or contiguous individual behavior, the reader is again reminded that the behavior of each is a function of reciprocation--the cross-referencing signal is a reciprocal, i.e. part of an interaction--not an individual expression.

```
recording)
```

Categories Vice President's Behavior Chairman's Behavior

Status
$¥ 4 K^{\prime \prime}$
p T p b T b, AxbA
Hq or Hq
-LL-alternating with L/L
00:: : (intermittent)

Age grade Set +3

$$
+00+\mathrm{Hqn} \mathrm{Hq}+\mathrm{N}-\mathrm{LL}-\sim \mathrm{L} / \mathrm{L}
$$

Gender or

Health Status p T p

$$
\begin{aligned}
& \text { Qualifier:!:/+..+ }+\quad \text { Set }+3 \\
& \quad+00+
\end{aligned}
$$

Mode

- LL -

Body Image
Territorial
Image interaction centered
movement projection to whole room

Rhythm Phase

| Image | $+00+$ | s 00 s |
| :---: | :---: | :---: |
| Toxic Status | - | - |
| N -Status | - | - |

This scene, which is purposely oversimplified by having its opening and closing phases eliminated, covers the length of a discourse, marked at its beginning by "settling in" behavior and terminated by interruption and departure behavior. We are concerned neither with the content of the scene nor with the linguistic or kinesic detail of these cross-referencing signals. The signals above are internally congruent--the young man's over-youthful, clear-eyed "sincerity", with appreciative humor, is consistent with the slit-eyed belly holding and genital scratching of the older man. The [ $\Psi^{4} \mathrm{~K}^{\prime \prime}$ ] (knee over knee leg cross) is the congruent seating posture reciprocal for the older man's [4¥] (broken or open 4 leg cross). The seeming reversal here in which the older man uses a leg cross customarily seen in younger men is modified and tempered by his [AxbA] (bi-manual belly hold)--just as the [4¥K"] (knee over knee) which is formal and at the same time within the range of the feminine leg cross arc is tempered by the [+00+] (eyes with distal aspect crinkled) and the [Hq] (head cock). These body-set cross-referencing signals may be seen as overall frames for the system of interaction occurring within their boundaries. The example above is simplified in that the interview portrayed contains no major shifts, that is, this complex of behavior extends throughout the interaction. Body-set signals are extremely important in assessing interaction topography; often the first signal of a parameter shift in an interaction is signalled by a set-shift--either in the linguistic or in the kinesic area, or in both. As our
understanding of the dynamics of interaction increases, it is clear that in body- and voice-set shifts we have one method for measuring "movement" in psychiatric as well as other interviews.

Returning to the example, it is to be noticed that under territorial image the younger man's behavior is described as "interaction centered", whereas the older is noted as "movement projection to whole room." The absence of macrokinesic recording here relates to my own uncertainty. However, at the moment it seems likely that space control has something to do with eye focus and convergence behavior modified by activity discussed below under motion qualifiers and motion markers. Of theoretical and methodological importance is the fact that while such behavior may be experimentally "located" in one rubric of the kinesic and parakinesic system, it may nonetheless be multi-functional.

Using the above as a background for recognizing the interdependence of quality behavior, the role of base and set as related to health and health image may be elaborated. Pathological conditions in the muscular, skeletal, and neurological system often directly emerge as limitations or specific underlying determinants of motor or dermal behavior. There can be little doubt that the form of the message sent or received is strongly influenced by the state of the organism qua organism. Probably the largest section of the bibliography concerned with visible body movement is related to the specific or generalized symptomatology of neurological disturbance. Theoretically, all specifically idiosyncratic body behavior lies
outside the field of kinesics, whether such behavior gains its peculiar cast from organic sources or from some special conditioning experience on the part of the actor or viewer. Yet it is essential to the methodology of kinesics as it is for linguistics, that the behavior of any participant in an interaction situation be described as idiosyncratic only after the patterned aspects of the behavior have been exhaustively described. That is, in the process of classification and testing, individuality is assigned after not before the fact of data exhaustion. Our theoretical framework provides us with an approach to the problems of allocating data to pre-kinesic or to macro-kinesic levels, but only when cross-cultural research provides us with clear indications of symptomatic activity concurrent with specific organic malfunction can we be secure in our assessment of particular pieces of behavior.

While anthropologists have long been aware of differing cultural emphases on disease or accident, the literature is exceedingly thin with regard to the specific variations in symptom presentation. Discussion of this problem with physicians whose practices are limited to the ethnic variations of an American city, has convinced me that practioners are aware of the difficulties involved in treating symptoms expressed by various groups, as though there were a common and universal symptom structure for a given disease. This point was repeatedly stressed by M. D.'s whose practice included the range of variation provided by a Santa Fe or an Albuquerque hospital. Yet to my knowledge the data remains essentially impressionistic.

Perhaps as the World Health Organization expands its research area, specific and extensive attention will be given to the cross-cultural examination of the social structuring of symptoms. Such data as would be supplied by these studies--properly organized--should help us to be more explicit about the separation of prekinesic and kinesic behavior.

My own convictions in this area derive from experience gained while doing research on the social structure of two adjacent but differing sub-cultures in central Kentucky. Not only did the "BlueGrass" and "Hill" Kentuckians differ in their attitudes toward disease in general, but their choices of favorite ailments varied as systematically as did other aspects of their social organization. This research was done prior even to the preliminary systematization of kinesics, yet we were aware of the fact that there were styles of symptom presentation in both verbal and kinesic statements of illness which were sufficiently different in the two areas as to lead to misunderstanding between them. The discussion to follow is based on insights gained during this community research project, measured against the material gathered by a number of investigators in the cross-cultural sphere, and reinterpreted through the recent formalization of communication research.

Although Dry Ridge was only about fifteen miles into the hills from the Blue Grass community, Green Valley, the health set of this area is markedly different from that characteristic of the Valley. As a culture, more rigorously individualistic
and puritanical than Green Valley, signess was patterned in Dry Ridge into "non-reference to health" and "critically ill." Ideally, any variation between these two states is to be ignored or, at least, should remain a private matter. Ideally one is forced to go to a doctor, take medicine, or go to bed. The kinesic message that one is critically ill (although conscious and not yet bed-ridden) is best covered by the gestural reference, "stiff upper lip." This includes retraction of the scalp, tightening the skin of the forehead (with a significant reduction of brow markers), reduction of smiling, carrying the torso in hyper-erect, reduction of velocity in hand and arm movement, increased precision in gross movement (decreased overkick--anterior and posterior--while walking) and increased "foot-planting" (both feet--heql and ball-on floor while standing or sitting). If this does not elicit response from responsible kindred, this general quality is sporadically interrupted by "sag" behavior of about 2 to 5 seconds duration followed by "pulling together" behavior of about 2 to 4 seconds duration. The sag and pull-together should not take place very often or the quality shifts and the behavior is reacted to as malingering or as an infantile appeal. I have never, in over a year of watching this behavior, seen the sag and pull together used by males more than once in fifteen minutes except by the very young and the very old. Females, on the other hand, sag and pull together more frequently--several as often as two or three times in 5 minutes. This statement of variation is probably over-precise but there is quite obviously or a woman may engage in sag and pull together at greater frequency within a time span without being considered as malingering. It is perhaps unnecessary to stress the point that in Dry Ridge the full cross-referencing system is made up of "stiff upper lip" plus "sag and recover." It is perhaps of interest to note that the health image quality behavior of "síiff upper lip" differs from the mood image of anger in Dry Ridge in only two behavorial aspects that $I$ have been able to trace. First, in eye convergence and focus-in anger the Dry Ridger avoids focussing on the eyes of others-looking to either side of other communicants, whereas, in sickness, he looks at his communicant with in and out of focus variation. Second, in aspiration presentation: in sickness he engages in intermittent pronounced chest presentatinn with audible aspiration (usually through the nose). Paralinguistically this is very close to a sign. In anger, he uses deep, measured visually perceptible breathing which is usually inaudible.

In Green Valley the situation differs both linguistically and kinesically. A kith and kin community, health is used as a device for establishing interdependent interaction. III health is discussed and, in a manner of speaking, "enjoyed." A public affair, any manifestation cf physical malaise occasions group diagnosis and comparison of symptoms. Accompanied by extensive verbalization, the kinesics of all communicants are characteristically directed with kinesic area markers. The etiquette of illness even in Green Valley (both of these
communities are, after all, American) demands that the viewer initiate verbal discussion of the actor's debility. Thus, the community member introduces a cross-referencing appeal which is sustained until it is responded to by other participants in an interactional scene. In Green Valley the kinesic illness behavior is characterized by first to third degree medial compression of the brows accompanied by first degree brow raise. The lids sag and there is tensing of the lateral aspects of the orbit plus upper cheek sag. The lips fill and the lower lip falls slightly away from the lower teeth. The neck is out-of-tonus often with a forward or forward and lateral thrust. The upper torso sags anteriorly as do the shoulders. Belly may be presented. Arms and hands may hang at the side or moved in over-slow velocity with lower arm performing any arc at greater velocity than do the hands. Feet drag while walking, or rest anteriorly on heels while sitting. There is, of course, variation i, completeness or duration of this quality behavior--but it is my conviction that this variation is a function of the lack of response on the part of the other communicants rather than of the seriousness of the debility represented. This is supported by the fact that as soon as the malaise of the initiator is responded to, the body moves into tonus and a verbal recital of symptoms is accompanied by pointing--touching--rubbing--caressing of the ostënsibly involved body parts. Even persons who are apparently (from doctor's diagnosis) quite ill become animated,
with eyes in focus-mouth at zero, and body at increased
frequency of response during such conversations. Such activity is intermittently interrupted by "sag and recover", if the responses get "too" general in nature. I am somewhat unsure about this, but it is my feeling that malingering is suspected in this community when the "sick" person does not interrupt his or her performance with sympathy and empathy activity, when the traded symptoms are introduced by other participants in the conversation. An actor's preoccupation with his own health is a signal that his appeal is not simply a statement of illness.

These are neighboring systems and there is some intermarriage between the two groups. With this range of difference, it is easy to see that some misunderstanding arises in an intermarriage situation. It is perhaps of no consequence to this present chapter, but it is interesting to note that Dry Ridge, an economically poorer region than Green Valley, has produced four doctors since 1890 while Green Valley has produced but one.

Further discussion of body-base and body-set must await a more extensive presentation. These examples should serve, however, to illustrate the general propositions concerning the function of this aspect of the parakinesic system as a cross-referencing system. This discussion and these examples may be somewhat misleading for they do not properly underline
the point that while we are able to abstract some fairly precise movements as central indicators here, such behavior may congruently or incongruently be modified on the macrokinesic level, which contains kinemorphic constructions, the constituent behavior of which may function on both levels of systematization. Further, our analysis must not omit what is probably the most critical (and least adequately analyzed) level of parakinesics. This area includes that behavior which $I$ have termed the motion qualifiers, and the kinesic action and interaction modifiers. Although they in general rerer to shorter stretches of behavior than do the base and set cross-referencing systems, these parakinesic qualifiers and modifiers may cover activity as limited as a kinemorph or a single kinemorphic construction or stretches of behavior of such duration as to make us feel that they may ultimately be relegated to the base-set level.

## Motion Qualifiers

The stream of body-motion behavior has thus far been discussed as though there were a somewhat mechanical all-or-nothing quality to the production of the components of the kinesic system. The student analyst in his training tends to move from a period of concentration on the "expressive" or personality indicative, or idiosyncratic behavior to one of atomistic recording of the finite particles. It soon becomes evident that the range of variation in production of body-motion interaction is not a simple matter of idiosyncracy or "style",
or, on the other hand, is it as highly patterned as is kinemorphic construction. Out of an extended range of production behavior three aspects of the motion qualifiers deserve special attention because their performance seems so intimately tied to the structure of the most complex arrangements of kinemorphic constructions. These include intensity behavior, durational behavior, and range behavior. For most middle-majority American movers these seem each to be distributed on a three to five-degree scale which is outlined below with the symbols $I$ am presently employing for their notation.

## Motion Qualifiers

| Intensity (or degree | Overtense | $\underline{\square}$ | $\overline{=}$ |
| :---: | :---: | :---: | :---: |
| of muscular tension | Tense |  | $\cdots$ |
| or production of | N |  |  |
| kine (or kinemorph) | Lax | 0 | . 0 |
|  | Overlax | 00 | . . 00 |
| Duration (or length) | Stacatto |  |  |
| of kine (or kinemorph) | N |  |  |
|  | Allegro |  |  |
| Range (or width) of | Narrow | 1 |  |
| movement in performance of given kine | Limited | $\ddagger$ |  |
| (or kinemorph) | N |  |  |
|  | Widened | $\ddagger$ |  |
|  | Broad | $\hat{+}$ |  |

Intensity (or degreeOvertenseTense
Lax00... 00
Duration (or length)$\mathbb{N}$
Allegro
BroadThese motion qualifiers are roughly analogous to supra-segmental phenomena in language, that is, they may occuracross or cover segments of a complex construction. Theyfunction to modify the kinesic meaning of the construction,but so far as $I$ am able to ascertain, an increase or decreaseof intensity, the rate of production, or the breadth of the
performance struction cannot serve as a substitute for one or more of the kines or kinemorphs in that construction. In other words, the modification function of one of the qualifiers, regardless of its extent of distribution within a bound form, seems to extend over the full kinemorphic construction. Or, to say it still differently, at least so far as our examination of American movers are concerned, there are no kinemorphs composed of variation in intensity, duration, and range.

If we try to evaluate these phenomena with relation to the present or allied research, the motion qualifiers take on special significance. While present research indicates that the 5 degrees of intensity and breadth and 3 degrees of duration have kinesic significance for all middle-majority American movers, the "distance" covered by a particular mover in the performance of the qualifiers will valy widely. This distance is of significance in the assessment of mot ion qualities. Further, the qualifiers seem to be especially related to that area of psychiatric symptom description called "flattened affect". Flattened affect in the kinesic behavior seems, at least in part, to be an incongruent narrowing of qualifier extent, the term incongruent, in this case, being related to the general or interactional system. Not altogether in jest we have been using another term "fattened affect" which occurs when the spread of qualifier extent becomes incongruent with the interactional sequence. This āiscussion of interpretation may seem somewhat out of keeping at this point in the
chapter but $I$ think the reader must be warned with respect to a methodological point. The qualifiers may be looked at from two analytic points of view: first, as patterned modification phenomena which vary the kinesic meaning of a kinemorphic construction and, second, in their extent aspects as part of the general cross-referencing system of the full interaction. In analysis these must be kept separate since in their discovery quite different operations are involved. The particular qualifier behavior noted for a particular construction is of kinesic significance and is determined as variations of behavior within the base line of the actor. The quality aspect of the qualifier behavior is determined by comparative analysis and has interactional significance.

## Action Signals

Since one of the purposes of this chapter is to serve as a progress report on the attempts at data exhaustion in kinesic raw materials it is perhaps justifiable to include in this already programmatic chapter a series of behavioral categories whose position and function are far from worked out. Something of a waste-basket category, the action signals include the action modifiers which are descriptive of an entire body in motion, the interaction modifiers which involve the full body behavior of two or more particimuion pants in an interactional scene, and the markers. Perhaps the material at present handled under these headings will become data for the description of motion quality and/or
for the analysis of the base-line, but for the time being I am more comfortable in recording them under these less definitive categories.

The literature covering "expressional behavior" contains a number of sets of more or less descriptive categories of individual behavioral types. Many of these provide useful concepts based on careful observation and brilliant intuition. In the training situation, however, such borrowed concepts prove the adage that one can never get a borrowed bucket clean. Since we have attempted to make sure that each of the concepts utilized in kinesics and parakinesics relates both to a specific order of behavior and to the operations by which such behavior is abstracted, a new set of terms and categories is required. The following outline includes those modes of behavior which have been sufficiently examined to give us some confidence in their presentation. Such a systematization does little more than scratch the surface of possible categorizations. The nine modifiers listed below are what remain of forty-one paired types which $I$ worked with in 1955. As systematic research proceeded, most of these were discarded as over-generalization of kinemorphic constructions. As it became clear that the "gesture" was a closely bound stem-like morph which signalled a constructional core, it also became evident that the classification of gesture types as indicators of cultural character tendencies must await systematic cross-cultural research. Further, the
development which followed the recognition of the crossureferencing function of the base-set activity further limited this list. I have no doubt but that this list will be lengthened and rearranged as research proceeds, but I present these categories as they now stand in the hope that other workers will find them useful. All of my testing indicates that they have some kind of communication function, but $I$ am not at all sure how they fit into the remainder of the data.

## Action Modifiers

The categories listed in outline below under the action modifiers include a series of paired types that cover the mode of behavior of the body as a whole. In all cases these are included because they elicit patterned responses from communicants and because they seem in "normal" movers to vary from situation to situation within the behavioral system of the particular member.

Action Modifiers

Type

Unilateral--Bilateral:

Behavior

Mover favors right or left side of body, contrasts with inclusion of both sides in performance (not just handedness).

Specific--Generalized ${ }^{1}$ :
$\underline{\text { Rhythmic--Disrhythmic }}{ }^{2}$ :

Graceful--Awkward:

Mover tends to utilize one body area for major proportion of kinesic activities as contrasted to more extensive utilizations. Mover tends to adopt a definite rhythm within which he moves (often marked by kinemorphic or stance shift junctures) as contrasted to a clearly defined pattern of rhythm interruption (not just non-rhythmic).

Mover tends to make major proportion of movements in a directed, minimally interrupted manner, as contrasted to a start-stop-proceed action with a series of abortive inclusions. (Grace is characterized by containing minimal "searching" behavior in contrast to awkwardness where searching is maximized.)
${ }^{1}$ There is probably a closely allied pair which covers "lost" or avoided body parts. This is not now included since cross-cultural research is needed to determine how idiosyncratic or set-quality patterned this is.

2 See Interaction Modifiers, below.

Fast-Slow:

## Integrated--Fragmented:

(Not to be confused with the duration qualifier.) Mover tends to high velocity of production of kinemorph and kinemorphic constructions as contrasted to a low production rate.

Integrated mover tends toward harmonic organization of various body parts (whether generalized or specific) whereas fragmented mover may divide body into non-harmonic--even apparently contradictory parts. A finger, a hand, or an eye may seem to have existence independent of remainder of body activity. May involve the full division of the body into two spheres as: above and below pelvic girdle or (in one case) right through the middle of the body leaving a right and left sphere.

Intertensive mover tends to be highly responsive to behavior
of other communicants--engages
in consistent check and modifica-
tion behavior as contrasted to
the intratensive mover who appears to engage in extended auto-stimulation but with minimal apparent strenuous rejection. At first this seemed to be an aspect of the encounter-interaction process but, as research continued, it became clear that this behavior continued even after an interaction was clearly in progress. As in the case of the "self-possessed'́self-centered" type which follows, this type probably has special significance for clinical observation.

Self-possessed--Self-con-
tained:
A dubious category (see discussion). These types are easy to recognize once seen but are difficult to objectify. I suspect that this is a complex category and perhaps should not be included in this list of modifiers. However,

The self-possessed mover is characterized by a reduction of qualifier width without incongruence, by the harmonic organization of the body parts, by minimal searching behavior and by what might be loosely characterized as "poise." Only the fact that self-possession seems to appear intermittently within or beyond and apparently quite

| this category is so use- | independent of the qualities |
| :--- | :--- |
| ful in the analysis of | persuades me that this is a |
| material that it is interview | category of another order than |
| included. | quality. self-possession |
|  | appears to relate to social |
|  | "ease" and "confidence" in |
|  | terms have more than impression- |
|  | istic value in this presenta- |
|  | tion). our description of |
|  | self-containment is equally |
|  | impressionistic, characterized |
|  | by seeming intra-tension; the |
|  | general feeling is one of |
|  | restraint and "avoidance" of |
|  | stimuli. Category by category |
|  | ithe behavior is congruent, but |

Only extended research can establish a clear perspective on this pair of types. The difficulty may lie in the pairing which $I$ have utilized in the modifier assignment. Self-possession may be a special complex more adequately described under the motion qualities, while self-containment may be a special pathological condition paired with another poorly defined pattern that $I$ have been calling "identity loss." Identity loss has been characterized by a high incidence of "echo" behavior or of pieces of behavior that have no apparent relevance to the interaction situation. If self-containment is characterized by exclusion or avoidance of stimuli, identity loss seems to be made up of over-reactivity to them.

## Interaction Modifiers

While, by definition, kinesic research is only concerned with body motion behavior with a demonstrable communicative function (and this implies an interactional frame), the action modifiers were concerned with the behavior of a given actor in an interactional context. The interaction modifiers are concerned with the classification of comparable behavior which appears in a sequence involving two or more actors. In the outline below is presented a series of three paired types of interaction modifiers.

Mirror behavior is characterized by one or more actors acting in mirror image of a central actor. Parallel behavior occurs when two or more actors move in parallel.

It is recognized that when more than two actors are involved, some by limited possibility are in parallel, others in mirror, interaction. Our very limited observation of group interaction has not revealed any particular patterning to this variation. Perhaps when kinesic observation is combined with the linguistic and studied in association with devices like Chapple ${ }^{l^{\prime}}$ s chronograph this material will have more consequence.

Rhythmic-Disrhythmic:
When the interactional behavior of two or more actors contains
a clearly perceptible beat, introduced either in parallel, or in series such interaction is termed rhythmic. Disrhythmic interaction occurs when established rhythms are repeatedly interrupted.

[^3]An interaction is termed open when the behavior is characterized by the searching of the environment for other stimuli. To the extent that the participants are so highly interactive that they do not respond appropriately to other stimuli in the milieu, the interaction is closed.
"Searching" as used here refers to focusing the eyes or ears, or other sensory receptors on objects or people outside of the interaction area, "squirming" (non-congruent shifts in stance), foot shuffling, finger drumming, etc.

Systematic research has thus far been directed almost exclusively to the examination of two- and three-person interactions. Even within this limited universe, there are a number of other interaction modifiers which are being examined. Their behavioral limits are not yet clear, however, and discussion of them should await further analysis. Needless to say, the interaction modifiers appear both in association with speech behavior and through periods of silence.

## Motion Markers

The discussion of that aspect of body motion behavior which is classifiable only in direct association with verbal behavior has been saved until the remainder of the material had been presented. This chapter is not the place to discuss the intimate relationship between speech and movement in the communicational process. When we turn to examine the role of communication in society, these systems are dynamically interrelated with each other and with the other communicational systems as well. Up to this point, with few exceptions, body movement has been treated as a universe different from that of speech behavior. This methodological separation has been more than a convenient rendering unto Caesar. The internal consistency of language has been revealed by systematic research based on the proposition that linguistic phenomena are organized into a system which can and should be examined without reference to other social systems. This rigorous abstraction provided both a model for kinesic research and a set of clear frontiers which facilitated the abstraction of kinesic material. This entire discussion has rested upon the proposition that every interaction is based upon continuous communication carried on through the medium of patterned, discrete but interlocking and cross-referencing symbols. Looking only at the two modalities, speech and body movement,
but inspecting them from the point of view of the kinesicist, a model might be constructed to illustrate the temporal aspects of this process.

Figure 8

Observational time $\quad \mathrm{T}^{1} \quad \mathrm{~T}^{2} \quad \mathrm{~T}^{3} \quad \mathrm{~T}^{4} \quad \mathrm{~T}^{5} \quad \mathrm{~T}^{6} \quad \mathrm{~T}^{\mathrm{N}}$

Parakinesic behavio:
Kinesic behavior
Audible speech behavior

"Gestures" and "posture" and "facial expression" are probably the body-motion events most accessible to the American "folk"-viewer. That is, these phenomena represent public abstractions or shorthands for the much more complex behavior described in the pages above. As such they may be included in literary description, stage instructions, and even in etiquette prescriptions. As our discussion above has demonstrated, these are derived systems and are to be finally analyzed only in the complexity of the full communicational process. The motion markers, while less public in the sense that only a portion are sufficiently abstracted to be taught, seem very close to awareness in American speakers and movers. At least, an American audience seems to have relatively little difficulty in seeing them and "explaining" their function, once they are demonstrated. Yet, as with "gesture," "posture," and "facial expression" their apparent
accessibility creates confusion and pseudo-understanding when we attempt to analyze them. Special attention is given here to the motion markers, because of their tremendous importance in measuring the congruity of the linguistic and kinesic systems and because, in the interview situation, they are immediately available to the observer.

The kinesicist, recording, let us say, from a muted sound film of hitherto unanalyzed material, records a stream of kines. As his analysis proceeds, he orders these into kinemorphs and kinemorphic constructions. As he enlarges his procedure to include the qualifier behavior, he develops a mul-ti-level record which is internally consistent. Yet, as he scores this record, he can detect a particular distribution of kines as kinemorphs, and he can observe narrowly limited stretches of qualifier shift which combine to punctuate certain portions of his data sheet. Upon turning up the sound, it becomes clear that these specially marked passages are very frequently co-extant with speech phenomena, although this is not always true, for under a variety of circumstances a communicant may verbalize sub-audibly, so that his speech behavior is visible rather than audible. At this stage in the research, the kinesicist's abstraction of such phenomena will provide him with a data-series which resists systematization except in so far as it constitutes discernible patterned movement that occurs in association with speech behavior. Such body-motion behavior tends to have a different shape if the
the mover is speaking. Auditor behavior obten includes the same order of punctuating events. The model shown in Figure 8 may now be expanded to:

Figure 9

Observational time $T^{1} \quad T^{2} \quad T^{3} \quad T^{4} \quad T^{5} \quad T^{6} \quad T^{N}$ Parakinesic behavior Kinesic behavior Audible speech behavior

Until some of the linguistic and paralinguistic analysis is completed, however, we have no way of explaining this avident intersection of the linguistic and kinesics systems. When we turn to protocols which include both the linguistic and kinesics material, it is possible to abstract a series of linguistic situations which seem to demand a particular kinesic accompaniment. A more explicit description of some of the punctuation behavior is probably called for, therefore, before we proceed with the analysis. Utilizing our abstracted figure of kinemorphic construction, a record may read:

In this example the kine $Y$, in the kinemorph [XYZ], stands for brow rise which is held for one degree of over-long as compared to $X$ and $Z . Q$, which may stand for lip pursing, is

comparably over-long in the $[0 \mathrm{P} Q]$ kinemorph. In contrast $N$ in the $[L M N]$ kinemorph, here standing for head nod, is overshort, and $[P Q R]$, here a mid-face kinemorph, is marked by first degree of overlaxness. Since nothing never happens, this variation must be accounted for in the process of data exhaustion. The kines (as kinemorphs) [N] and [0] cannot from this record be abstracted as potential punctuation. However, when we match this record with a record of the speech events, we may well discover that either or both have a punctuational function as well as an observable bound place in the kinemorphic construction.

Theoretically, it should be possible to analyze this punctuational behavior without recourse to the linguistic or paralinguistic behavior which accompanies it. At the present time, however, our knowledge limits us to the conjecture that these events will eventually be orderable into some kind of suprasegmental form, analyzable in purely kinesic or parakinesic terms. Certainly the events do have a certain regularity of occurrence and of individual shape. Until either or both a binding or a linking kinesic principle is detected in their operation, they must be considered punctuation forms to be classed, since they are abstracted both behaviorally and functionally, as motion markers.

The motion markers, behaviorally, seem to fall into two general types: those constructed from qualifier variation, and those composed of kines-as-kinemorphs and of "gestures" as bound kinemorphs in a kinemorphic construction. Either type
may appear in the behavior of a speaker prior to and at the cessation of phonation--but not at the beginning or end of all phonation. They also appear in conjunction with special internal arrangements of complex sentences, but a speaker may very well emit certain complex sentences without punctuating them with markers. Similarly an auditor may or may not modify his speech-related behavior with motion events of the order of markers. In other words, while the punctuational behavior can be located in the speech context in certain positions, the analysis has not yet reached a point where we can posit obligatory binding between linguistic and kinesic events. With this caveat, we may list a series of derived functions that markers play in the interaction sequence. By "derived function" I mean an observable set of behaviors in a given context which can be abstracted and interpreted as related. Since my confidence in such interpretations is, at the moment, relatively low, I prefer to use "derived function" rather than some kind of "meaning."

## Motion Markers

Types by derived function
I CUE:

$$
\begin{array}{ll}
\text { A- } \text { f gnalling anticipations } & \text { Examples would include } \\
\text { of interruption } & \text { hand, foot, and head } \\
\text { B- Signalling anticipated } & \text { nods, raised eyebrows, } \\
\text { termination of phonation } & \text { stance shifts, lid clo- } \\
\text { C- Signalling anticipated } & \text { sure and duration to 2nd } \\
\text { initiation of phonation } & \text { degree, sustained incom- } \\
\text { D- Signalling "proceed, I'm } & \text { plete kinemorphs, palm } \\
\text { listening." } & \text { presentation, pursed lips, } \\
\text { E- Signalling "completed } & \text { visible breathing, eye } \\
\text { phonation." } & \text { focus shifts. }
\end{array}
$$

II SELECTION:

$$
\begin{aligned}
& \text { A- Selected item in series } \\
& \text { of items } \\
& \text { B- Selected connection be- } \\
& \text { tween items in series } \\
& \text { C- Selection of certain } \\
& \text { items as related to } \\
& \text { other items }
\end{aligned}
$$

III DURATION:

Examples would include
qualifier shift, head nod, head sweep or arc, special lip protrusion or retroflection, torso nod, hand nod, foot nod, digit nod, brow nod.

Duration qualifier shift to stacatto or allegro; lateral sweeps of hands, feet; eyeball sweep.

A- Nearby locale
B- Distant locale
C- Traversing distance

Range of "gesture" including "pointing," with head, hands, feet, torso, hand sweeps, head sweeps, etc. (always encased in construetron).

## V PRONOMINAL REFERENCE:

A- Speaker
B- Auditor
C- "We"
D- "They"
E- "It"

Same as in IV above except
that pointing is directed
toward subject with suppor-
five construct.

These five markers $(Q),(S),(D),(A)$, and (P) represent contextual appearance of a wide variety of punctuation behavior. Assignment of marker status to any particular punctuation thus represents an abstraction from context. Only extended contrast research in interaction situations can strengthen our confidence in the organization of the marker categories. For the present, the five point system represents a tentative working base which has proved useful in the examination of interview material. A sample recording of kinesic marking following extensive analysis might read:
(Q) (P)
(S) (P)
(A)

I told John, Mary, and Bill to put it in the back part
(S)
of the big, red barn.

The reader will note that the markers here are added to the simple English orthography. As will be clear in later chapters, the position of the marker may be seen to have even more significance when the full linguistic-kinesic protocol is assembled for the assignment of symptomatic and diagnostic features.

At this stage in the development of kinesics, interpretation must always rest upon the adequate measurement of the context of an occurrence. Throughout the preceding discussion I have stressed the fact that no kinesic event, whatever the size or the shape, is a carrier or invariable stimulus with its own emergent causal component. From the point of view taken within this discussion, no kinesic form is a vehicle with a constant load, no kinesic event, an encapsulator of meaning. I have tried to make it clear that the question, "What does X mean?" is non-admissible unless the system within which X operates has been subjected to sufficient analysis so that $X$ in its multiple of transforms can be described. However, to reject the over-simple question is not to repudiate the responsibility for weighing the role of the event within the system. Perhaps a summary of certain aspects of our discussion will make this position less ambiguous.

When we have repetitively isolated the forms $A, B$, and $C$, established within the preliminary descriptive frame of the investigator, as least discriminable variations from an established zero point, we can say that for the investigator the meaning of $A$ is not that of $B$ is not that of $C$. This procedure provides us with units whose value for the subject is yet to be determined. If repetitive manipulation of the forms A, B, C demonstrates that, for the subject, they are in fact
not substitutable for each other in all frames, it is then necessary to describe them as having (for the subject) discriminational meaning.

If, on the other hand, we establish the fact that the preliminary units which the investigator distinguishes in a given position (e. g. $A_{1}, A_{2}, a_{1}, a_{2}$ ) are substitutable for each other in that context without (for the subject) varying the function of the form, we may then say that these units are in this context in free variation and have, for the subject, the same perceptual value. That is, the kine variants, while having for the investigator discriminably different values, have for the subject identical perceptual value. They belong to the same class of events and they derive their meaning from their class membership. Thus $A^{1}, A^{2}, a^{1}$, and $a^{2}$ have a single perceptual meaning $A$. Yet we have said nothing as to the meaning of $A$ as a kine. We can, however, discuss the structural value of $A$ when we systematically examine the kinemorph and kinemorphic-construction bound-forms which contain A. Again we are not saying what $A$ in and of itself means. What we are saying is that $A$ will occur in certain kinesic contexts. While our analysis has not yet gone this far, in the future we may very well be able to list those kinds of constructions in which A does not appear. There is also the possibility that we will discover a systematic nature to kine positioning which will allow us to perform the complementary distribution analysis so characteristic of linguistic analytic procedures.

On the next level of analysis we can determine the relationship between certain groupings of kines and their complex associations under some kind of suprasegmental binding system. Through analysis we can determine that certain of these bound forms will exist in association with other bound forms under some kind of cross-referencing system which serves to distinguish one complex bound series of movements from another comparable but differing cross-referencing series.

But the question still remains, once these forms have been distinguished, ordered, and conceptualized in their complex organization, how do we then determine their significance in the interactional sequences in which they appear? Throughout the sequences discussed above, our procedure has been dominated by a series of methodological canons. (A) Establish and maintain a given level of analysis. (B) Isolate units for manipulation. (C) Establish the independent identity of these by contrast analysis. (D) Weigh the analytic value of these newly established units by the examination of the contexts in which they regularly appear or never appear.

These same canons prevail in the analysis of the social meaning of any form or series of forms. The social meaning of a form is established by the description of the shift in field or context occasioned by the presence or absence of a given complete form. However, let us reemphasize one point. This procedure carnot be accomplished before the full analysis of the form--which includes the assignment of the form to its
role within a pattern has been carried out. We cannot simply count the forms persent and derive the special meaning of the forms. Unless we carefully separate our levels of analysis, we shall be unable to deal with those patterned arrangements in which the value of a pattern is shifted by the absence of a component which is normally internally bound. In other words, no running list of kine variants will ever inform us as to the role of the kine in the interactional sequence. Only in a pattern, composed of complex bound forms, does the form enter into associations on the social interactional level.

Because we are dealing with a patterned system, our analysis, once completed, serves to make public incongruities which appear within the system at any given level. The statement that the behavior which we are analyzing at any given level contains incongruities, however, does not permit us to assume that these incongruities will introduce incongruities into the social interactional sequence. One of the most important functions of parakinesic activity is that of introducing cross-referencing signals that indicate that what appears to be an incongruity is congruous within some larger system. Such statements as "Everything to follow (or everything just said) is a joke," or "I am imitating" or "to quote so and so" or "this is play" provide us with examples which can be kinesically rendered in such a manner that apparently incongruous statements are cross-referenced into congruity. As we shall see in later discussion, this is the very area in which personally
distorted systems become mal-operative.
Only systematic research with contrast analysis in multiple contexts will permit us to evaluate the particular incongruity. Within our basic assumption that "nothing never happens", the incongruity is itself a message if it remains uncompensated for within the larger system. Its interpretation, again, will rest upon its repetitive contextual appearance.

This is not the place to attempt to analyze the relationship between the two communicational systems, language and body motion. Suffice it to say that we already have considerable evidence that these systems cross-reference each other and establish full patterns of conversational performance which operate in the social interactional sequence. Man does not merely move and see movement, or talk and hear, in an interaction. Body motion and language, on this level, form a complex pattern in which they are only analytically separable. The full pattern must be assessed before we can hope to weigh the role of either within the interactional sequence.

Finally, even the most exhaustively analyzed conversational pattern does not exhaust the systems in operation in any sustaining association. That is, communication analysis as discussed here does not constitute a final analysis of culture or its component situations. The final answers to "What does $X$ mean" can only be arrived at when all of the other social systems interacting in any situation are equally thoroughly analyzed.

1968

Implications for Psychiatry

Sept. 30, 1968
Henry W. Brosin, M. D.

## TABLE OF CONTENTS

## Page

4.1 -- The Task of Clinical Recording and Analysisof Non-Lexical Behavior
13334. 3 --Convergence on the Problem from Parallel Disciplines
4.4 --Need for a New Technical Language
4.5 --The Natural-History and the Experimental Method
4.6 --Advantages of More Precise Observation andAnalysis and the Training Value of the NewTechniques
74 4.7--Possible Disadvantages of the New Methods of Recording, Transcription, and Analysis
"The history of science is largely a history of technique..."

Topley and Wilson, 1946
"The successful mapping of large molecules has needed courage and persistence as well as imagination, but the way to further maps will be made plainer... Yet, in spite of that, the biologist has little hope of escaping the immense variety of his material. Even when the molecular structures are mapped there will be organisms to deal with, the vast range of plant and animal form and in the end the differences between one man and another."

```
    Lord Adrian, 1955
    or--
    "There are two laws discreet,
    Not reconciled,--
    Law for man, and law for thing;
```

    The last builds town and fleet,
    
## But it runs wild,

And doth the man unking. "

## Emerson

"For this reason no man of intelligence
will venture to express his philosophical
views in language, especially not in
language that is unchangeable, which is
true of that which is set down in written
characters."

Plato

A physician along with other students of human behavior may
well ask, after reading the exceedingly technical discussion of the preceding
chapters, what advantages appear for him in the linguistic-kinesic analysis
and synthesis of raw clinical data. Is such elegant technicality worthwhile?

Is the already overburdened physician being asked to master a new area in
addition to those being described in the more than 165,000 articles and

85,000 book titles published in the biomedical field last year? Our
exposition in this chapter will focus on the interests of the physician-
psychiatrist in order to meet space limits, although we are keenly aware of
the contributions and relevance of other behavioral scientists.

Psychiatry has been defined as the study of the disorders of
language and movements of the body. Freud $(1901,1905)$ pointed out that
human communication included speech, gestures, dreams and writing; "that
the interpretations made by psychoanalysis are first and foremost translations
from an alien method of expression into one which is familiar to us." (1913, p. 176)
..."The language of dreams may be looked upon as the
method by which unconscious mental activity expresses
itself. But the unconscious speaks more than one dialect.
... While the gesture-language of hysteria agrees on the whole with the picture-language of dreams and visions, etc., the thought language of obsessional neurosis and of the paraphrenias (dementia praecox and paranoia)
exhibits special idiomatic pecul iarities which, in a
number of instances, we have been able to understand and inter-
relate. For instance, what a hysteric expresses by
vomiting an obsessional will express by painstaking pro-
tective measures against infection, while a paraphrenic
will be led to complaints and suspicions that he is being
poisoned. These are all of them different representations
of the patient's wish to become pregnant which have been
repressed into the unconscious, or of his defensive reaction
against that wish'. (1913, p. 177-178)
communication, and that the the rapist's efforts to understand and help the
patient are based upon his ability to understand the ways in which forgotten
or repressed feelings, conflicts, and memories are transformed in body
language and behavior which are the focus of his complaint. Because the task of the the rapist is the translation of these disguised patterns into
conventional language, it seemed to us that stable recordings which permit
re-examination by multiple judges over time would be an aid in systematic study,
both for exploration, verification and refinement of models which seemed
appropriate to workers in the clinic. Because there are a large number of
relevant clinical observations, and also more recent laboratory investigations
from workers in many disciplines to be reported which are useful to serious
students, but not of primary interest in an introductory statement such as
this, it was decided to place these examples, together with some historical
comments into Appendix 0000. (Insert proper number for Appendix b-
"Bibliographic Citations" as outlined in McQuown Table of Contents - 1968).

Here we will keep to the modest goal of describing a method for improved
recording of out patient's behavior in the hope that in some organic dis-
orders, it will help sharpen the focus of these disorders and thereby help us understand better the mechanisms present, and that in behavioral problems,
whether genetically, organically or psychologically based, we can better comprehend the structure and grammar of the communication systems at work. Many, if not most, of our problems concern the human relations of the patient to the people and events surrounding him. As scientists, we have seen in all of the related fields, elaborate searching devices developed to examine apparently simple patterns. The value of these or any other techni-
ques must ultimately be determined in terms of the usefulness of the
instrument--not in terms of how complex, elaborate, or difficult to
master they are. We are aware that the intensive study of human communi-
cation is of ultimate concern to all behavioral sciences, but will not try to
go beyond immediate clinical psychiatric implications in this preliminary statement.

Experience teaches us that simple memory is too unreliable to permit the objective evaluation of the subtleties of behavior available in
and storage system. Recent technological advances in sound and film recording seem to provide some answers to these problems of storage and recall of social circumstances. Existing methods for annotating, analyzing and interpreting
the social interaction of any species, i.e., the transactions and the
interactions between the individuals of a species, however, have remained inadequate. It seems to us that one reason for this is that a considerable proportion of the significant signals in any human interactional system have not been systematically recorded for analytic purposes. All of us can appreciate the theoretical importance of inadequate recording of signals at various levels of interaction. And even though we can legitimately expect extensive improvement in understanding with improved technique, we are also aware that recording and analysis will probably never be complete, or free from technical difficulties. We recognize that the more minute
gradations of sound and movement escape even the sound-camera and the
most skilled observer. We also remember that smell, color, temperature,
skin resistance, pulse and respiratory rate, pupillary size changes, and
other visceral indicators are not being recorded for analysis in our
studies. The recording of these modalities is also in an early stage of development (Watson and Kanter, 1956). The extensive possibilities for explaining tactile communication, even though recognized clinically in both psychotic children and adults, have not been adequately developed (Frank, 1957; Geldard, 1960; Wiener, 1966). The need for such records is evident. They provide an invaluable tool for the furtherance of investigations involving interviews. However, let us be clear. Because of the very
nature of human experience it is doubtful whether even the most complete
records will ever be an adequate equivalent for a direct personal experience
with a patient.

There are other immediate increments from the use of these
tools. Within the past few years physicians have had an opportunity to
hear themselves in action. The revealing, but at times uncomfortable
insights derived from this experience have been multiplied in the case of
those who have had the much less common opportunity of hearing and
seeing themselves on sound film. After the initial shock of recognition and
incredulity, most clinicians are surprised at the difference between their
image of themselves, their transactions with the patient and that revealed
by the record. It is not surprising that these distortions should occur.

The physician, as a member of his society, shares its image-making system.

It is not entirely reassuring to remind ourselves that the distortions evident
in even the most sophisticated self-image of a clinician can be both customary
and functional. It is important, however, to recognize that within the past
five decades, with Freud's emphasis upon the $\infty$ untertransference relations,
there has been a significant shift in the order of magnitude of self-awareness on the
part of the physician.

The shift in the search for self-awareness presents new responsi-
bilities. The previous chapters have laid the groundwork for the explication
of this theme. We may go directly to consideration of the relationship
between methods for achieving social awareness and clinical practice. The fir
work done thus far by the use of film and sound-tape in clinical situations and the
systematization of interpretations by clinicians practiced on masses of
raw data are notable for pointing the way to more widespread usefulness.

But we must not be too sanguine. The high hopes of 1945 are not justified
by the experimental work up to 1968 , but the rate of increase in the number
and quality of publications inthis area since 1960 furnishes new hope.

At present, many clinics ha ve mausoleum-like closets piled
high with tapes and films which defy their possessors to abstract from them
significant data which can be ordered into patterns affording interpretations
which are intelligible and useful. The publications which report the work
which does attempt to surmount the many difficulties inherent in the
"documentary" approach merit our deepest respect and challenge us to
more conscientious exploitation $f$ such sources of clinical insight.

During 1953-1960 we might mention the work of Will and Cohen (1953), Gill,

Newman, and Redlich (1954), Rogers and Dymond (1954), Wolberg (1954),

Deutsch and Murphy (1955), Deutsch (1963), Deutsch (1966), Kahn and

Cannell (1957), Hoch and Zubin (1958), and Pittenger, Hockett, and Danehy
(1960), all dealing with the psychotherapeutic interview in one way or another.

The mass of data and the valuable hypotheses which have emerged
from the study of the behavior of patients by physicians and their colleagues
in the behavioral sciences in clinics, hospitals and in private practice is
impressive. Much good work continues to be done in these areas, utilizing
the methods of observation and correlation, group comparison and the tracing
of genetic development, with the clinician as a self-conscious participant-
observer. Yet the shortcomings of these methods have been increasingly
obvious to the investigators themselves. Incompletely recalled and recorded
interviews provide insufficiently reliable data for intensive review by other
colleagues or even by the clinician himself. Without a manageable system
for transcribing significant data, based on a comprehensive theory, it is
not certain how successful our analyses can ever be.

The physician is clearly subject to the errors of his own
perceptions and interpretations, however.skillful, talented and industrious
he may be. The problems of the observer, i.e., of reviewing his subjective
recollections and interpretations during and after an interview, are well
recognized. This process has not been sufficiently studied to be satis-
factorily broken down into its numerous component parts Renneker (1960) Lennard
and Bernstein, (1960\% Thorne, (961); Rosenthal (1966) Moscovici, (1967); Berkowitz
(1967); Chassen (1967); Friedman(1967). One of the rewards of the study of film-
tape interviews is the larger perspective gained on the ways in which the
participant-observers, consciously or unconsciously, alter the course of
the interview or the climate of communication. It has long been clear that
the lexical record, i.e., the words in the typescript, is in all cases made peculiarly significant by the vocal modifiers and body motion frame in which
the words occur. These have not been adequately covered in previous attempts to comprehend clinical material. The new technology provides us with stored records which hopefully can be mined with new and explicit
techniques. We must say, however, at the outset, that we will not know how to use these methods most effectively until they have been given an adequate trial under favorable experimental conditions. One problem is the choice of the size and shape of a sample of film and tape, while another is the nature and magnitude (micro-, semi-micro, or gross) of the analyses which are most appropriate to the experimental task.

A priori judgment based upon insufficient evidence will not demonstrate either the virtues or the faults of the methods concerned. Unfortunately, the methods for linguistic-kinesic analysis are costly of time, of energy and of talent. It will be some years before trained workexs in adequate
numbers are available. For this reason, the present experiment was
undertaken to test the usefulness and the limitations of such analysis
in a single selected situation.

The use of the oscilloscope would seem an excellent way to
study speech sounds with stable recording of patterns. Initial efforts to
utilize this method have uncovered many difficulties in making these
methods useful in studies of personality, social interaction and the
psychotherapeutic process, but the hope remains that technical advances
may give us a new tool. Ostwald (1963, 1964, 1966) has furnished excellent
examples of acoustic manifestations of emotional disturbances, including
the demonstration of speech distrubances as seen in a spectrographic
study of a schizophrenic adolescent. (Ostwald, 1966, p. 40-49)

Our emphasis in this brief summary on problems of clinical
recording and analysis of non-lexical behavior should not obscure the
steady progress made by clinicians in the firsthand study of such
components of communication, namely, the physiological, vocal and
body motion activities which characterize the interactions between people.

Psychiatrists trained to observe these non-lexical activities will find
much that is familiar in the case material presented here, bat we hope
that the re is sufficient novelty in the data and in the concepts to encourage
them to make use of these new techniques.

The novelty will be more evident as we review some of the
relevant work in the field. To do justice to the subject, one should
begin with Charles Darwin's classic study, THE EXPRESSION OF THE

EMOTIONS IN MAN AND ANIMAL, originally published in 1872, before 1
reviewing current work. However, for the purposes of this chapter it
seems justifiable to place our emphasis immediately in the more recent
psychiatric context. Psychiatrists basic interest in the observation and
recording of patients' thinking, feeling and acting, akin to the medical
model, was enhanced with the writing of Freud and his pupils. In
order to furnish easily available samples to students, these will be
furnished in Appendix $000 \alpha 7$ b) in order not to delay this nattative.

[^4]It is difficult to write a succinct account of the development of
recording and filming devices and methods because the re is relatively
little publication of the early attempts even though we know from direct experience that many were made prior to World War II. Gill, Newman and Redlich (1954) have described previous recordings from 1947 to
1953. Their statement that Earl Zinn is probably the first to record
therapeutic interviews is supported by his pupil, H.T. Carmichael
(1956, 1966) who was with Zinn in the early 1930's. They provided a valuable
discussion of the irs truments and methods employed, and set an admirable
example in specifying the details of equipment, and how the material was actually used. (Also see Dittman, Stein and Shakow, 1966). Many of the earlier papers fail to do so. Also, many of the earlier workers only used recordings as the basis for a transcript until later experiments by Bierer and Ström-Olsen in 1948 and by Ruesch and Prestwood in 1949 demonstrated the superiority of studying the linguistic components of the communication stream. The writings of H. H. Strupp and his associates together with the references to other active workers during the past two decades already
cited will provide the reader with descriptions of the progress in
experimental technique made by himself and others. (Strupp and

Luborsky, 19.62, and Strupp, 1966)

Our studies began with McQuown's linguistic analysis in 1955
of the Will and Cohen (1953) recording wnich was published in 1957.

The earliest linguistic transcription of psychiatric material
known to us is that of Stanley S. Newman and V.G. Mather (1938)
who worked on the linguistic properties of patients with affective
disorders and found significant patterns of constrictions. Kramer (1963)
has given us an excellent review article dealing with the non-lexical
2
prope rties of speech up to 1962.

2
Robert E. Miller (1966) has reported dramatic experiments about the transmission of affect in monkeys. Haggard and Isaacs (1966) have carefully studied fleeting facial changes lasting one-eighth to one-fifth of a second, and observer reliability, and thereby generated several new hypotheses worth testing in a controversial field. Haggard and Isaacs (1967) is a worthwhile summary of recent and current work from this active group. Condon and Ogston (1967-68), using film of a chimpanzee found an organization of vocalization and body motion similar to that of human behavior.

## Several excellent demonstration films of psychiatric patients

with presentations by Heinz Lehman were made in 1938 by the Mental Health

Division, Department of National Health and Welfare and the National Film Board of Canada.

Leighton and Lidz (1942) together with John P. Lambert made silent films of patients for demonstration purposes in syndromes not readily available such as paretic and manic reactions. Similar films were made by Dr. Franklin G. Ebaugh, Charles Rymer and their colleagues, between 1931-33. The recording devices before 1949 were not reliable and most workers, under the pressure of other duties and projects did not pursue this means of investigation. Herman Serota (1964) used home movies of children as correlative developmental data in the psychoanalysis of adult patients before 1940, but did not publish it until 1964. The technical and conceptual difficulties which prevented these and other workers from making progress became more obvious in the publications which followed Ruesch and Bateson (1951) and Gill, Newman and Redlich (1954), McQuown (1957), Pittenger, R.E. and Smith, H. L, Jr. (1957),

Pittenger, R.E. (1958), Eldred and Price (1958), and Pittenger, Hockett and Danehy (1960). The feasibility of making meaningful transcriptions,
which had been developed by Pike (1945), Trager and Smith (1951) and

Trager (1958) between 1942 to 1958, had been shown to be of interest to
psychiatrists in studying the therapeutic process in ways not hitherto
available and which might help improve objective recording. The diffi-
culties are many. Linguists do not always agree upon the equivalence
of the raw data, and use different conceptual schemes for recording. (Hill,

1958, 1968 and Longacre, 1964, Pike, 1967 and Stetson, 1951) It is our
experience that the differences in working out transcriptions are relatively
small compared to the large areas of agreement. They also vary in their
opinions about interpretations which was summarized by Dittman and Wynne
(1961) in their conclusion that the details of linguistic analysis are reliably
describable, but "probably have little psychological relevance" (p. 203),
while paralinguistic phenomena "have higher psychological relevance, but
cannot be coded reliably." Trager's (1966) comments on this judgment are
worth repeating to illustrate the complexity of the phenomena involved and the need for more intensive and imaginative studies. "It is probably true that linguistic details as such have little psychological relevance, though they are basic to the sociocultural placement of the speaker in the rapy; and the paralinguistic phenomena are of much higher psychological relevance in psychotherapeutic situations, though it must be understood that as behavior events they occur in a matrix of language. But I must question the conclusion that paralinguistic details cannot be coded reliably. At the time that the work was done with Dittman and Wynne, the analysis of paralanguage was still in a very preliminary stage, though good agreement was reached by the three of us in evaluating the material. Since their study, a notation system for paralanguage has been worked out, and work has been done in recording minutely the paralinguistic phenomena in English as well as in some other languages." (p. 81) The new notation in
his article referred to by $\operatorname{Trager}(1966$ ) has since been augmented by

Crystal and Quirk (1964). Kramer (1963), in a review article on the
judgment of pers onal characteristics and emotions from nonverbal
properties of speech (timbre, inflection, and stress) find evidence that some validity of judgment is possible , in spite of many methodological difficulties such as "inadequate measures as the independent criterion for the traits being judged'", and no method for totally eliminating the effects of the verbal content, nor has adequate attention been given to the individual differences among listeners, or the relationship of voice to psychopathology. In our own group, the importance of individual differences was a source of frequent comment, while the diagnostic importance of the interpretations of a very small sample of Doris' vocal production, described in Chapter IX - Collation, can scarcely be overestimated even though it cannot be reproduced in most experimental conditions.

Kramer cites Sanford (1942) who noted that "common experience seems to
accept the existence of connections between voice and personality, and if
'the analytic-experimental approach. . reveals no relationship, we should
be forced to conclude that it may be the fault of the approach ' ". (Sanford,

1942, p. 838).

Markel (1965) using college students to score rating scales
developed a quick method for coding pitch, loudness and tempo and found high inter-rater and test-retest reliability for these elements.

Weiner and Mehrabian (1968) discuss some of these problems, with the introduction of the concept of "immediacy" to other "channels" of communication, which must be of interest to all students of communication, particularly in connection with the concepts of "proxemic" behavior
(Hall 1959, 1966, 1968), and the improved methods of the study of interpreting emotions from facial expression. (Davitz, 1964). Davitz, like

Kramer (1963) and Sanford (1942) before him, comments on the wide
differences in accuracy reported even though there is general agreement that facial
expressions communicate feelings beyond chance expectancy. "These
differences are probably a function of the stimulus used, the kinds of
discriminations required in the experimental procedure, the categoreis
of emotional meaning considered in a research, and the individual differences
in ability among those who express feelings and those who are asked to
identify the expressions." (Davit: , 1964, p. 14)

## A further example of the different methods of obtaining data

resulting in differences of opinion about another important question,
namely the synchrony between body movement and speech, is the paper
by Dittman and Llewellyn (1968). They found the results to be significant,
but the amount of movement variance accounted for a much smaller one than that
reported by Pittenger et al (1960) and Scheflen (1964). Dittman and

Llewellyn believe that their method allowed direct tests on films with the conclusion that the claims of Pittenger et al(1960) and Scheflen (1964) "of very close speech movement relationship were found to be exaggerated."

Dittman and Llewellyn also explore the convergence between Kendon's
(1967) analysis of gaze direction at "hesitation pauses" and "phrase boundary
pauses," even though direct comparison of data is not possible. The history
of science is replete with examples of growth in concepts and improved
methods for data gathering through the work of numerous workers comparing
results. We need more active workers to test methods and concepts for
recording, analyzing, and interpreting human communication more quickly
and accurately so that we may be able to study the therapeutic process
and other interactions more effectively. It seems to this author that
resolution of the "usefulness" of linguistic and paralinguistic data will
become more apparent when the units under consideration include the
kinesic (body movement) components as a single unit. We hope that more workers will find this concept useful so that the synchromy of speech and body motion found by Condon (1964) and further alaborated in Condon and Ogston (1966, 1967A, 1967B, 1968, 1969) will find corroboration and/or refinement of method.

The many perplexing problems concerning the segmentation
of seemingly continuous behavior into "units" which has descriptive and
experimental value is central to many other issues, and requires close examination of basic assumptions. In much of the work of Condon and
his associates, the concept of "Etic" segmentation, i.e., the analysis of the physical, articulatory structure of sound emission as contrasted with the "emic" segmentation based upon classes of sounds was employed.

The analysis of body motion has, thus far, been primarily etic in nature.

Emic analyses will emerge as inquiry proceeds. No review of this topic
will be attempted here because many chapters of this book are relevant,
and the discussions by Pike (1967, pp. 37-72) and Stetson (1951) provide adequate background.

We regret that lack of space prevents a review of many more
examples from our selected bibliography of 1900 titles. The number
could easily be doubled if one included additional studies in linguistics,
anthropology, speech and speech pathology, neurology, infant and child
development, and the linguistic philosophers. The beginning student can probably orient himself most easily by scanning Gottschalk and Auerbach
(1966), A.G. Smith (1966), J.M. Schlien (1968), P.H. Knapp (1963),

Hymes (1964) and Sebeok, Hays and Bateson (1964) sirc e many of the most
active workers in the field are represented in these volumes, and the
bibliographies are exceptionally full.

We will not cite additional articles by Bateson, Birdwhistell,
and McQuown since they are represented in their chapters. Attention is
called to the work of Scheflen, a longtime associate of Birdwhistell's,
whose experiments and expositions in the analysis of film and tape at
several levels have brought to public attention much new data (1965a, b, 1967, 1968) . In addition to Condon and Ogston (1966, 1967a, 1967b, 1968)
already cited, the examples of coordinated regulation of lexical content, and
body motion are shown by Charny (1966), Loeb (1967), Kendon (1967), and (Brosin has reviewed some of the work of Condon and his associates (Brosin 1964, 1966) Condon, Ogston and Pacoe (1968). Schossberger, Condon and Ogston (1968)
have closely studied the film of one case of infantile autism which shows
synchrony to non-human sounds and indifference to the human voice.

Pacoe (1968) is studying the effects of delayed autitory feedback showing
dyssynchrony between the movements of fingers and speech, akin to
aphasics, in standardized situations. In unpublished work Condon has several
samples of dyssynchronies in stuttering, petit mal, aphasia and the schizophenias.

In over 50 control cases Condon has not fou nd these dyssynchronies.

If this can be corroborated by other works using similar methods, it may be
possible in many cases, even if not in all of them to make significant
observations about the presence or absence of various kinds
of disturbed behavior at these levels. Most observers at first are highly
skeptical, but Condon has convinced outside visitors who are willing to study the film closely. Kendon (1967a, 1968), utilizing a similar approach, has tentatively confirmed some of the findings concerning self and interactional synchrony.

We will mention some of the more current psychoanalytic
publications which are of interest. Carmichael (1956, also reprinted in 1966)
and Bergman (1966) furnish the only two publications of a sound film of
psychoanalytic therapy known to us, and both articles are worthy of study.

Carl Rogers has also made a film of a psychotherapeutic process (date
unknown) but cited by Carmichael (1956). Gill, et al (1968) are making
audio-recordings of psychoanalyses and developing ways of studying them.

They discuss the obstacles, re-evaluate objections and conclude that
"recorded research analysis needs to be done, that the crucial problems
may lie in the therapist as much as, if not more than, in the patient, and we believe that such an analysis can be successfully performed. If not,
that demonstration in itself will constitute a valuable addition to our fund of information about psychoanalytic treatment and provide other leads for
future psychoanalytic research." (p. 242-243) In this same issue, there
are excellent articles by George L. Engel (1968), and Sadow et al (1968)
on psychoanalytic research. The discussion groups on language which
are reported in psychoanalytic and psychiatric journals to date contain
material of general, but not of special interest to our major topic.
:Sternberg, Chapman and Shakow(1958) and Shakow (1960) also furnish
excellent critiques of the sensitive problems surrounding the intrusions
of privacy in psychotherapy research. Kiesler (1966) does a highly useful
evaluation of the recent attempts at quantification and rigor, and their
underlying assumptions which prematurely close off areas of inquiry. He
examines the "patient uniformity assumption," the "therapist uniformity
assumption, " the "spontaneous remission myth," the lack of comparability
of various patient groups, "the myths that present theories provide
adequate research paradigms, "the distinctions between process research
and outcorne research; independent, dependent and Underwood's (1957)
"confounding" variables in penetrating ways which support his thesis that
no single one-shot method will definitely establish the value of psychotherapy.
(p. 127). The essay calls to mind the need for historical perspective described by Kuhn (1962) in THE STRUCTURE OF SCIENTIFIC REVOLUTIONS which emphasizes the need for long preparatory periods of "normal science."

Examples of explorations which may be of interest to our field are Schossberger (1963), K. K. Lewin (1965), V.H. Rosen (1958), (1967), Meerloo (1964) on linguistic components, Kestenberg (1967) on movement patterns, Calogeras, R.C. (1967) reviews the psychoanalytic literature on silence. Matarazzo, et al. (1968) have presented an excellent review of their work on silence. Jaffe (1968) has numerous publications concerned with computer assesisment of dyadic interaction rules from chronographic
data in psychiatric interviews representing fifteen years of intensive quantitative research. While this work does not involve films, it is a dramatic example of the potential use of the computer, and some of the data and hypotheses will be of interest to linguists. Ekman (1968) also has many publications dealing with nonverbal
behavior in psychotherapy research, which will undoubtedly be of interest
to lingujsts who have a different bias about the size, shape and duration of
units of behavior, levels of interpretation, and the kinds of messages which
can be decoded from verbal and nonverbal information.

Haggard (1967) and his co-workers were cited earlier, but are
mentioned again together with George A. Mahl(1968), another long-time
investigator of clinical subjects because their writings cover a wide
range of subjects which we cannot abstract here. His papers on gestures
and body movements contain many valuable observations, and appreciation
that the study of nonverbal behavior has much bearing on general psychology
and that unconscious conflicts are a vital component of much behavior.

Saslow and his associates (see Matarazzo, et al.) have published con-
sistently over many years in the effort to bring more rigor into psycho-
the rapeutic studies. The urgent recommendation of Saslow, et al. that
"the time may be appropriate for a centrally administered, nationwide
study of psychotherapy along the lines established for prenatal and post-
natal development, cardiac disease, etc." (p. 393) may be a realistic
one in the near future.
N. H. Greenberg (1967) has embarked on a large program for
filming infants at closeup and distant views at any time for any reason while
the infant is alone or in interaction with the mother or other caretakers.

Although space does not allow an abstract of some of Greenberg's protocols, we can expect much new and detailed data from his use of "time lapse photography" and "infant stimulation" experiments.

The work of E. Hess (1968) since his earlier publications fol-
lowing 1960 has stimulated considerable interest because change in the
size of pupils upon exposure to stimuli seems to be a measure of attitudes
or change in attitudes. The measure is complicated by the fact that one
component, the autonomic response, must be taken into consideration.

Since potential applications are many, even if it does not become a stable
index or objective measure of progress during the course of psychotherapy,
it merits attention from students of the the rapeutic process.

We have called attention to the interest of social psychologists
to "social space" and want to mention the work of Argyle and Kendon (1967)

Kendon (1967), Mehrabian (1968), Wiener, M. and Mehrabian (1968) Argyle (1969),

Sommer (1967), Rosenfeld (1967), and the popular books by the anthropologist Edward T. Hall: THE SILENT LANGUAGE (1959) and THE HIDDEN

DIMENSION (1966), and a recent review article "Proxemics" (1968), because of the great importance of the larger units of social interaction which have not received adequate attention to date. The journal, EKISTICS
is publishing reviews on the problems of human settlements from the Athens
(Greece) Center of Ekistics by C.A. Doxiades which will be of interest to those students who wish to study the large social units. Parenthetically, the journal, IKON, the International Review of

Filmology, published since 1948, is the official journal of the Agostino

Gemelli Institute for the Experimental Study of Social Problems of Visual

Information in Milan, Italy. I am indebted tu Dr. David Shakow of NIMH
for the information that the Gemelli Institute has equipme nt which includes
motion picture facilities, closed-circuit television, equipment for photo-
graphing audience reactions by infrared light, and neurological and psychophysiological recording apparatus. Associated with the Institute
is also the Central Register of Scientific Research on Visual Information.

Their studies have included EEG response to the film situation, the use
of film as stress stimulation in the study of psychophysiological response,
posture changes and other overt responses of schizophrenic and normal
subjects while viewing films, deve lopment of children's responses to
humor in films, and several studies using a filmed projective technique
developed by Professor Gilbert Cohen-Seat of the University of Paris.

The quality of research reported is comparable to our own.
N. A. McQuown (1964) has recommended "particularly in view
of the fact that the paralinguistic and kinesic disciplines are in their
very beginnings, that we associate as closely as possible with people
who are working in the animal behavior area, and in our initial training
we must include films and tapes not only of a variety of human groups but
also of higher primates" (p. 222). In addition to other citations to
animal behavior studies by ethologists and comparative psychologists in
this chapter, I would recommend the studies of R.E. Miller (1967) as
a useful introduction among the scores of exciting studies in this field.

The omnibus volumes by Rioch and Weinstein (1964), Thorpe and Zangwell
(1961), Burkhardt (1967), and Altman (1967, and the articles by Sebeok
(1965a, 1965b) furnish perspective on the current scene.

Occasional inquiry about the possible relevance of the well known
writings of Chomsky (1965) cause me to comment that up to this time his
followers have not yet undertaken to show the usefulness of his theories in the linguistic-kinesic analysis of human behavior. At least some of the reasons for this are suggested in the reviews by Lamb (1967) and Hockett (1968).

## 4. 3 Convergence on the Problem from Parallel Disciplines

Medicine is traditionally rooted in biology. The art of medicine which has always been an important aspect of the practice of clinical medicine has more recently, however, been increasingly subjected to systematic study by psychiatrists and social or behavioral scientists, as seen in the previous section. In turn, leaders in medicine have gradually opened the door to studies in experimental and social psychology, in cultural and social anthropology, in interpersonal relations, in medical economics and sociology, and in ecology and ethology. Among such pioneers is Gregg (1941, 1957). Acceptance of the need for such studies is far from general, however, since objective methods have not sufficiently demonstrated their usefulness. A few medical educators are willing to assume responsibility for helping workers in these fields develop me thods and data relevant to the practice of medicine. The majority, if not indifferent because of preoccupations with their own work, prefer to wait until the fields themselves are sufficiently developed to be clinically useful.

A change in the attitude toward the non-medical disciplines,
however, can be seen, for instance, in the growing recognition of the importance of genetics, especially of the value of those innovations made possible by advances in chemical and population genetics. Most psychiatrists have been much interested in the behavioral sciences because they recognize the need to study man in his social environment for the better practice of medicine.

Reviewing the development of psychiatric theory and the types -
of data with which psychiatrists deal, we find that they have much in
common with other behavioral scientists, especially with the anthro-
pologists, some of whom have attempted to explore the interrelations of pathology and normalcy in human behavior. Among these are Kroeber (1953 and 1956) (the latter in Thomas, 1956; pp. 292-311),

Kluckhohn (1944 and 1949), LaBarre (1955 and 1964), Mead (1952, in

Alexander and Ross, 1952, pp. 401-448), and Sapir (1933 and 1938, reprinted in Mandelbaum, 1949, pp. 7-32 and 569-577, respectively.)

The essays by Margaret Mead, LaBarre, Kluckhohn and Sapir especially
clarify many of the links. Both disciplines have been criticized, with
some justification, for the following reasons: too much theory with
insufficient data or inappropriate data, lack of convincing correlations
under specified conditions, lack of data which can be publicly examined
and directly experienced by other observers, lack of clear definitions
with operational meaning, lack of concern over the specifications of
experimental conditions, lack of precision in formulations and inferences
which are acceptable to workers from other fields, too great concern for
raw data with insufficient generalizations of high quality, as in many
case histories, and unwillingness to present both the methodology and
the direct experimental data.

It seems probable that anthropology, along with other behavioral
sciences, will have much to contribute to the understanding of the
conditions, both internal and external, which determine human health.

With better data, more precise and explicit methods of observation, and
with more carefully defined concepts, behavioral studies should
make an appreciable contribution to the human clinical field.

Edward Sapir deserves mention as the pioneer linguist who
clearly stated the hypothesis that "language" and "communication" in
all aspects are cultural systems which can be studied and understood,
even when dealing with deviant behavior and unconscious motivation.

His associations with Harry Stack Sullivan enriched the insights of both
men and provide us with the background to pursue clinical studies in a
more rigorous way. Kenneth L. Pike (1967) is another pioneer who is
credited by Hockett (1968) as having "given us some remarkably important insights:
phonological hierarchical structure is one; his brief exposition of
linguistic-like approaches to the discussion of other phases of culture
(1967, the first few sections) is another" (p. 33). Hockett continues on with a severe criticism of Pike's terminology and style, a view
also shared by others. (See N. A. McQuown, 1957). In spite of these
difficulties, it may be worthwhile to study the ambitious attempts of Pike
to establish a conceptual framework of trimodal interlocking hierarchies, and building bridges between linguistic structure and the structure of society, and of nonverbal behavior. We need better hypothe ses for the nature of the units to be studied from the split second eyeblink to events occurring over hours, months or years. At more basic levels we also need better understanding of the biological roots of language behavior which have been studied by Lenne berg (1964, 1967).

Clinicians cannot expect to take over ready -made either a set
of hypotheses or an integrated body of fact which will immediately solve
their most pressing problems. For one thing, such a body of unified
fact does not yet exist, but is is in the making and it will soon be
available to us, particularly if we contribute to its formation. Furthermore,
there are no coherent theories of personality and culture, advanced either
by anthropologists or by psychiatrists, which have been sufficiently
tested to be accepted as definitive. That contributions of this order may
be mutual is evidenced by the facts that the most unified theory of personality
is probably provided by psychoanalysis, and that psychoanalytic theory has
been extensively used in various ways by social anthropologists.

Many anthropologists have long been familiar with psychoanalytic
theories. Almost all of them are devoted to the naturalistic methods of
direct experience, observation, comparison, and correlation and to the
historical method, vigorously defended by clinicians. It is not surprising, therefore, that anthropologists have much in common with psychoanalysts.

Kroeber (pp. 211-293 in Thomas, 1956) and Ackerknecht (pp. 117-125 in Spencer,
1954) hold that naturalistic methods have been useful since the advances in
comparative anatomy in pre-Darwinian days, and that subsequent progress, using
such methods, is impressive, even though less dramatic than progress in
experimental science.

Although differing in disciplinary focus from the anthropologists,
the work of the ethologists seems to be converging on similar problems.

Darwin's great monograph THE EXPRESSION OF THE EMOTIONS IN MAN

AND ANIMALS (1872) may be regarded as a cornerstone of behavioral studies
and of comparative psychology. Such studies are only now receiving a
powerful new impetus in the direct study of behavior by the ethologists

Lorenz (1952 and 1966), Tinbergen (1953), Thorpe (1956), E. Hess (1968),
R. Hinde (1959), J. P. Scott (1958) and their colleagues on the one hand,
and in the linguistic-kinesic analysis of film-tape recording of such
behavior, on the other. However different on preliminary examination
these methods may seem to the physician of today, it requires but
little review of medical history to see that such methods are
in the direct line of clinical medical development.

Physicians trained in the Osleriam tradition, that the
history of science and of medicine is a most important source
for understanding the gradual development of various experi-
mental and clinical techniques, will recall the long chain of
events which culminated in the modern disciplines of anatomy,
physiology, pathology and microbiology. The complex sequence
of investigations by workers in many fields which brought about
the conquest of poliomyelitis is a clear example of such a chain
of development. Similarly the numerous single advances which contri-
buted to the understanding of the diabetic process have given us a
considerable control over most forms of the disease.

The life-saving qualities of insulin, on the other hand, as
those of small-pox vaccine and digitalis, were successfully utilized
long before the physiological and chemical complexities of their action were understood. Even in such diseases as tuberculosis, syphilis and malaria, where we have achieved reasonable comprehension of the chemical
factors involved, we have not achieved similar understanding of the socio-economic factors. It is not extravagant to say that much in medicine has been built upon empirical research in the clinical setting. It would repay us in contemplating the advances of recent years to study more carefully the methods of empirical work in order to use our new technology more effectively. Klopsteg (1960) makes several good points in illustrating from the history of science that "instruments are unifying elements which
help self-centered disciplines shed their isolationism, " (p. 1913) and
also that "the application of research to the furtherance of research is as
basic as the research itself" (p. 1922), thus echoing a famous A. N. White-
head theme. Klopsteg emphasizes the growing importance of scientists
whose research deals with instruments for research. We need to reward
able men who will find this an interesting and satisfying career because
our progress will be accelerated if we do so.

### 4.4 Need for a New Technical Language

Physicians as well as other workers in the field of human relations, however, should not expect future hypotheses to be stated in classical cause-and-effect sequences. The failure of mechanically simple means of verification in the analysis of more complex systems has led the physician to seek other working models for his investigations. For example, as we become able to record more accurately slices of behavior, the sizes of which run from that of an eyewink ( $1 / 10$ of a second or less),
to that of a hereditary culture pattern with a duration of at least three generations ( 90 years), we will have available data whose ordering will require new theoretical frames.

Special attention must be given to the mechanics of the
ways in which such data is obtained, so that we may understand the
regularities which are introduced by the observer. At the same time
it will continue to be absolutely essential. to subject the clinical material
to similar rigorous examination. It is evident that common-serise,
man-in-the-street hypotheses are not adequate for describing such complex
systems. We may even discover that neither words nor pictures based upon mechanical models are the most economical or accurate means by which to describe and interpret a sequence of human behavior (see Dirac, 1947, pp. vii-viii, 10).

It is necessary, for example, for the clinician to find
better ways to describe various states of being-in-action. Particularly
are we concerned with the transformations of states such as that of an
anxious-depressed-ambivalent patient who in the course of his illness
develops aggressive-obsessional defenses which apparently have the option
of becoming schizophrenic or manic under specified sets of conditions.

Some physicians use clinical descriptive-genetic-dynamic formulations
which allow for the possibility of such potentials. It seems probable that
the anthropological, and particularly the linguistic and kinesic tools,
which may now be utilized in clinical descriptions, may make possible a
more flexible conceptual frame which permits a more systematic assessment
of alternative pathways of development.

With the possibility of objectively recording and minutely
describing human activities underlying multiple-level messages being
sent and received between two people, we shall be in a position to make
use of the more complex concepts described in the earlier charters. The
persons in a clinical setting may now be viewed as exchanging complex messages during relatively short periods of time. Such complex messages, at several levels of awareness, must be analyzed on several levels of
behavior: physiological, linguistic and kinesjc, and social organizational,
by a set of parallel operations whose end-points are intelligible only in
the total matrix of the social communication pattern (Sapir, 1931; reprinted
pp. 104-109 in Mandelbaum, 1949, and Pike, 1967). We might also inc lude
as objects of analysis the large and ill-defined group of implicit processes
which grow out of overt behavior and which may be rather vaguely referred to as 'social suggestion.' (Sapir, 1931, p. 105) Such multilevel messages are received by each participant, and responded to with equally complex
messages. In the flow of communication there are no totally irrelevant
messages, no superflous information, and no randomly produced data.

On the contrary, it is the obligation of the observer to assign values
and meanings to all such component communicative items after studying the
contexts in which they appear. We must recall that many messages which
apparently relate only to the immediate present are nontheless connected with events of the remote past and foreshadow future happenings. A good
clinician can sense when the patient is bringing into the communication situation large components of the past or future and acts upon this under-
standing. An example is the state-of-regression which may be detected
in the lexical components, or in the return to childhood vocal modifers
or body movements or even in physiological activities which signal
childhood patterns. The separation of the "Here and Now" from the "There
and Then" in the patient's report is one of the the rapist's primary interpre-
tive tasks.

It seems inevitable that we reconstruct our teaching programs
in such a way as to give our future clinicians that familiarity with the social matrix
which can only come from extended investigations carried on by them at
first hand or from the distillate of such investigations carried on by
others. In fact, the degree of specialization required for effective control
of such background information will probably lead to the employment of
highly skilled behavioral scientists who work in the medical setting in the
role of basic scientists. Such a pattern is now familiar to us in the basic
science divisions of a medical school.

### 4.5 The Natural-History and the Experimental Method

Although the conceptual frame and the method derived from
it which is used in the investigations presented in this book are by no
means new, perhaps a review of the salient differences between this
naturalistic-field study-participant-observer method and the currently
more popular "experimental" methods will help clarify some of the
inherent problems. It is highly enlightening and stimulating to read now

## Claude Bernard's INTRODUCTION TO THE STUDY OF EXPERIMENTAL

MEDICINE, written in 1865, which outlines in masterly fashion a combi-
nation of the naturalistic-descriptive with the experimental method,
years before Francis Galton (1822-1911) had introduced statistical analysis,
and introduced a vogue which came to be considered a cornerstone of all
social scientific investigation. Today it is quite clear that much naturalistic-
descriptive and experimental spade work must be done before statistical
methods become appropriate and rewarding in the solution of the problems
presented by our investigations (G.A. Miller 1964, 1965). We make no claim that one method is per se superior to any other, since to us it seems
quite clear that each is ap propriate to a particular phase or aspect of a problem. We enter into an investigation with the assumption that all human behavior is amenable to study, but we want to apply, as far as we can, the most appropriate methods to the problem in hand as we now understand it. It appears to us that naturalistic methods are essential in the early phase of the development of a science. Until a sufficient body of data is available for the application of critical hypotheses we cannot test by crucial experiments. Naturalistic methods seem to have many advantages
in the exploratory phases, since they lay the groundwork for the application of the more controlled treatment characteristic of the experimental method of $v \in$ rification.

Excellent methodological discussions are to be found inPumpian-

Mindlin (1952), Tinbergen (1953), Thorpe (1956), Harlow (1957), P.S. Sears
(1957), Hinde (1959), G.A. Miller (1965), GAP Report No. 63 (1966), Scheflen
(1966), and Schlessinger, et al (1966).

Lest this attitude toward the planning of medical research seem
insufficiently critical, let us quote from an eminent physicist (Oppenheimer,

THE OPEN MIND, 1955):
"You know that when a student of physics makes his first acquaintance with the theory of atomic structure and of quanta, he must come to understand the rather deep and subtle notion which has turned out to be the clue to unraveling that whole domain of physical experience. This is the notion of complementarity, which recognizes that various ways of talking about physical experience may each have validity, and may each be necessary for the adequate description of thephysical world, and may yet stand in a mutually exdusive relationship to each other, so that to a situation to which one applies, there may be no consistent possibility of applying the other. Teachers very often try to find illustrations, familiar from experience, for relationships of this kind; and one of the most apt is the exclusive relationship between the practicing of an art and the description of that practice. Both are a part of civilized life. But an analysis of what we do and the doing of it--these are hard to bed in the same bed. (ibid., pp. 82-83)

The analogy to the problems facing the clinician in describing
his own activities, or the behavioral scientist in delineating his methods in an on-
going transaction, is obvious. As investigators grow more certain of their
aims and methods, they will probably develop more tolerance for a
wider range of techniques and eventually aim at the goal of finding the best
tools for each job.

In order to clarify our reas ons for adopting, in this preliminary
investigation, the natural history approach rather than the experimental
approach, I will try to contrast some of their comparable properties:

## Naturalistic Approach \#1

The organism or group under study is maintained as far as possible
under the customary conditions of living. We are probably dealing with
a spectrum rather than an antithesis in many instances.

Experimental Approach \#1

The subjects are usually approached in the more-or-less specialized
artificial conditions.

Naturalistic Approach \#2

Because real life situations are under observation, their problems are
more likely to be comparable to practical problems in the clinic, school
or business organization.

Experimental Approach \#2

The specialized nature of many experiments may make the results more
difficult to apply to real life situations.

The quality of the responses of the subjects is more likely to be "life-
like" and in keeping with customary behavior under observed conditions.

Experimental Approach \#3

The responses are more apt to be altered to suit the experimental demands
of the tighter design.

Naturalistic Approach \#4

The responses are more apt to appear on a wider scale such as is available
to the organism under its ordinary conditions of living.

## Experimental Approach \#4

The responses are more apt to be constricted because of the restraints
imposed by the experiment.

Naturalistic Approach \#5

The time-span is apt to be longer and thus to afford more information
for longitudinal studies and for the dynamics associated with larger patterns.

## Experimental Approach \#5

Although so-called cross-sectional experiments do utilize significant
time segments for the study of behavior, and some of them may study
relatively larger units of behavior, they tend to be limited to manageable
units which have limited meaningfulness in clinical situations. Recording of responses is determined by the test design. These experiments have
great power and are highly desirable where the experimental conditions
can be sharply and meaningfully defined. It is reasonably argued that
long-term studies can only be pursued profitably after a sufficient number
of cross-sectional experiments have been carried out so as to make the
methods of investigation worthwhile by providing essential facts about the
interacting variables under experimental conditions. The fact that cross-
sectional experiments are more apt to be sharply defined, amenable to
relatively concrete manipulation and interpretation, take less time, energy
and manpower, makes them more suitable in many research situations.

Because naturalistic methods usually permit the study of several variables, more potential latitude exists for discovering new relations between them.

The naturalistic methods are essentially comparative, correlational, or
genetic-developmental in their strategy. More opportunities are asked for
focussing upon new problems in which controlled experiments or observational
techniques provide greater precision. Clinicians have long insisted
that the study of patients is the best starting point for more intensive experimental
design with much evidence to support their claim that this approach will
best serve our needs to understand and master clinical problems.

Experimental Approach \#6

The strength of most tightly designed experiments consists in focussing upon one dependent variable which can reliably be measured in its relations
to several independent variables which in themselves can be manipulated.

As with the naturalistic method, this may be a shortcoming if the material
manipulated is inappropriately chosen, or if the operation produces trivial
results.

Ideally, although this is not uniformly true, hypotheses grow out of the

# data produced by the longitudinal studies of a participant-observer in the 

field situation. Unfortunately many clinicians laboriously accumulate much
data which they cannot process in any manner productive of meaningful
experiments or vitalizing hypotheses. Unfortunately, too, raw data is
too often interpreted in such a manner that the generalizations derived from
it are not convincing or useful in further research, or worse, cannot be
put to crucial tests. Too often, also, too many investigators view
natural history explanation as an end in itself and arrive at results which
are essentially sterile.

## Experimental Approach \#7

Ordinarily, a well designed experiment, with controls, contains a more or less well formulated apriori hypothe sis which is being tested. Where
the question being asked is a good one and the method appropriate to the
inter rogation, the results may be applauded. Too often neither of these
conditions is fulfilled and the results are disappointing. Again the experiment
can become an end in itself and lead only to trivial results when the
experimentalist becomes a slave to his tools.

Naturalistic Approach \#8

When a number of variables are being studied over a relatively long period,
it is essential to make a selection of what appear to be the most significant relations
between important variables among the available events. Errors in judg-
ment and interpretation are bound to occur, but the hope remains that
other investigators may examine the data for new interpretations, since
such critical review and reassessment is as necessary to the natural history
method as is repetition in the experimental method. In important areas
it may be necessary to re-do the observations repeatedly until the significant
variables are recorded with sufficient accuracy to establish confidence.

Experimental Approach \#8

Although the by-products of a well designed experiment, as contrasted
to the pointed questions asked, may be productive of new experiments,
the artifacts inherent in the experimental design at times force inconclusive
or negative results of little significance for future work. This is a necessary
cost where the aim is to simplify and cut down all data subordinate to
the primary aim of the experiment. Here the attempt is to eliminate
"irrelevant" factors, to place variables in vivid contrast, and, if it is not possible to "randomize" the samples, it is possible to avoid undesired effects of individual differences. The possible conclusions are, in a sense, built into the experiments.

Naturalistic Approach \#9

In general, natural history observation requires more continuous working
time and more energy spent on recording than the classic experimental
method. Clinicians as a rule have not provided sufficiently complete records
which may be profitably studied by colleagues who wish to gain new insights.

Clinicians, furthermore, as a result of differences in training, may not
produce records which are sufficiently comparable. Finally, clinicians
may tend to withhold salient information, either to protect patient privacy
or as a measure of self-protection.

The recording of data and its interpretations are much more concrete
and obvious in planned experiments. This is one of their most attractive
features.

It has been suggested that an investigator who works in a field
as a participant-observer over a relatively long period, becomes devoted to the subject matter, and unduly motivated by his interest in it. In this, self-selection plays an important, but as yet indeterminable role. Such
an investigator may be better suited to his role than the investigator
whose primary investment is in technique. The former may be more
inclined to use techniques which are appropriate to the material because
the material is of primary concern. This generalization becomes vital
in clinical work where the investigator also has responsibility for the
welfare of patients. Unfortunately there are times when consideration for
the patient has absolute priority over any investigative procedure. Perhaps
some clinicians at times utilize this necessary rule either consciously or
unconsciously to save themselves embarrassments or unwanted insights.

It seems highly probable that this serious barrier can be overcome with
intelligent planning and hard work, but we do need to take more seriously

Freud's comments about the difficulties involved in trying to maintain a
stable the rapeutic attitude simultaneously with an experimental attitude.
(Freud, 1912)

Freud also points out in this paper that the therapeutic ambition
to achieve results which will impress others is a serious affective danger
which must be controlled for the welfare of the patients. There is no reason
to believe that the experimentalist is any the less affected by these
variables. The participant-observar pays a considerable price among his
"tough-minded" colleagues for his freedom to form hypotheses in a
continuing study because his records are seldom complete enough to con-
vince skeptics, and his personal interpretations are usually vulnerable
to negative criticism or subject to alternative interpretations.

Hypotheses drawn from relatively small samples of be-
havior often sound like unquestioning belief or self-deception to workers
trained to expect quantitatively displayed, immediately demonstrable
evidence. While such hypotheses may frequently be inadequate, some
of them may lend themselves to experimental verification. Although such experimental verification may seem remote, freedom to formulate such hypotheses is absolutely essential to the progress of a discipline.

Experimentalists will learn that for every gain in method, there may also
be a loss. It is true that the undisciplined participant-observer may
introduce many artifacts into the system which may not easily be detected,
thus abusing at times the inalienable "right of every scientist to be wrong,"
but with communication we need not fear that such error will long remain
undetected. All too often the critics of the participant-observer method are
simply unaware of the extensive training required by the practitioner of
this method. Several highly skilled individuals trained in the same methods
of observation and recording provide for indispensable self-correction in
the descriptive and analytic process.

The experimentalist, in the classic quantitative tradition,
has his role as an observer more or less defined by the experiment. His
recording is designed to be adequate for his specific purpose and for that
alone. Like the modern physicist he must be aware that as an observer
he becomes a part of the system in question. He must also be alert to the
possibility that he may, himself, be introducing a portion of the regularities
which he perceives in the system. Like the physicist, he, too, is bound
by the limitations of his observational instrument and by the restrictions
inherent in the experimental design. However, these inherent drawbacks
in his method tend to be much less questioned, and he may hope to be
rewarded for the loss of some degree of freedom by the greater security
of his results. In one gratifying way, even though it leads to more
frequent disappointment, he may have an advantage over the naturalistic
participant-observer in that he may be more likely to attain much sooner
and with greater certainty the end point of his experiments. He can also
make a definite statement as to the positive or negative results. "The
refinement of techniques for the prompt discovery of error serves as well
as any other as a hallmark of what we mean by science." (Oppenheimer,

1955, pp. 93-94)

A further advantage of the experimental method is that in many
experiments less training is required for the experimental technician
once the experimental frame is set. During the early exploratory phases
of discipline, the choice of the unit to be studied is apt to be determined
by the previous experience or bias of the investigators. Only with
experience do the units chosen for study become more appropriate $t \mathrm{~s}$ the
task in hand, and different workers can find some equivalence in their
experiments.

The units of observation of a young science, therefore,
necessarily are often not so precise as one might wish. Of course,
the units chosen for observation are those which seem to be most
significant within the bias or conceptual scheme of the investigator.
(Pike 1967). Sometimes units are chosen primarily because they are
most amenable to manipulation, or the best provided by the tools
available. Such factors can be studied and improvements made as the
nature of the problem in hand is better understood.

4.6 Advantages of More Precise Observation and Analysis and the

## Training Value of the New Techniques

It was in the hope that reliable descriptive units might for
the first time be made available that the demonstration described in this
book was undertaken. From the outset our goals were modest, and they have remained so. A brief description of the raw material under investi-
gation will be presented here in anticipation of a fuller presentation to
follow (Chapter 5). For our examination Mr. Bateson was able to provide

1, 800 feet of sound-film of the activities of the members of a family of
three who had volunteered as subjects for his investigation of the etiology
of schizophzenia. These sound-films, supplemented by a fuller, but in
part simultaneous recording on tape, were taken in the home of the family
by Mr. Bateson's technical assistants utilizing a sound camera and with
sufficiently fast film that special lighting was unnecessary. The special
problems involved in the filming and recording are discussed later in this
chapter and elsewhere in this book. The scenes show father, mother
and son eating dinner together; the family entertaining neighbors; father
bathing the son; father and Mr. Bates on talking; mother, son and Mr.

Bateson talking. This last was chosen for varying degrees of analysis
both of vocal and of body motion activity. Interpretations of all activity
were made independently by all members of the team, each on the data
of his own medium, although these interpretations were necessarily strongly
influenced by the intensive work done together. In one experiment the
attempt was made to categorize the nature of the activity of one person
on the film in each of three modes of action, as independently as possible
by one member of each discipline. These results are reported in Chapter 9.

From our preliminary work we feel justified in suggesting the following
advantages inherent in the new procedures:

1. Intensive repeated viewing and listening to a limited and
carefully selected segment of behavior (l second to 50 minutes), particularly
after tutoring by trained workers in linguistics and in kinesics, in an
enriching and gratifying experience. It is one which gives the student
new perspectives on and insights into his daily clinical techniques, his
strategies and maneuvers, both conscious and unconscious. One is
mindful of the shock of being confronted by auditory and visual evidence
of behavior of which we were previously unaware. On occasion, one may
even want to repudiate such evidence because it does not conform to one's
self-image or to the conscious plan of one's therapy. Through practice,
such shock is gradually overcome, just as our clinical defenses are brought
under control through supervision in the rapy and by personal psychoanalysis.
2. This technique forces an increased awareness of minimal
cues, and permits a greater selectivity among them. We are forced to
accommodate to the unusual in ourselves and in others by the growing
recognition that we also are biological organizations capable of sending
very diverse messages to ourselves and to others. Some of these
messages may seem trivial, but many are vital to life and to well-being.

A good clinician is by definition one who can lift the more relevant facts
from the mass of data made available through the new techniques. The
good clinician will now have the chance to sharpen his own techniques of
observation through repeated and focussed viewing and listening. Not
only will he be able to detect more of the cues upon which he makes
judgments, but he will be able to be more explicit about the bases of
these very judgments.
3. The technique promises to objectify affects-research at
the interpersonal level. Transcribed taped and filmed materials will provide the means by which his fellow clinicians may inspect the interaction and proffer focused criticism and comment. It will no longer be necessary to balance one intuition against another with no hope of arriving at a concensus. Clinical insights can now be analyzed and substantiated by specific reference to data observable by all. Such data can also be supported (or refuted) by information on visceral activity. Both externally observable and internally measurable data may be combined to show that a patient or doctor is angry, disturbed, depressed, or indifferent; that a particular system of activity represents masculinity, femininity, regression, aggression, or ambivalence; that another action or state such as politeness, passive aggressiveness, prudery, exhibitionism, or paranoid defensiveness is idiosyncratic or patently culture-bound.
4. The clinician, sensitized by the observation of linguistic-
kinesic microanalysis to the patterning inherent in the clinical data, will
also gain a tremendous support for his assumption that all events in a
human interaction are interrelated and that events and sequences are
meaningful precisely because there is mutual triggering. Even in our
relatively limited experience with sound-films, we have found sequences
which are startling in their strictly patterned dance-like shapes. This
is especially impressive in studying the relations between a mother and
her child. The closeness of their interdependence as evidenced in their
vocal and body-motion activity lends additional credence to theories that
each individual, whatever his biological-genetic heritage, is also a strict
product of his orientation, his training, and his environment.
5. It seems likely that with the new orientation the clinician
will learn to ask highly specific questions which can be answered by the presentation of linguistic-kinesic data. We may gradually learn not only to ask questions of this type, but also consciously to seek out specific con-
stellations of vocal and body-motion behavior bearing on their
answers. Such questions as the following were asked (and in part answered)
in the course of our investigation:
"Does this person act his age?"
"Does he speak and act in keeping with his
training and present position ${ }^{\prime \prime}$
"How do his body motions suggest bisexuality?"
"Has he regressed in his identification with
his father. ${ }^{\prime \prime}$
"Is this behavior similar to that of adolescent
revolt ${ }^{\prime \prime}$
"Is the behavior of this person incongruently
mature?"
6. The clinician acquires new evidence that very small
samples of interaction between persons may be the source of considerable
information about the participants and the way they relate one with
another. There is evidence that smaller and smaller segments of
behavior can be regarded as significant samples. Pattern-analysis
shows that such small sequences, if carefully chosen, may be iconic
for much larger stretches of behavior. This will hardly be news to the many skillful clinicians who make use of the device of analyzing one small segment of behavior, such as a patient's entry into the room, or his walking across a room, or the associations to one dream, as a means of writing out in detail many factors of a patient's conflicts and their defenses.
7. The purposeful viewing of selected film-tape sequences will
encourage a much wider use of them as training devices and will probably
raise their general utility to a higher level because they offer a relatively
stable medium for such training.

For many clinicians in training, the prolonged and repeated
viewing of small quantities of such film-tape materials will bring home
the thesis that the price of civilization is repression. While we all know
this intellectually, it is a shock to experience it viscerally when the
clinician finds himself uncomfortable because of the intimacy which such
viewing and listening not only allows but forces on him. This shock
phenomenon deserves careful study, inasmuch as it will oe necessary
to allow for it in a clinician's training; perhaps highly specific aversion
patterns and defenses against them may be recognized and allowed for,
thereby both accelerating self-awareness and facilitating the supervisory
process.

Training in intensive film-tape observation will help free
many clinicians from their need for large amounts of clinical history
and interactional data before making judgments. Certainly a great deal
of data must be compiled, analyzed and compared before reliance can be
placed on decisions based on small samples.
8. Although we have made only a beginning toward that end,
the new techniques allow us to hope that we may eventually arrive at a
dynamic diagnostic formulation of an illness from an analysis of relatively
small samples of behavior in typical settings. It will be possible to specify
with greater accuracy the criteria upon which a diagnostic formulation
is made. Similarly, the possibility exists that we may be able to make
much better prognostic evaluations with recommendations for greater
specificity of the rapeutic intervention than is now possible. There is
no question that as our observational skills improve (with the gradual
discovery of the definable indices of vital processes occurring during a
mental illness and during the the rapeutic intervention) more reliable
ways will be found to detect and chart the phenomena which signify improvement
or regression. Prognostic studies will be more meaningful as we are able
to chart more tangibly (from the results of analysis of film-tapematerials)
those activities which are common to all patients with an active neurotic
process.
9. The new techniques have obvious advantages for comparing
and evaluating therapeutic procedures. With increasing experience, it is
conceivable that studies can be designed to investigate more adequately
those therapeutic activities which are common to the several allied types
of therapy. Studies on "control" patients may then become possible in a
way which does not. seem very rewarding now, and a genuine basis for
comparing the rapeutic techniques will become feasible. It may eventually
be possible, through careful study of filmed-taped interviews of student-
candidate activity with patients, and of the procedures followed by
particular practicing therapists, to prescribe more economically a course
of training for the individual student, and to assign more efficiently particular
patients to particular therapists.
10. Trial demonstrations of materials obtained through these
techniques have already shown their usefulness in case presentation.

It is likely that as clinicians become more at home with the techniques
involved in efficient use of film-tape materials, such film-tape data
will become increasingly popular at professional meetings when clinical
problems are presented. Such evidence will have greater impact and be
more convincing than is the usual written report.

We cannot expect too much too soon. It is important to remember
that the use of recording devices in medicine (microscope, camera,
x-ray, EKG) required many years for their full development. It is
possible that with more accurate and more objective data, improved
identification, isolation and definition of various classes and categories
of disease processes will emerge. The change in these processes can
be followed in greater detail and thus provide valuable clues to the
crucial factors which make possible significant and enduring change.

It is certain that these methods in themselves will not solve all the
clinical problems of diagnosis, of interviewing, or of psychopathology.

It is quite likely that shortcomings will appear which are now not obvious.

Viewing film is not an adequate substitute for a face-to-face interview
with a live patient in a closed room. Extensive empirical experience
will be required before we can fix on those problem areas where these
techniques will have their most powerful application.
4.7 Possible Disadvantages of the New Methods of Recording, Trans-
cription, and Analysis

At this early stage of exploration it is not possible to spell
out with entire certainty the limitations of these methods. From our
experience a number of such limitations can be described as inherent
in them. Only further experience, however, will demonstrate to what
extent these can be minimized so that they will not constitute insurmountable barriers to obtaining vital information. It is certain that, even though reasonable control over new methods is gained, new difficulties will appear as we deal with more (or less) complex patterns of communication.

> 1. It is unlikely that sound-films will ever entirely replace
face-to-face interviews in clinical research, since the recording media
inevitably tend to distort some aspects of the scene under observation.

Even technical improvements in reproducing the scene in color will not provide the information furnished by odor, by temperature, or by other sensory cues in their native setting, for which better methods of measurement need to be devised. Even though it may be true that working
intimately with film-tape material will enable a worker to "translate"
with much greater insight and accuracy, we need more studies to demon-
strate the conditions under which more reliable translations may be produced.

The experienced investigator must learn to develop compensatory mechanisms
to counter-balance the sensory limitation inherent in the film-tape medium.
2. The privacy of the therapeutic transaction is usually cited
as an absolutely essential condition for good work. This may well be
true for some transactions, but we need evidence from experience to be
sure that this requirement has not been overestimated for many types of
psychotherapy. There are many investigators who do not share this
belief, for in the types of interviewing they have studied they have not
observed serious interference with the patient's production attributable
to the obvious presence of recording devices. This does not preclude the
possibility that more subtle transactions may be prevented from coming into being by the nature of the recording situation. (Carmichael, 1956;

Bergman, 1966; Gill, et al, 1968)

It has been observed, moreover, that the therapist, however
experienced, is more likely to remain acutely aware of his "public" role,
in such a situation, even after considerable practice, and is apt to introduce
artifacts into the transaction. This is in keeping with Freud's observations
(1912) already mentioned that therapeutic ambition to impress others presents the greatest affective danger to the therapist, and that in some transactions one may find it difficult to be an experimentalist and a therapist simultaneously.

Occasionally, the therapist will alter the course of the the rapeutic process
for "the good of the patient." It will require much sensitive cooperative work
to establish the legitimacy of some of these claims which seem to be
motivated by the needs of the therapist rather than by the needs of the patient. (Gill, et al, 1968)

Judicial and patient review by valued colleagues will make
possible the selection of therapists who are especially fitted for this
exacting experimentation. It is not unlikely that the therapist as well as
the patient should be protected by as much anonymity as possible by an
inbuilt system in the experimental design whereby the therapist has ample
social and professional support and consultation opportunity. With increased skills, it is probable that the system of protective devices for the the rapist can be so arranged that his needs and those of his colleagues will not interfere with the external requirements of the experimental design which have been agreed upon at the beginning of the experiment. Planning of this order will eliminate some of the difficulties which might prevent proper examination, recording, and interpretation of raw data about the therapeutic process.
3. It is not known at this time how much speci al training may be required for the average worker to recover quickly from the "cultural
shock" of intensive viewing and listening. It is necessarily a transient phenomenon which must be met by skilled tutoring, if the problem of overcoming our resistances to focused viewing and examination of another person's privacies is not to undo the defenses provided by good clinical training. We suggest that we need to devel op better methods of dealing with the observer's feelings under the conditions of repeated intensive listening and viewing.
4. There is a potential danger that the mechanics of recording
will introduce artifacts, distortions and omissions which will lead to misinterpretations, particularly if the recorded materials are collated too literally with psysiological data or with the overt content of such materials. It was not, for example, immediately detected on film that one patient had dyed her hair, even though the shading was different in films taken several months apart. Although investigators must be alert to such artifacts and distortions, it seems unlikely that they can be of serious consequence since they were detectable upon review by several workers who had the total context in mind. Our original difficulties in detecting that mid-face motility in Doris which clinically we identify as grimacing, and in identifying on tape the voice with "flattened affect', have diminished with increased practice.
5. There is the potential danger that the very setting of micro-
linguistic-kinesic examination and interpretation may lead us into distorted
evaluations because we have lost proper perspective both for the elements
of the transaction and for the relations between them. Freud's valuable
caution about this problem in dream analysis is contained in his quotation
(Freud 1900) from Hanns Sachs:
> "If we look in our consciousness at something that has been told us by a dream about a contemporary (real) situation, we ought not to be surprised to find that the monster which we saw under the magnifying glass of analysis turns out to be a tiny infusorian."

The primary safeguard is provided by the multiple listening and viewing technique leading to the establishment of patterns prior to the reevaluations
provided by narrow focussing. A further safeguard provided by a multi-
disciplinary team approach and by a larger number of experienced workers
will facilitate detection of misuse either of concepts or of data. It is well
known that preoccüpation with very small samples of behavior may cause
distortions, but, as long as the possibility of correction exists, this need
not constitute an insurmountable barrier. We know that some patients may
vary from one extreme (apathy) to another (panic) within short periods,
but appropriate sampling will provide us with the proper evidence.

## 6. Some psychiatrists have suggested that large expenditures

of time, energy, and highly specialized skills required for work on small samples may not be warranted in view of the relatively limited amount of new infor-
mation obtained. They claim that a similar expenditure of effort in the more traditional recording and analysis of data wo uld probably be equally
rewarding. It is not possible to prove conclusively at this time that this claim is not justified, but the probabilities are very strong that microanalysis will produce much new data and unforeseen hypotheses which are inaccessible to ordinary recording methods.
7. The lack of adequate comparative data (such as that provided
by the social anthropologist and the social psychologist) in our own and in
other societies makes accurate evaluation of our micro-linguistic-kinesic
data difficult. We urgently need comparative series in the field of social
behavior, not only for the evaluation of our linguistic-kinesic data, but
also for the interpretation of the larger behavioral constellations in which
such data are embedded.
analysis in view of the paucity of comprehensive psychological theories
of personality which are susceptible of testing. It seems likely that
the most unified theory of personality, the psychoanalytic, will become increasingly available for testing as we are able to record the data on which it rests more completely and more accurately. We may anticipate a flood of new theories released by the new data being made available by microanalysis.
9. Everyone who has worked with these recording methods
knows that there is a tremendous danger of being swamped by the mass of accumulated data. The methods described in earlier chapters provide
the possibility of better selection and increased mastery of significant
material once the more important patterns of signal transmission between
individuals are recognized. The cost in time and skill in analyzing
samples may be large at this time. But this is a new method of examining data in an orderly manner with the possibility of introducing new concepts.

Although future experience may show up areas of minimal return
due to redundance or relative degrees of inapplicability, it now seems
probable that the gains will far outweigh the disadvantages. It does
provide objective techniques in which scholars may be trained to check
upon each other's findings. Until this is done we cannot finally decide the
degree of parallelism, mutual support or possible contradiction between
lexical, linguistic, kinesic and physiologic behavior. Only then can we
finally determine the value of these developments for the physician and
other students of human behavior.

## CHAPTER 5

The Actors and the setting

The films which provide most of the data used in this book were made under the following circumstances:

A therapist, who knew of my interest in collecting film data on family interaction, told Doris (who was his patient) about my project. It so happened that Larry and Doris had attended a public lecture which I had given some months previously and, therefore, were receptive to the idea of having some part in our research. As recounted elsewhere (reference to Brosin's chapter on the case history), this couple had in the past made considerable efforts to find solutions to the problems which troubled them and their world. They had participated in dianetic sessions and had maintained an interest in communicational problems as part of their quest for answers.

Shortly after the therapist's conversation with Doris, Larry telephoned me to express their interest in cooperating with my work. I then made an appointment to visit the household with Mr. David M. Myers, our cameraman, bringing camera, tape recorder, and lights. Myers and I arrived punctually at four o'clock and found the house empty. We withdrew and telephoned 15 minutes later verifying that Doris had returned. She told us to come right over, but when we arrived we found her quite flurried. She had just returned from a session with the therapist, had picked up Billy from the house of a neighbor, and was exhibiting the expectable responses of a housewife unprepared to receive her visitors--let alone cameras and lights.

After introducing ourselves, Myers and I started to move the equipment into the house, and she hastily defined the situation by pressing upon us mugs of home brew. The exchange of social amenities was somewhat
confused by the business of setting up the recording eouipment.
The "interview," of which this book is the natural history, followed immediately, while Billy intermittently played on the floor in front of us, and ceme and went.

A word must be said about the human problems of such photography. David liyers is singularly skillful in the art of effacing himself behind his camera most of the time, while still being able to be a participant in the group whenever this is called for. He lets children examine the camera and look through the view finder and feel that the canera is not alien to themselves. He is instructed not to shoct for any particular type of behavior but to get as complete a record as possible of what occurs. He and I rapidly made a reneral plan that we would try to concentrate action at one end of the living room around the couch. Beyond this, he would make no effort to have people perform for the camera or place themselves for his convenience. It was his job to record whatever hapnened as best he could without interfering with it.

Under these circumstances, a family rather rapidly settles down to a freedom from camera consciousness and this process is, I think, aided by me: I, too, am being photographed and I am accustomed to it. It is also worth mentioning that the film was made before $I$ had any contact with micro-kinesic or micro-linguistic analysis. I was not aware that my smallest movement and intonation would ?.ater be examined and, therefore, I was not in a position to communicate any self-consciousness of this sort to Doris.

Doris's living room was, fortunately, ra'ther longer than the usual so that the camera could be well separated from the action. The far end
of the room, opening to the kitchen, was provided with a dining room table at which the family usually ate. We set up camera and tripod beside this table, facing down the length of the room to the couch.

The general decor of the room was such as might be expected in the house of people with intellectual interests. There were two or three objects of lexican art, and books, but the impression given by the room as a whole was unsettled. The family had lived there for two or three years, but I had no feeling that they liked living there or that the various objects belonged in their various positions. The living room windows opened onto a lawn where we later photographed Billy playing various eames, and beyond the lawn was the rajlroad track. The interview, conducted in the late afternoon, was repeatedly interiupted by the noise of commtertrains, at which Doris was markedly distressed, while trying to laugh off the indignity of this interruption.

The record was also interrupted by the recurrent need to reload the camera. Doris and I simply went on talking, paying little attention to what lyyers was doing so that, while the tape record of our conversation is complete, the film record has gaps in it every $3 \frac{7}{2}$ minutes when a new 100 feet of film had to be inserted.

About 5:30 p.m. Larry returned from work. He and I then had a conversation which was fjlmed while Doris prepared supper. Larry was mainly interested in talking to me about scientific theory and other impersonal matters, in the discussion of which he and I had the role of intellectial. colleagues.

Then supper was ready, the lishts and camera were moved so as to film the fanily meal, and in this coritext Billy, for the first time, began
to play up to the camera. The record shows him holding up a leaf of salad, spreading it in his two hands somewhat in the manner of Saint Veronica, while he waits impishly to see how his parents are going to handle this misbehavior with the camera's eye upon them.

In subsequent visits, films were made of Billy playing in the garden and of Billy being bathed by his father. We also made a film of an informal party of friends gathered one evening at the house. This family, unlike the majority of the much more troubled families with whom we have worked, maintains an active informal social life with a number of acquaintances, neighbors and young married couples, most of them Larry's professional colleagues. Surprisingly, Doris's guests showed remarkably little tension under the stress of being photographed. This rather unusual situation arose in the followine way. We had arranced to go over in the evening to photograph Billy beine bathed and put to bed. When we arrived, we found the party in progress. Tie then filmed Billy's behavior with the company and later moved the camera to the bathroom.

The material from these subsequent filmings has all been a part of the background of the present study, though no part of it was actually used for micro-analysis.

In retrospect, and especially in the light of subseouent experience in filming other families, my main criticism of the collection of data is that it contains too little interaction between Larry and Doris. Interaction between Doris and Billy and between Larry and Billy are both well documented, and there is adequate documentation of each of the three family members in interaction with me. It is difficult, however, to get from the filmed material an adequate picture of the relationship
between the parents without which it is difficult to understand the total dynamics of the family.

In its subsequent history, the family has moved into more luxurious surroundings. They now live in the country in a house of which Doris is proud, and in the building of which Doris and Larry did a considerable part of the work. Their present living room does not have the unsettled appearance mentioned above, and they are no longer troubled by the sound of commer trains. Billy now has a little sister who, Doris laughingly says, is "spoiled rotten."

The film record was made on Eastman TRI-X film, using a 100 ft . Auricon camera with an optical sound track. The lens used was a PanCinor " 4 " Reflex 70 zoom lens. We also made a magnetic tape recording of the entire proceedings.

## END

# MICROFILM COLLECTION OF MANUSCRIPTS ON CULTURAL ANTHROPOLOGY 

FORMERLY: MICROFILM COLLECTION OF MANUSCRIPTS ON AMERICAN INDIAN CULTURAL ANTHROPOLOGY AND
MICROFILM COLLECTIONS OF MANUSCRIPTS
ON THE MIDDLE AMERICAN CULTURAL ANTHROPOLOGY

## Series: XV No: 95

Photographed by:
Department of Ph.otoduplication - The Joseph Regenstein Library University of Chicago - Chicago, III. 60637

## START

# MICROFILM COLLECTION OF MANUSCRIPTS ON CULTURAL ANTHROPOLOGY 

FORMERLY: MICROFIIM COLLECTION OF MANUSCRIPTS ON AMERICAN INDIAN CULTURAL ANTHROPOLOGY MICROFILM COILECTIONS OF MANUSCRIPTS ON THE MIDDLE AMERICAN CULTURAL ANTHROPOLOGY

## Series: XV No: . 96

Photographed by:
Department of Photoduplication - The Joseph Regenstein Library
University of Chicago - Chicago, III. 60637
THE NATURAL HISTORY
OFAN INTERVIEW
(edited by Norman A. McQuown)
with contributions ..... by
Gregory Bateson
Ray L. Birdwhistell
Henry W. BrosinCharles F. Hockett
Norman A. McQuown
Henry L. Smith, Jr.
George L. Trager
Part II: Chapter 6
MICROFILM COLLECTION ..... OF
MANUSCRIPTSON
CULTURAL ANTHROPOLOGY
No. 96
Series ..... XV
University of Chicago Library
, Chicago, Illinois
June 30, 1971


CHAFTER 6

Transceiret, Transcription, and Comentary

Ray L. Eizishistell Charles E. : :ockett

Norman A. !!cQuown

The ma:erials here presented ccns:: intervien whose description is the suse: of this book. Recorded in icto on magnetic tape, they jze also available in part on sound film. For those porticris available only on tape, we may have finorecording, for those $\begin{gathered}\text { : } \\ \text { iniable both on film }\end{gathered}$ and on tafe $u s$ may have both phonoresisis ra and kinerecording, of varying dearees of refinement, derara:rg on the intensity of the focus in particular stretches i : the recorded materials. We have pressited the entire protoco: i:- :enventional orthograpinj (the transcrif:) and considerable poritiss of it in phono-and/cr kine-reccrdirg (the transcription). Cories of the tapes and the films may be rade available at their exf fase to those professional workers who would like to corizer: transcript and transcription witt the original recordings.

The detaiis of the symbology emfioyed in the transcriptions arë presented in the appendices to triss l:iume (App. I-IV). Where symbcicgy differs between Hockett end McQuown, the differences are made explicit by means of equãicns, where these are possible, er by explanations where trey aze not. In the taped materials, iさews may be identified by reference to page and line. In those that are also availatie on film, film framenumbers are asded to permit even greater frecision of focus. Within the sfecial scenes, in turn, f=ames are renumbered from zero to permit easy reference, and these numers are also added through such scenes.

The reader whu desires to get merely the general gis: cf the interview should read thrcugt :he text focussing on the transcript alone. If he wishes $:=$ gather viva voce what the trar.script fails to convey, he s:.cuid listen to the tapes E : 0 the scund-track of the film for incse portions of the interijew sc zecorded. If he wishes tc gair. a general visual impression of the filmed portions of the in:erview, he should view the...., firs: with the sound track cu: $c:$ and then with it in. : fe vistes to gain a more precise fromidge of vocal content, te shcuid next listen to the tapes, st.crt section by short sec:ion, fccussing first on one set of Eeatures in the transcripticn, thef on another. If he wishes $:=$ gain a more.accurate icea of the bedy motion activity, he stovid similarly run through. the fia…, preferably with the sours track cut out, focussing first on cre aspect, then on another, first at normal speed, then at sicner speeds (down to shifts frci.. one film-frame to ancther). Each succeeding listening or $\mathfrak{i}$ ening will bring additionai features to his attention, anc, $\vdots:$ ne attempts to tie trenscriptic! to auditory or visual recef: $i=n$, he will be forced to bring inice conscious focus items of which he, without such aids, would be cniy subliminally conscious, $c=;$ in the extreme case, totally unaware.

In the discussions to $f=1 i c \%$, we shall bring into focus particular items (or consteliaticns of items) and attempt to apply to them a variety of explanatory frames.

## Master Score

Phonomacro
Proncsemimicro
Phonomicro
Kinemacro
Kinemacrocommentary
Kiremicro

Voca! Attitude Lir
$N$ normal
E editorial
I introspective

Lines $1-41$, 50
Lines $1-41,4,44,50$
Lines $1-45,50$
Lines
Lines
Lines

Body Attitude

## $\rightarrow$ interactive

Dextra-personal
$\downarrow$ intratensive

Content Character:zation
interactive
externalizing
internalizing

Time Line
Chr Character

012 Etc. (seconds)
(film frames)

VA
VB
po
se
ag
sh
bb
$I p$
$l c t$
moo

Vocal Activity

Voice Base
position
sex
age
state of health
body build
rhythm phase
location
mood
toxic sta:e
n-state

Voice Set
status
gender
age grade
health imase
body image
rhythm image
locale
mode
toxi: image
n-status
-20.c.-

-20.e.-

| - | Vcz | Vocalizations |
| :---: | :---: | :---: |
|  | Vch | Vocal Characterizers |
| 29 | 15 | laughing |
|  | gi | giggling |
|  | $5 n$ | snickering |
| 30 | cr | crying |
|  | wh | whimpering |
|  | so | sobbing |
| 31 | ye | yelling |
|  | mf | muffled |
| 32 | wh | whispering |
|  | mt | muttering |
| 33 | $m \mathrm{n}$ | moaning |


| -20.f. - |  |  |  |
| :---: | :---: | :---: | :---: |
| 34 | 9 r | groaning |  |
| 35 | br | breaking |  |
| 36 | bl | belching |  |
| 37 | yn | yawning |  |
|  | VQF | Vocal Qualifiers |  |
| 38 | PH | Pitch Height |  |
|  | oh | overhigh | 个 |
|  | 01 | overlow | $\downarrow$ |
| 39 | In | Intensi:y |  |
|  | ovl | overloud | $\hat{A}$ |
|  | ovs | oversof: | $\forall$ |
| 40 | Ex | Extent |  |
|  | dr | drawled | 0 |
|  | cl | clipped | * |

-20.9.-

-2n.i.-

62
63

64

65
66
67
68
69
70
71

72

BS
Body Set
status
gender
age grade
health image
body image
rhythm image
terst
$\bmod$
$t i$
n-sts
PM

MCZ
MQF
territorial status
mode
toxic image
n-status
paramotion

Motion Characterizers

Motion Qualifiers

73

74
-20.j.-
$7 j$



| 85 | R-D | Rhythmic - Disrhythric |
| :---: | :---: | :---: |
| 86 | O-C | Cpen - Closed |
|  | MN | Motion Markers |
| 87 | C | (\%) Cue |
| 88 | S | Selection |
| 89 | D | Duration |
| 90 | A | Area |
| 91 | PR | Pronominal Referer:e |
|  | M | Motion |
|  | Mi | Microtranscriptior: |
| 92 | He | Head |
| $93^{\circ}$ | Fo | Forehead |
| 94 | Br | Brows |



SYMBOLS USED IN THE TRANSCRIPTION OF SPEECH



## Cast of Characters

$D=$ Doris
$B=B i l l y$
$G=$ Gregory

## $L=$ Larry <br> $\mathrm{CN}=$ Cameraman

Symbology

| $\xrightarrow{+}$ | Orthcgraphy . (Tape) | $\rightarrow 1 / 4$ |
| :---: | :---: | :---: |
|  | Fijm | $\longrightarrow 111$ |
|  | Fhcrotranscription | $\longrightarrow 11$ |
| $\longrightarrow$ | Kire transcription | $\longrightarrow 1$ |
| $\xrightarrow{\\| \text { Ma }}$ | Phenomacro | M3 |
| $\xrightarrow{\\| \mathrm{Smi}}$ | Pherosemimicro | S-il |
| $\xrightarrow{M i}$ | Phoromicro | $\xrightarrow{\text { Vi }} \\|$ |
| $\xrightarrow{\stackrel{M}{\text { a }}}$ | Kinemacro | $\xrightarrow{\mathrm{Na}}$ |
| $\stackrel{\text { Macm }}{ }$ | Kiremacrocommentary | Haxin |
| $\xrightarrow{\text { Mi }}$ | Kinemicro | $\xrightarrow{\mathrm{Ni}}$ |

## 400 Fhor.osymptomatic Features

## 3567 Kinesymptomatic Features

Kiresic Shifts

| － | $\sim$ | m | $\stackrel{ }{*}$ | n | $\bigcirc$ | $\begin{aligned} & \delta \\ & 0 \end{aligned}$ | $\sim$ | m | $\pm$ | $\sim$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\vdots$ |  |  |  | 咢 | 亳 |  | $\frac{\vdots}{5}$ |  | $\ddot{\sim}$ | $\frac{5}{5}$ |
| ＋ |  |  |  | $\stackrel{\square}{3}$ | $s$ |  | ${ }^{-}$ |  | 咢 | \％ |
| $\vdots$ |  |  |  | $\stackrel{ }{+}$ | $\stackrel{2}{\square}$ |  |  |  | 吕 | 岩 |
| 䛧 | 离 |  |  |  | $\because$ | \％ |  | $\stackrel{\text { ¢ }}{\text { ¢ }}$ | $\stackrel{\square}{4}$ |  |
| $\stackrel{\square}{4}$ |  |  |  |  |  | $\therefore 2$ | 威 | $\stackrel{\sim}{\sim}$ | $\pm$ | ！ |
|  |  |  |  |  |  | 管 |  |  | $=$ | ： |
| $\stackrel{1}{\square}$ | 4 |  | $\stackrel{\text { er }}{\text { P }}$ |  | $\stackrel{\square}{3}$ | $\stackrel{\square}{1}$ |  |  | 硅 | \％ |
|  | 年 |  |  |  | s | － |  |  | \％ | 吕 |
|  |  | 告 |  |  | $\stackrel{\square}{\square}$ | $\stackrel{\square}{\square}$ |  |  | \％ | f |
| － |  | ๕ |  |  | \＃ | $\stackrel{\text { 总 }}{ }$ |  |  | $\because$ | 咅 |
| $\stackrel{\square}{\square}$ |  |  |  |  |  |  |  |  |  | $\stackrel{1}{3}$ |
| 8 | ！ | ๕ั |  |  |  | \％ |  |  | $\stackrel{\text { b }}{\text { ¢ }}$ | $\therefore$－$\sim_{0}\left(\frac{a}{3}\right)=$ |
|  | \％ | \％ | $\ddot{\square}$ | $\ddot{\square}$ | $\ddot{\square}$ | $\ddot{\square}$ | ® | a | \％ | $\ddot{\square}$ |






## TRANSCRIPTION

NTL
$21 p r$


 Voice Base
$3 p=$ 2. se 3 as 4 st. 5. tt
$6 . \mathrm{Ip}$ 6. If
7. $1 c:$ 7. $10=$
$8.10=$
 10. $n-5=$ $\qquad$

$$
11.54
$$

$$
14 \mathrm{hi}
$$

15.bi

$$
16 \mathrm{I}
$$

$$
17.15^{\circ}
$$

$$
18=2
$$

$$
19+t
$$

$$
20 n-5: s
$$

$\qquad$ $V c: c e \quad Q u a l i t i e s$.
$\qquad$
$\qquad$
$\qquad$
$\qquad$
38 PH
$\qquad$
$\qquad$


39 In $\binom{v}{\mathbf{v}}$ 40 Ex $\qquad$

## Vocal Seareaates

41.VSg... . Y 入. $<$

$$
\sqrt{2}
$$

## LANGUAGE

-...- ---

## Phonem:cs


D
51.TL
52. po
53. se

54 ag
55 .sh
56 bb
57.xp

58 ter
59 moo
60 ts
61 n-st $\qquad$
$\qquad$

Bodrse.t
$-62 . s t$
63.9 s

64 agr
65 hi
66 bi
67 i
. 68 terst
69 mod
70 ti
71 - $\Omega$-sts

## D

$$
P A B A B D \quad I \quad I
$$

0 N
Motion Characterizers Motion 2ualifiers

73 In
74. Du
75. RN

## Action Signals

## Action $V$ odifiers

76.U-B
77. S-G 78 R-D
$79 \mathrm{G}-\mathrm{A}$
80 F-S
81 I-F
82 In Ira
8.3.Sp-Sc

## Interaction Modifiess



## D

Hacraranecrietion
114 He
115 EO
116 Br
117 E
118. $\mathrm{Fa} / \mathrm{No}$
119. Che
120. Mo
121. Chi
122. Sho/Ne
123. Sho

124 Tr 125 Hi
126 BA
127. $\mathrm{Ha} / \mathrm{Pa}$
128.....F1
129.1A
$130 \mathrm{Ha} / \mathrm{Pa}$
131 Fi
$132 R L \mathrm{~F}$
134.12

135 F
1
$\frac{\text { Kinesis innctures }}{\text { Linemennhics }}$
132 Km

Kinemosphokinics
D

## Kinemorphetact!es

$\qquad$
$\qquad$
$139 \mathrm{Km} ;$

-....-........-.--
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$


## Content characte=ization



$\square$
-



$\qquad$
$\qquad$
$\qquad$
$\qquad$ $\rightarrow-$


21 PI
(\%)


23 1c

-     - 



39 In $\stackrel{\text { Á }}{\wedge}-\hat{A}$

40 EX $\qquad$
41 VSg ,


500
on't know what
else to


114 He ( $1>2$ ®)
$133 \mathrm{RL} / \mathrm{E}$ $\operatorname{ary} 2)^{A}$ -
$\begin{array}{lllllllllllllllll}6 & 147 & 150 & 153 & 156 & 159 & 162 & 165 & 7 & 171 & 174 & 177 & 180 & 183 & 186 & 189\end{array}$
$\qquad$

( $\downarrow$ ) $\qquad$ .

144 Com $\square$

114 He $\qquad$
$\qquad$

* Indicates that the ties of the shoe is allowed. to drop away from the foot-tre ices hold shoe. Her shoes have a bacri-strap which holds above thee: protuberance. 166 . 170 .... 172179 $18428 \div 87$ 154
$\qquad$

 192 (face sag) 206

120 Mo $\qquad$ $\frac{(1 / 2)}{c i g}$ $\qquad$ A $\square$ -•••• $v$ $\because . . \quad \frac{\text { Iv Z* }}{\text { cig }}$ 140 TL $\qquad$ 6 $\qquad$ $147 \quad 150 \quad: 53 \quad 156 \quad 159$

162
165
7 $\qquad$ $171 \quad 174 \quad 177 \quad 180 \quad 183 \quad 18 t \quad 189$
8195198.
$2 \because 204 \quad 202210$
213

141 VA $\qquad$

142 BA $\qquad$
$\qquad$

143 Ch $\qquad$

149 Com $\qquad$ (smokes)
*Rolls cigarette.

117 E $\square$ B $\qquad$

$$
0
$$

$Q^{2}$ $)^{2} \cdot 0^{2}$

124 Ir

140 IL $\qquad$ $6 \quad \begin{array}{lllllll}147 & 150 & 53 & 156 & 159 & 162 & 165\end{array}$ $\square$ $171 \quad 174 \quad 177 \quad 180 \quad 183 \ldots$ ie $189 \quad 8$ $195 \quad 198$ $\qquad$ $201 \quad 204 \quad 207$ $210 \quad 2139$


OIL $\quad$ Chr
Chr ZERO
$\begin{array}{lllllllllll}12 & 291 & 294 & 297 & 30 & 303 & 306 & 309 & 13 & 3: 5 & 3:\end{array}$
(33) $324 \quad 327 \ldots 330 \quad 333 \quad 1$
14
339 $342 \cdot 345 \quad 3+8 \quad 35: 354 \quad 357$
$21 \mathrm{pr}-\mathrm{D} \quad$ -

4 uss. - - -
$0-$
B-

壁





# GUM SCENE 





GUN SCENE

141 VA $\quad$ D

I42 BA $\quad(\downarrow)$

144.Com
117 .E

120 Mo

## $\frac{1 / 2}{c i g}$

 L/12
140 IL


144 Com
*Puff.

117E $\mathbf{B}$ (v)
27 RA/E:
$B / 5-02 /$ $\square$ -
-

130 IAFE
$1 / 2 \quad 2$ - . -
137 Km




$\qquad$
21 pr $\qquad$ (\$) $\qquad$ $-1$ $f$ $\qquad$

39 In $\qquad$人-
40.EX $\qquad$
$41 . V S g$

42 Ft $\qquad$


1.vSg


114 He $(H>2)$
$127 \mathrm{Ha} / \mathrm{Pa}$
R/ $\frac{1 c 4 c}{5+1}$



GUN SCENE

$-30 \mathrm{Ha} / \mathrm{Pa}$
131 Fi
$14+$ Com

## B

117.E
$227 \mathrm{Ha} / \mathrm{Pa}$ 128. Fi
(1/ $\frac{12}{19}$
$(R / 2 \Delta 2)$
( $1 / 22$ )
/2z)
(cigareite).
$130 . \mathrm{Ha} / \mathrm{Pa}$ 131.. Fi

657 -62--663 -

$$
144 \mathrm{com}
$$







# GUN SCENE 

G


144 Com

* Billy's right hand "reaches" for fallen gun, the fingers move in a "searching" just above or lightly touching gur to ofs (approximately four_secends).


O IL Chr ZERO
G
$\qquad$



| $130 \mathrm{Ha} / \mathrm{Pa}$ |  |
| :--- | :--- | :--- |
| $131 . \mathrm{Fj}$ | Cl |

144. Com

## B

$1 / 12>15^{\prime \prime}$
cig
( $5:=\mathrm{ck} \in \mathrm{s}$ ) (puff)

250
959
969
$-977.979 .983 \quad 986$
$127 \mathrm{Ha} / \mathrm{Pa}$ $\qquad$
$\qquad$


G





OUT IHEWINDOW SCENE


 $-$ （ $\ddagger$ ）



21．pr $\qquad$
$\qquad$

$\square$ ．tou…
$\mathrm{dam} \cdot$
$\qquad$

$\square$
$\square$

（d）
49 IL

$$
1234.1232
$$

1254 $\qquad$ 1262.1264 .1266

1272 $\qquad$ 1287

500 $\qquad$ say and $\qquad$ I was $\qquad$ $\pm 00$ dumb $\qquad$ to know $\qquad$ the $\qquad$
51.11 $\qquad$ $1235-1232$ 1254 $\qquad$ $1262: 1264: 1266$ $\qquad$
$\qquad$
$\qquad$ 1287

114 He $\qquad$ $\mathrm{H} \lll \gg \mathrm{H} 2>$

133RF $\qquad$ Ry5n $\qquad$ $R \neq 50$
141 VA
$142 . \mathrm{BA}$

$$
143 c c h
$$




G
51.I1 - - - ..................................................... 1235

1257

114 He
115. FO
116. Br

117 E
120. Mo

Hf-bb
Hf-bb
$\mathrm{Hf}-\mathrm{bb}$


- $4 .-$
- 







OUT T HIE INDOW SCEN.E
0 IL

${ }^{\text {Chr }}$
23.1 c
39
$40 . \mathrm{Ex}$
4


## -9

$\xrightarrow{2-2} 3$
42P.t







49 IL

-     - 

$$
13891391
$$

$\square-1406$

$$
1406 \quad 1411 \quad 1415 \quad 1422 \quad 1428: 1438
$$




# OUT THE WINDOW SCENE 




126 R


144 Com

OUT IHE WINDOW SCENE
 D

39 In

$$
(A-)
$$

$\square$
40 Ex
41. VSg

0

42 Ft

2
$\lambda \leq$
已] ................................
43. Int

44 SirJ
45 sgm $\qquad$



49.12 $\qquad$ 14461442 he's getting $\qquad$ too $\qquad$ much $\qquad$ to $\qquad$ eat $\qquad$ and.......................this $\qquad$ made 1502
50.0 $\qquad$
$\qquad$
$\qquad$
A
$\qquad$ $A><A$ L $\qquad$

$$
\ldots-\ldots
$$

$$
A><A
$$

- $A><A$

Ry
A $\quad \mathrm{V}$

$$
13411
$$

135 E
$\mathrm{L} \times 5 \mathrm{n}$ :



OUT THEWINDOW SCENE

$\qquad$ D $\qquad$
21 pr $\qquad$ $(\$-)$ $\qquad$
$\qquad$
23.1c $\qquad$ $(\gg-)$. $\qquad$ L-L
$291 f$ $\qquad$ $(\stackrel{A}{A}-)$ $\qquad$
39.In $\qquad$
42. Ex

41 VSg $\qquad$
$\qquad$
$\qquad$

$\qquad$

$\qquad$
49. Th $\qquad$ 1590.1593 $\qquad$ 1608 $\qquad$ 1614 $\qquad$ 1623 $\qquad$ 1629 $\qquad$ 16: $\qquad$ 16471648

500 $\qquad$ throw one of them out $\qquad$ one wirdow and $\qquad$ one of ther out the other and then

51 IL 1523 $16 r 8$

1614 $\qquad$ $162+1629 \quad 1633$

126 RA
$127 \mathrm{Ha} / \mathrm{Pa}$

$$
R_{A A} \geq 2{ }_{R} 3: 30 \geq \geq 2 \geq 2
$$




# OUT THE WINDOW SCENE 

140 IL ....ChI ZERO $\quad 1590,1593$
39 In
v-
$-\mathrm{V}$
1608
1614
$\begin{array}{rr} & \\ 1623 & 1629\end{array}$ $\square$
"
$16381641 \quad 16471648$
41.VSg
, $\quad{ }^{2}$
43. Int
4. StrJ

45 Sg
$\left.\left.\left|\begin{array}{c}z^{2} \\ y e h\end{array}\right|\right|_{-1} ^{2} \right\rvert\, 1$

500
Yeab.
Yeah

0 TL $\quad$ Chr $\quad$ ZERO B

21 pr
( $\ddagger-)$
23.16
(o-)
28 .te
(>>)
39 In/fn
(v-)
41 VEg
42 Pt
43 Int
44 Str J
45 Sgm
$50: 0$
51 TL
141 VA 142. BA 143 cch

69

71 1707-1710. $17131716.17191722 .1725 \quad 72$.

$$
0-
$$

$$
\gg-
$$

$$
-0
$$

$$
\psi^{2}-\overrightarrow{-v}
$$

位-


$$
\begin{array}{c|c|c|c|c|}
\hline & a^{2} & a & 3 & 5 \\
\hdashline a & a & \cdots & a \\
\hdashline \text { hey mam } & \text { diyi } & \text { want }
\end{array}
$$

want

$$
1689
$$

$$
1689
$$



one of these?
-1706
|EXTERNALIZING

0 TL ...... Chr $\quad$ Z... ZERO
50.0
$92 . \mathrm{He}$
95 E

9: Mo

1~1.Sho

102 TI
104 RA
$175 \mathrm{Ha} / \mathrm{Pa}$

107 . LA
$108 \mathrm{Ha} / \mathrm{Pa}$

110 RI
111.F
112.11
$113 . F$
.

$6916571662166516681671 \cdot 1674167770$

71 17へ7 $171217131716 \div 317221725$72

do you want
one
of these?
back to
camera
Hey mom
$\vec{h} 1=3 n_{4}^{51 \prime} h \quad c<$
$h^{f+15 n} \gg h_{N}^{n}$

- Pivots left


$$
\underset{\substack{\text { Eases } \\ \text { How }}}{\substack{2}}
$$




$$
\begin{aligned}
& \text { changing } \\
& \text { pillow to } \\
& \text { left hand }
\end{aligned}
$$

left hand

(<Foot Pivot)

$$
]_{2: 0:}^{k]} \overrightarrow{3 n}_{x}\right]_{>30^{n}<}
$$




23 1c
28 te
38 . PH
$39 \mathrm{In} / \mathrm{f} \mathrm{n}$

41 VSg


42 Pt
43 Int
44 Strj
45 Sgm
50.0

51 II

# O.TL <br> Chr <br> .... ZERO <br> O. 

69
165916621665166816711674167770
$16831686168916921695 \quad 16981701$
71
1707.1710 17:3 27:6 $1719 \quad 1722.1725$
50.0

$1 \cap 1$ Sho

1~2. If
$104 R A$
$105 \mathrm{Ha} / \mathrm{Pa}$



$\ldots, z z z z z$

$$
\begin{gathered}
\text { elbow } \\
\text { to } \\
\text { body }
\end{gathered}
$$

107. LA
$108 \mathrm{Ha} / \mathrm{Pa}$

| 110 RL |  |
| :---: | :---: |
| 111 F | $\ldots$ |
| 112 LL |  |
| 113 F | $\ldots$ |

$$
\begin{gathered}
3-3 \\
?
\end{gathered}
$$

$$
3-3
$$




0 TL
Chr
$72 \quad 173: 1734 \quad 1737 \quad 17401743 \quad 1746 \quad 1749$
$\begin{array}{llllllllllllllll}73 & 1755 & 1758 & 1761 & 1764 & 1767 & 1770 & 1773\end{array}$
74
$1779 \quad 1782 \quad 1785 \quad 1788 \quad 1791 \quad 1794$. 179.
50.0
.92 He
95 E
pulls
that
uh. .

75

98 .Mo
1^1. Shoo
$1 \cap 2 . \mathrm{Tr}$

104 RA
$105 \mathrm{Ha} / \mathrm{Pa}$
$1 \cap 7$ LA
$108 \mathrm{Ha} / \mathrm{Pa}$



$\gg$
thoratic $x$ pivots on hips
with.
top of head

## 110 RI <br> 111 F

$\qquad$
hidden---------

112 LL $\qquad$
dress

112 . 2
0 TL … Chr ZERO
B


95 E
98 Mo
1^1 Sho
$122 \operatorname{Tr}$
104 RA
$105 \mathrm{Ha} / \mathrm{Pa}$
$1 \cap 7$ LA
$1 \cap 8 \mathrm{Ha} / \mathrm{Pa}$

110 RL
$111 F$

1121 LL
113 F


lax



人)
cheeks
mouth?
n - ....

$$
\int:-15
$$

$$
\hat{\text { pivots }}^{0} \text { on both }>
$$

hidden

stepping wajking


$3 \% 1 \%$
39.In
43.Ex

41 VSg

42 Pt

43 . Int
4i+ StrJ
45 .Sgm
50.0


there's
$\qquad$
O. TL Chr ZERO
75. $18 〔 3.18 \cap 618 \cap 9181218151818182176$
$\begin{array}{llllllllllll}1827 & 1830 & 1833 & 1836 & 1839 & 1842 & 184\end{array}$
5^. 0 $\qquad$
92 He
95 E

121 She

sustained to 1897
O> to camera
122 Tr $7 \quad 1851 \quad 1854 \quad 1857 \ldots 36 \cap 18631866 \quad 1869$ there's a.....a...lot Er this

I
think
$\begin{array}{r}\begin{array}{c}N \\ 43: 00\end{array} \\ \hline 14\end{array}$
$43: 00$
1
2


$$
2 \nmid 3
$$

$v \quad 12$
$14 \frac{2 a}{3 a}$

$\int_{2}^{2}$

${ }^{-}$ $\qquad$


0 IL Chr ZEFO
75 . $1803.18 \sim \cdot 189 \quad 1812 \quad 1815 \quad 1818182176$ 182 18301
92. He
93. Fo
94. Br
95. E 96. $\mathrm{Fa} / \mathrm{No}$
97. Che
98. Mo
99. Chi
$\geq .25^{\circ} \ll h<{ }^{1}$
z.....
2.......................................................

өө 20 cig.-ash $=a y . . . . . . .$. follows cig.....
z.........................................................
) ( sag.
~ 10 v vocal-......v vocal $\rightarrow$,
$\geq v$ sustained





$110^{\circ} \mathrm{RL}$
111 F
112.11

113 . F
$\underset{2}{\rightarrow} \underset{?}{2: 30} / 2<10$
2:30
*tead back while drinking

$$
\begin{array}{|c:c:c} 
\\
\hdashline & \cdots & -\cdots \\
\hdashline & - & -\cdots \\
\hline
\end{array}
$$

moves stein from mouth to table - change direction to poin click *releases stein


0 IL
Chr ZERO 78
 $801923: 9761929.193219351928$ 1920 81
D
21.pr

4n Ex
41. VS3

42 Pt

43 In:
44. St:J
45. Sgm.
50.0
*

creaṭed

tremendous


0 TL
Chr ... ZERO
80.1923 1926.1929:922 192519281941
81
1947 29501953195619591 19́2 298
82
197119741977 ?
ミ: 19
19861989

62-.7*
AM
72. In

74 Du
75. Rn
114. He
117. E

LA
124. Ir
:RL
92. He
93. Fo 94 Br
95. E
96. $\mathrm{Fa} / \mathrm{No}$
97. Che
$98 . \mathrm{Mo}$
99 Chi
1n? Sho/Ne
(: ul tw.) (L/2345c)
in. box


( $\mathrm{H}<2$ )
(00/s:Eir. 00 Daris's face


$00 / \mathrm{c}$ •

## .00/stein*....... $00 /$ mike...



104 RA
$105 \mathrm{Ha} / \mathrm{Pa}$ 107. LA $1 \cap 8 \mathrm{Ha} / \mathrm{Pa}$
0 I2 $\qquad$ G
$11^{n} R L$
11. F
$1121:$
113.F

144 com

*stirs to rt. (head)



50. amount of Sension and I'V been mm ... I'm pretty 62-7:
AM
72. Ir
74. Du

75 Rr.

114 He

$$
(H f .<. \geq)(i: f t-b)\left(\frac{c h}{o}\right)(H y+?)
$$

40
117. E

$$
00 \text { fle }
$$

124. Tr
125. RA
( $R A /<n$ )
126. LA
z $Z$
$Z$
$\left(\begin{array}{c}n \rightarrow v \cdot 00 \leq Y) \\ 00\end{array}(x L L x, L / L)\right.$

## RL

LL
F

$$
L x, L / \perp)
$$

Ir.

( $\mathrm{H} S \cdot \mathrm{H} \leqslant 1$ ) (Chx)( $\mathrm{H} \mathrm{S}^{\circ} \mathrm{H}<1$ ) $(\mathrm{Chx})$

D

$\dot{p}^{\circ}$
$\dot{x}_{5}{ }_{5}^{\circ}$
 ठ

203
103 Hi
104 RA
105. На/Ра

107 LA
108. $\mathrm{Ha} / \mathrm{Pa}$
110. RI
111. F

112 LL
113 F


POST-PILLOW SLENE (MCQUOWN TRANSCRIPTION)

| 0 TL | chr | ZERO | 84 | 2019 | 2022 | 2025 | 2028 | 2031 | 2034 | 2037 | 8 | 2048 | 2046 | 2089 | 2 Cos 2 | 2085 | 2007 | 206 | 86 | 2067 | 2070 | 2075 | 20\%6 | 2078 | 2082 | 2085 | 87 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |




[^5] 2n19 2?22 2?25. 2 ?28 $2 ? 31$ 2n 34 2ก37 85
$5.2043 \quad 20462049.2052 \quad 2055 \quad 2.58 .2061$
86206720702272 ニニ76. 20792082 2085, 87
21.pr
23. 16
$24.9 c$
4. Ex
41.VSg
$42 . \mathrm{Pt}$
43. Int
44.StrJ

45 . Sgm
$50: 0$

unstable

or.
immature character

## Sq-

$\left(\frac{v}{v-2}\right.$

in
many
.many
ways
OIL Chr ZERO201920222025202820312034203785
204320462049205220552058206
unstable of
62.-71*
73. In
74. Du
75. Fin

AN:
IM
. MM
114. He 117. E

## 122 Sho/ Ne

124 Tr
126. RA
129. LA

RL
LL
(ols/0) (L/L)
GI2g
$Z$
immature character
$-0 \rightarrow$
$\underset{A}{V} \underset{\sim}{V} \cdots \cdots \quad$ al $\rightarrow$

C
C
$\square$
-............
( $\left.T \geq 2: 30 \cdot T<+15^{\prime}\right)(T f \leq)$
(RA $24 n \cup 1-\geq 2 A 5 n$ )
92. He

92 FO
94.E:

05 E
9t Fa.No
97. Che
98. N.
99. Chi
inn st:o/ Ne
1~2. Ir
102. $4:$

104 FA
1ल5. $\mathrm{Ha} / \mathrm{Pa}$
107. LA
108. $\mathrm{Ha} / \mathrm{Pa}$
$110 . R L$
111. $F$
112. 12
113. F




$0 T L$
Cht zaro
 $\mathbf{G}$
$\qquad$
$-\quad-\quad-$

22 pc $\qquad$ 77
39 ovs $\quad v_{-} \quad-\frac{V}{-}$

41 Vsg
42 Pt
43 Int
44 Sth
44 StFJ
45 Sgm
46 Int $475 \operatorname{tes}$

500

Are'nt we all?


590
$62-? 1^{*}$
72. In $\rightarrow$

74 Du
75 Rn

LM
IN.
AN.
. . . from 2049
114. He

IR
.

ways
it. wạ

## 

( $\mathrm{Hv}{ }^{\circ} \mathrm{HVl}$ ) (HN)
$(\mathrm{Hf}-\mathrm{bb}-)(0 \mathrm{O})$
GReg
(RA<: $>2>5 n$ )
$\left(\therefore A \leq 2{ }^{\prime} \frac{2 \wedge 5}{k N}: 3 \cap n\right)$ (LAShr)
(TI)
dep. reduced
*apparent reduction of $t=r$ sion in buttocks and left leg
*NOTE sustained cig. agains
tray over "ways


10 : $\quad \therefore \quad$
2067 2076 2273 207e こn?9 $2082 \quad 20: 5$ 87 : 88 2091. 209~ 2797210021032106210

88
C. Br
$C E$
© Fa /No
$\because$ - Che
$\therefore$ Mo
ca Chi
n- Sho/Ne
In Ir
1³ Hi
$1-R A$
$1.5 \mathrm{Ha} / \mathrm{Pa}$
1.7 IA

1 ミ $\mathrm{Ha} / \mathrm{Pa}$.

*apparent reduction of tension in

*reaches hyperactive by 2317
buttocks and left leg
*note sustained cig. against tray over "ways"
0 TL
 $\overbrace{}^{C h}(G$
50.0

62-7
AM
73 In
74 Du
75 Rn
$114 . \mathrm{He}$
117.E

92 He
93. Fo

94 Br
95 E
96. Eato

97 Che
98 No
99 Chi

86 2OET 2า7r. 2~73 2776. 29792082208587 2091.2094 2097. 2100210321062109 88 211 115.2 Aref: t we all

## $\substack{S R \\ \text { SDe } \\ \vdots \\ K}$

$(H<5 \cdot . H<1)$

(R2-3)
$<\quad h<1 . \ldots . . .$.
.. .... . . . . . . . . . . . . . . . . •
 -
$0 . \mathrm{TL}$
$\mathrm{C}^{\mathrm{Ch}} \mathrm{C}^{\text {ZERO }}$

## 12~ St.o/Ne

$122 . T r$
$1 \sim 4 \mathrm{FA}$
$1 ヶ 5 \mathrm{Ha} / \mathrm{Pa}$

1? 1 La
$108 . \mathrm{Ha} / \mathrm{Pa}$
11~RL
111.5

112 LL
113 F

## STARTHERE <br> fingers looser. and regrasp cig..

staner meper
. $1-2$ loosen Lig. yegrasp.

back in those days

73 In 74 Du
75 Rn

114 He
117 E RA

IA
92 He
93 Fo
.94 Br
95 E
$96 \mathrm{Fa} / \mathrm{No}$.
97 Che
98 Mo
99 Chi
100 Sho/Ne
102 Ir
\&
Oั६ \&
$A-A \quad A-A \quad a K / S S$



$>150$
Lax(?)

OTIL
Chr .. .. ZERO
90
216321662169217221752178.2981
$912187219 n 2193219 \dot{1} 219922022205 \cdot 92$
$221122: 4.22172220 .2223 .2226222593$
… : D....
.
. ...................................

4n Ex
$41 . \mathrm{V} \mathrm{Sg}_{g}$
2. Pt
43. Int
44. StrJ
45. Sgm

ard
being
$i$
$i n$
$i$
$\begin{array}{cc}: \\ i n & \cdots \\ i n & \ldots \\ & \end{array}$
-awnic̣y ${ }^{+}$
50.0

… ............. ar
$\qquad$


141 VA
142 BA
143cch


0 TL Chr $\quad$ ZEFO

## 9623

$2307231^{n}$
ค $23: 3$
316231
$\vdots$
98 235523582361 2554 236723702373 99


0 TL
Chr ZERO 96


42 Pt

49. IL

2351
2367
52.0

D

* $\mathrm{M}-\mathrm{hm}$


0 TI
$\stackrel{0 r . r}{D}$
21.pr

4n. Ex
41. VSg
42. Pt
43. Int
44. Strj
$45 . \mathrm{Sgm}$

500
$117 E$

## $B$

( $1-$ )

ZERO
$\square$
-

owr wive
Downo

## $308 x^{3}$ wion





(the) ink ... most of the
obvious
problems
$141 \quad V A$
142. BA

143 cc


## 144 Com

NOTE: differential recording above on lines 42,45 and 50 .


129 LA

$41 V A \quad$ (E)
(ExtantNuES
( $\downarrow$ )

0. TL Chr ZERO
 $\because \quad$ !
(\$-)

21: pr
24.96
(v-)


Un. Ex
41.VSg
42. Pt
43. Int

44, Str
45 Sm


$50: 0$
$u h$
think
because
of $\qquad$ $+\cdots$

144 Com................................ oversoft and overfast; next phrase even more sc, so that words can be guessed at but not transcribed.

$0 . \mathrm{TL}$ $\qquad$
$\stackrel{C n}{D}$
ZERO
114

117
24. 9 c

41.VSg
42. Pt
43. Int 44.StrJ 45.5 gm

you
Soy Noo


! $\qquad$

oikey stanses


STERS LEET SAIGHTLY
MOTNER. BACE
PARTIALLY TO GREG.

OTL... OHT_ZERO
21. pr
24. gc
41. VSg
42. P.
43. Int

114 He


142:BA
143 cch
144, Com.
(my)

are.
Hf-66-
Taí

O.IL
${ }^{\mathrm{Chr}}$
zERO …….....
120. 2883 ح $286 \quad 28892892 \quad 2895 \quad 2898 \quad 2901121$

12129072910291329
6291929222925
12229 222931
$\qquad$

# $0 . \mathrm{TL} \quad \mathrm{Chr}$ 

ZERO
$1232955 \quad 29582961 \quad 29642967 \quad 297029731242979 \quad 2982,29852988299129942997$
125 $3003.3206 \quad 3009.3012 \quad 3015 \quad 3018 \quad 302$.

21 pr

41 VSg
42. Pt
43. Int

44 StrJ
45 . sgm

50.0

114 He
143 cch
$141 \vee A$ 142 BA 114 HC
117 E

## (Extendizeinc <br> $(\downarrow)$

which

in that $G$
$\stackrel{H}{c o}$
$\frac{60}{b 0 y}$ eves follow to $[36(62]$

## ChI <br> ZERO

 . 3003 30n6 $3009 \quad 3012 \quad 30: 53018 \quad 3021126$

## 21. pr <br> 

$21+9 c$

## $\square=\square$

41. VSg

Le. Pt
43. Int
44. StrJ
45. Sgm

$5 \cap 0$
Yeah
Yeah
0 IL
Chr ZERO


............. D
21. pr
(*)
25.ac

29 If

41 VSg
42. Pt
43. Int

44 StrJ
45 Sgm

500
the
child
is.................making
.making
normal $\qquad$ demands

141 VA
$\because$

-a........................-



0 Th
${ }_{\mathbf{C h r}}^{\mathrm{Ch}}$
$1323171317431773180 \quad 3183318631891333195 \quad 3198 \quad 320: 3204.320732103213134$ 3219322232253228323132 シー 3237
135

41 VS
42 Pt

43 In:
44 Str
45 Sg:

500

. uh
how
are
you
sexed
on neighbor chilisen

 $3291 \quad 3294 \ldots 3297 \quad 3300 \quad 3323 \quad 33263309$

\section*{D. .

## -

## -

41 VS
42 Pt
50.0

27. $\mathrm{Ha} / \mathrm{Pa}$ $\qquad$

$$
N \text { - • • • }
$$

141 VA
144 com

$$
\left(\frac{N}{(\sigma)}\right) \div \div \div 1
$$

BTACYTPLAWE
0 ML
Chr .... ZERO
$135 \quad 32433246 \quad 324932523255 \quad 3258 \quad 3261363267 \quad 32703273327632793282.3285137$
325
329432
3973
138
(plane held above head)
(plane nose dives at 3270 to 3288)
v.v. v v levels off

```
SECONE AIRPLANE SCENE - }332
```



42 Pt
i̊ュ
$49 \pi$ .3314
$50 \quad 0$

Yeah.



PLAYMATE SCENE


42 Pt





## PLAYMATE SCENE

$\qquad$ O.IL Chr ZERO




42 Pt



49 II $\qquad$
50.0 $\qquad$
$\qquad$ (sigh)
affected
him
an awful
$10 t$.


$0 \mathrm{IL}: \quad \mathrm{Ch} \quad$ G
ZERO



O TL
${ }^{\mathrm{Cr}}$




# PLAYMATE SCENE 

OIL_ChF ZERO


42 Pt D

0 OLD ChI


42 Pt

## gizes: $^{2}$



3980.

49. 74

$$
\begin{array}{|c|c:c:c}
\hline & \cdots \cdots & \cdots & \cdots \\
\hdashline \cdots & \cdots & \cdots & \cdots \\
\hdashline & - & \cdots & \\
\hline
\end{array}
$$

..
50













## FILM BREAK

$0 \mathrm{TL} \quad$| Chr |
| ---: |
| D |
| $\cdots$ |



| 26 rc | $(\mathrm{Gl}-)$ |
| :--- | :--- |
| 28 te | $(\ll-)$ |
| 29 lf. |  |


. $1-$ $-1$
$-\uparrow$
0

41 VŞg




that's


## FILM EREAK

## OIL. Chr ZERO <br> \section*{6 ZERO}


$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
2310 - - - d $\qquad$
$\qquad$
38 PH $\downarrow$ $\qquad$
$\qquad$
39 In
40 Ex
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$ 50 $\qquad$ Fer $\qquad$ example $\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$


```
ILM BREAK
0 TL Chr ZERO
D
```


-
$\qquad$ $-$ $\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$












43 Int
44 StrJ
50.0

M-hm

$\qquad$
$\qquad$

$\qquad$
$\qquad$







 $-\square \square \square+\square$

[^6]
: 1


 $\square$
x
minnmen

An
$\qquad$ $+$
$\qquad$
$\qquad$
$\qquad$
$\square$

9 $-9$
23.10
 .. ..... $\square$
-...-P-
 Pr25 ac $\quad$ (<<
38 PH
40.Ex

42 VSg


## 0 IL $\quad$ Chr ZERO



$\qquad$
$\qquad$

25 ac $\qquad$
$\qquad$
$\qquad$ $\mathrm{Pr}-$ $\qquad$

28 te $\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$ $\bigcirc$
$\qquad$





BOX SCENE
0 IL ChI ZERO $\underset{\mathbf{h s}}{\mathrm{ch}^{2}}$

$\qquad$

$\qquad$
-
$\left|\begin{array}{ccc}\text { aev.f. } & \text { ga rt } & \text { it: }\end{array}\right|$
43. Int

44 StrJ $\qquad$ * I y ye
got
it.

 ${ }^{-}+$


* Io cameraman?
-     -         -             -                 -                     -                         -                             -                                 -                                     - 

$-1-1+\square$
$H$
H

-


# 0 IL ..... Chr ......ZERO <br> 1774251425442574260426342664269178,42754278428142844287429042931794299430243054308431143144317180 

42 Pt

43 Int
44 StrJ
50.0
its.
it 's

41 Vsg
42 Pt

43 Int
44 StrJ
500


# OTL Chr ZERO 



25 ac

39 In

A.

40 Ex
41 vs
42 pt

$$
A \cdot d \in f, n t t
$$

43 Int .44 str
$50 \%$
$\qquad$
$\qquad$

$$
51 \mathrm{IL}
$$

..............seems



POST-BOX SCENE
OST-BOX SCE
O TL '....... Chr ZERO
$18644674+704473 \quad 4476 \quad 4+79 \_44824+05187449144944497450045034506450$
$188451545: 8 \quad 45214524 \quad 4527 \quad 4530 \quad 4533109$

# POST-BOX SCENE <br> O...IL ..... C上, ZERO <br> 189.453945424545454845514554455719045634566456945724575457845811914587459045934596459946024665 <br> 192 

23.1c
$0-$
$-0$
$P$
$-9$
... ac (PI-)
28 .te
( $\ll-$ )
39 In fn
41 ..VSg

42 Pt

43: Int
44. StrJ
$-500$
51 TL
bit



4550

28 te
>8-
->>

43. Int

4 StrJ
50.0 $\qquad$
$\qquad$ Oh yes $\qquad$ have


2316
24 gc

39 In

41 VSg

42 Pt

43 Int
44 StrJ
50.0

51 II

0-
B-
v-

it's uh
4640
0 TL
Chr ZERO
D
195 4683
195468346864689469246954698470119647074710471347164719472247251974731473447374740474347464749 198

24 gc
26 Ic
28 te
38 PH
39 In
40. Ex

41 VSg

42 Pt

-     -         - 

43 Int .44 StrJ
50.0
50.0
51. IL

mi-.
G1-
$\uparrow$ -


4690
4715
0 II Chy ZERO 198: $47554758476147644767 \quad 47704773199477947824785 \quad 478847914794479720048034806 \quad 480948124815 \quad 4818 \quad 4821 \quad 201$

41 VSg


## BUCKET SCENE



40 Ex


Int
44 StrJ
50.0 $\qquad$

17



av.f.

$\qquad$

## lats:.

$\qquad$



-šq. $\cdot$
ov.f.
43 Int
44 StaJ
$50 \quad 0$
51 IL

of


## 0 IL $\frac{\text { Chr }}{\mathrm{D}}$ ZERC

$213.5115 .5118512151245127 .51305133214513951425145514851515154515721551635166 \quad 516951725175 \quad 5178 \quad 5181$

40 Ex

41 VSg

42 Pt
500 $\qquad$


5138
5168

OTL - Ch

21 pr
23 1c
26 rc

29 If

39 In
40 Ex

42 Pt $\qquad$

43 Int
44 StrJ

500

d. $\quad$ -
-61

L- ...-1
A-


after
I'v

5206
(5224)

# 0 TL Chr .... ZERO $G$ <br> 216.5187 .51905193 .519651995202520521752115214 .5217522052235226 .52292185235 .5238 .5242 .5244524752505253219 

42 Pt

500
51 TL
!


Yeah, yeah.
5206




## BUCKET SCENE

$\qquad$
39 In ( $\hat{n}-)$

40 Ex

## 41 VSg


$51 \pi$
5342

$$
5372
$$

BUCKET SCENE
0 IL Chr
C
zERO 227 $227: 5$ 354065409541254155418 …........................................................................
lf $-\hat{\AA}$
39 In
$(-\hat{\wedge})$

41 VSg

42 Pt


kgampan ?

43 Int
44 StrJ
$50: 0$
51 .II

sitting here with no human
5412

L-
F

## BUCKET SCENE

$0 \mathrm{TL} \quad \mathrm{Chr} \quad$ ZERO
..... $\mathbf{G}$ ZERO


42 Pt


Yes,
yes.


## BUCKET SCENE


29 lf
>-
->>
L-
$-L$


39 In
(v-)
-v

41 vss


43 Int
44 StrJ


500
51...71


$\qquad$



42 Pt

50.0

But
these are the
truths
after
all
51. II
$\cdots$
....... th 5633


41 VSg

$+2 \mathrm{Pt}$

43 Int
44 StrJ
50-0
$51 . \pi$

$\qquad$
N
$\qquad$
5696
5738
$t_{z} \mathrm{t}^{\prime} \cdot \mathrm{t}_{\mathrm{k}}$
mae.
bet.ti

500
Taik
to
my
Betty
and
she! 12
ve
very......
much
the
similiar.
things
51 IL
5696
__- $\dot{1}$
$\qquad$
$\qquad$
$\qquad$
$\uparrow$


A-

41 VSg
43 Int 44 StrJ
$50 \quad 0$
 mean an the


BUCKET SCENE
0 TL ........Chr

39 In $\ldots(\hat{A}-)$
40 Ex
41 VSg

43 Int
44 StrJ
50.0
are
certainly
none
$-\uparrow \uparrow$



51 IL
$-5839$ $\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$

## BUCKET SCENE

O.TL Chr Chr Z.... ZERO

```
(<<)
```


0 TL ........Chr ZERO
$24915979598259855988.5991599459972506003600660096012601560186021251 \quad 6027 \quad 603060336236 \quad 60396042.6045 \quad 252$.



O_TL_Chr ZERO $255: 612361266129613261356138614125661476150615361566159616261652576171617461776180618361866189258$

21 pr
$231 c$
26 rc

28 te
( $\ll-$ )
1.1
(9- -9
(G1.-)
(Gi)
-<<




IL

# 0 TL <br> C 

25 ac
$\cdots$

28 te
( $\gg-$ ) $\qquad$

1 Vsg
$\square$



$\pm$


40 Ex
.41 VSg.
43 Int 44 StrJ
$50 \quad 0$
51. IL


$\qquad$

6265
6277
6289
6312

FIRST MAD SCENE
O IL ... Chr '.... ZERO


29 1f

39 In $(A-)$
$\qquad$
$264633963426345634863516354.6357265636363666369637263756378638: 266 \quad 6387639063936396535964026405.267$.


L- ... $L$
$L$
L-. -1
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
41 VSg $\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$

43 Int.
44 StrJ $\qquad$
$\qquad$
$\qquad$
$\qquad$
51 IL 6384 $\qquad$
O IL ....Chr ZERO $26463396342634563+863516354635726563636366636963726375637863812666387639063936396639964026405267$


0 IL ChI ZERO ㄱ.. 270648364866489649264956498650127165076510651365166519652265252726531653465376540654365466549273,

25 ac
( $\mathrm{Pr}_{\mathrm{I}}$ )

28 te

39 In
4n Ex
41 VSg
43 Int
4 StrJ
50.0
50.0
-Pr





OIL Chr ZERO $\quad 27365556558656165646567657065752746579658265856588659165946597275660366066 E: 36612661566186621276$,
$232 c$
$9-9$


# 0 IL ${ }^{\mathrm{Ch}} \mathrm{D}$ 



39 In

41 VSg

43 Int 44 StrJ
$50 \quad 0$
51 IL

$\sqrt{[n]}$

hiṇk

6708

144 Com





| FILM BREAK Chr | ZERO |  |  |  | $\vdots$ |  |  |  |  |  |  |  |  |  |  |  | $-\quad$ : |  | 1038 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $i$ |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 1 |  |  |  |  |
|  |  | $!$ |  |  |  |  |  |  |  |  |  |  |  | - - |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| - 23.16 |  |  |  |  |  |  |  |  |  | $\cdots$ | $d$ |  |  |  |  |  | -d |  |  |
|  | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | ! | , | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| ! |  | - |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| , |  |  | T |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| - |  |  | 1 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| - |  |  | + |  |  |  | : |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  | ! |  |  |  | , |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  | , | , |  |  |  |  |
|  |  |  | $\square$ |  |  |  |  |  | , |  | 1 |  |  |  |  |  |  |  |  |
| 500 |  | What! | s that |  |  |  |  |  |  |  | Why | What' | 's th | he matier with | the | e_ki | id nex: doo | I. | i |
| $\square$ |  | - | $\square$ |  | 1 | + |  |  |  |  | Why | - | S | - | ! |  | + | - |  |
| - |  | - | + |  |  |  | ! |  |  |  |  |  |  |  | - |  | I |  |  |
| - |  |  | 1 |  | ! | , | ! | - |  |  |  |  |  |  |  |  | , |  |  |
| ! |  | , | - |  | - |  | , | ! |  |  |  |  |  |  |  |  |  |  |  |
| $\square$ |  | ! | 1 |  |  | $\cdots$ | \| |  |  |  | ! | ! |  | ; |  |  |  |  |  |
| $\square$ |  | - | , |  |  |  | $!$ | - |  |  |  |  |  | $\square$ |  |  |  |  | , |
| $\square$ |  | - | 1 |  | - | - 1 | ! | : | I |  | : | $\square$ |  | $\square$ | $\square$ | $\square$ | $\square$ |  | ! |
| 1 | ! | ! |  |  | - | - | 1 | - |  |  | , | - |  |  |  | 1 | - |  |  |
| 1 |  | - | 1 |  | 1 |  | ! | , |  |  |  |  |  |  |  |  | ; |  |  |
| + | 1 | + | - |  | 1- |  | , | , |  | $\square$ | ! | - |  | $\square 1$ | 1 | $\square$ |  |  |  |
| ; |  | 1. | 1 |  | 1 |  |  | , | ! | $\square$ |  |  |  | ' ${ }^{\text {! }}$ |  | - | - |  | + |
| 1 |  | 1 : | 1 |  | : |  |  |  | + | - |  |  |  | $\square 1$ |  |  | 1 |  |  |
|  |  | 1 | 1 |  | , |  |  |  | , |  |  |  |  | - |  |  | 1 |  |  |
| 1 |  | 1 | 1 |  | $\because$ |  |  |  | 1 | i |  |  |  | $\cdots 1$ |  |  |  |  |  |
| - |  | ! | ! |  |  |  |  |  | 1 | $\square$ |  |  |  | 1 |  |  | 1 ; |  |  |
| i |  | 1 | I |  | 1 |  |  |  | 1 |  |  |  |  | 1 |  |  | 1 |  |  |





0 IL$291 ; 69876990.6993 .69966999 \cdot 6002.70052927011701 \div 70177020702370267029$ 293$293703570387041.7044791-7557053$
22 pc
$2+\mathrm{gc}$
(B-)
$B-$ $-B$
n Ex

41 VSg

43 Int
44 StrJ
50.0
$51 \pi$




144 Com

$$
\text { *pitches written phonetically; }[2],[3] \text { and }
$$

[4] are about one whole tone apart.
0.11
$\qquad$ $294: 70597062706570687271707470772957083708670897092709570987101296.71077110711371167119722 .7125297$
$22 p c$
(sg-)


4? Ex
41 VSg
43 Int
44 StrJ

500
51 IL
her little green


7067
7092

7114
7119
7123

G(HEAD) D $\downarrow$
144 Com


## LITTLE GREEN EARS SCENE

O II ......Chr ......ZERO
297 $71317134.7137 .714071437: 46714929871557158$ 716:7164.7167717C7173
$299717971827185718871917: 54797$
$231 c$

28 te

40 Ex

41 VSg
43 Int
44 StrJ
50.0
$51 \pi$
…… ... -
$\square$
(0-)


# IIttle green ears scene 

0 TL ......Chy ZERO Ch

-

21 pr
23 1c
(0-)

28 te

$$
(\gg-)
$$

## $-(-0)$

>>-

39 In
fn
4? Ex

43 Int
44 StrJ
50.0
to talk, te

whole

and

51 TL
7294
7317
7322
7332
7343


D(scratches nose with back of finger) D(Nase

2316

43 Int
44 Strs
500
51 IL

## $\cdots$

-••••••••••••••••

144 com
(9-)

of understanding

Littie GREEN EARS SCENE
CIL Chr ZERO

$23: c$
(9-)
$-9$

28 te

39 PH

40 Ex

41 VSg

43 Int
44 StrJ
50.0

51 IL

-....................

43 Int
44. Str J
50.0

- $\mathbf{a}$

Yeah
O.IL.
ChF .... ZERO
$312749: 74947497750075037506750931375157518752175247527.75307533$
$314753975427545 \quad 7548 \quad 7551 \quad 7554.755$
315

28 te
>-
$\rightarrow \infty$
39.fn


## LITILE GREEN EARS SCENE

## 0 IL...... Chr $\ldots$ IERD

$3157563.7566 .556975727575 .7578 .7581316758775907593 .759675997602 .7605317 \quad 7611.7614 .761776207623 .7626 .7629318$


0 IL Chr
ZERO
$318.7635 .7638 \quad 7641.76447647 .7650765331976597662 .766576687671 \quad 76747677$
$3207583686 \quad 7689 \quad 7692 \quad 8795 \quad 765$-201 321
23.1c
(9)
$-9$

28 te
30 Ph
(1)


LIITLE GREEN EARS SCENE
IITILE GREN EARS SCENE
OTL_D

23.16

9
$-9$

28 te ............................
38. PH $\quad$ ( $\quad$ -


51
2708
2708
7722

$$
7740
$$

$$
\begin{array}{l|l|l|}
\hline 7754 & - & 7769 \\
\hline
\end{array}
$$

## \title{ 0 IL Chr ZERO <br> <br>  <br> <br>  <br> <br> $\cdots-1 D$ <br> <br> $\cdots-1 D$ <br> - $-1+$

28 $\qquad$
$3 \varepsilon \mathrm{PH}$
$(\sqrt{v})$


$\qquad$
$\qquad$



OII
©


$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
(CLOSER)
Mommy:




$$
\begin{aligned}
& \text { orl } \\
& 135^{8 .}
\end{aligned}
$$







(
-

120 P



520
he
will..................or
on
the
te: aptrorie.

51 TL
8222- $\quad 8233$

144 com
D(PNAMA
Dy
$D$




INTERRUPTIONS SCENE
O.IL Chr ZEFO

Oht.-Cbs
,
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$

500
0
busy (laugh) get
-al
1 these
froblems
I-know
Minat
you!re
. 5 ying to da
51 IL
$\underline{8458}$
$-84+66$
8482

144 Com
D(feivic_shift)
$G($ MATCH Box $) \quad G($ smine $)$

D(shrug)
O.IL
${ }^{\text {Chr }}$

$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$ $G$ $\cdots \cdots$ - - -..........
$\qquad$
$\qquad$



# 0 TL Che ZERO <br> D <br>  

$\qquad$

$51 \div$ IL
8662
8684
8692

144 com
G(noss)
$G(N \subset D)$
$D \leftrightarrow G G(\rightarrow D) \quad G(D)$

# IV:ERRUPTIONS SCENE 

D
$\qquad$





0. IL
\%
ZERO

-





(1)




SIERRUPTIONS SCENE

0 TL G
$\qquad$

$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$


51 IL
9178
9201


# INTEFRUPTIONS SCENE <br> 0 IL Chr ZERO <br> $\stackrel{C}{C}$ <br> $384.92199222922592289231923492373859243 \quad 9246 \quad 62499252925592589261386 \leq 267.927092739276927992829285387$ 

$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$
$\qquad$





0 TL Chr ZERO



21 pr
2310

40 Ex
41 VSg
43 Int
44 StrJ
50.0

51 IL


9622

OTL Chr ZERO


500
M-hm.
*
<<-
v-


0 TL
Chr zero $\{05972397269729973297359738974140697479750975397569759976297654079771977497779780978397869789$ 408

21 Fr
(\$-)
$28 t e$
(<<-)
39. In (v-)
40 Ex
41 VSg
43 Int
44 StIJ
50 . 0
$51 \ldots$


where

he
2748-: $\quad 9754$


$21 \mathrm{pr} \quad(\boldsymbol{\neq})$
24 gc
$28 t \in \quad(\ll-)$
39 In
( $\stackrel{v}{ }-$ )

40 Ex
41 VS
43 In:
$44 \mathrm{St:J}$
$50 \quad 0$
( $\ll-$ )

Ex

In:
St:J

0


the
problems
$y-$
$-\forall$
at
INTERRUPIIC::S SCENE

$21 \mathrm{pr}(\not)$ (*) -
$24 \mathrm{gc}(Y-) \quad-\mathrm{V}$


40 Ex
41 VSg

43 Int
44 StrJ

500

51 IL

144 com


INTERF:UPTION SCENE


40 Ex

43 Int
44.StrJ

500
51 IL

144 com
n

2980


INTERRUPTION SCENE


28 te


## Esout OSOOT LTHOT $\vdots$ thoot THOOT BEvit SEUOT

$419 \stackrel{\sim}{\stackrel{a}{c}}$
 4? Ex

43 Int
44 StrJ
500
51 IL.
10078


ค


144 com
D(PELVIS)
$G$ (SMLLE $\quad \quad$ (Foor)


144 com *Here there is emphatically no fade with the drawl $\square$ phoneticaly crescendo if anything.
D(roe tar)
G(BROW)
$D($ FOOT $G(E M L L E) \quad D$ (HNOD)

40 Ex


2 $\square$


144 com $\qquad$
$\qquad$
－
$\qquad$
$\qquad$
$\qquad$
$\qquad$

INTERRUPTION SCENE -1036C

0 IL

## ChI ZEFO

$231 c$

38 PH

39 In

41 VSg
43 Int
44 StrJ
$50 \quad 0$

$0-$

$$
-\uparrow
$$

$$
v-
$$

$$
\xrightarrow[-1-]{\text { Ta }}
$$

[2-?



$44 . c 0 \mathrm{~m}$
G(NOD)
$G(N O D) \quad 2)^{2}$
OIL $\because$ Chr ZERO 432 N LLEEOT
TLEOT

 434

 $\begin{array}{cc}\underset{\sim}{\infty} & \vec{N} \\ \underset{\sim}{ \pm} & \overrightarrow{-1} \\ & \end{array}$ -志
0 IL CBI zERO


23 lc
24 gc
28 te
39 In

40 Ex
41.159

43 Int
44 StrJ
50.0

92 He
144 com

$D: H>$
$D(M E A D \rightarrow)$

GGMokes)
$\begin{array}{ll}0_{-} & -0 \\ 8- & <-\end{array}$

$\begin{array}{cc}3 & =1 \\ \text { occasicrally }\end{array}$



OIL Chf ZERO

28 te $\quad(\ll)$

39 In
$(v-)$

41 VSg

44 䇣try
$5 n \quad 0$ $\qquad$ he $\qquad$ beautifully $\qquad$


124 tr D）Tn $\qquad$
107 LA $\qquad$

SECOND "MAD"; SCENE 0 IL
SECOND "MAD"; SCENE
$0 \mathrm{TL} \quad$ Chr -ZERO
 승

SECC:D "MAD" ... SCENE
0 Chr



21 pr
23 1c
24 gc
$26 \mathrm{yc} \quad . \quad(\ll-)$

G1-
$\cdots$
-0
$-V$
$-G 1$
$-\lll$

$144 \mathrm{com} \quad(z-) \quad z \quad z \frac{R / 5}{h k}$ D(NECK RUB)

$$
\begin{aligned}
& D: \frac{R / 5}{H A R} \\
& D(T M U M B)
\end{aligned}
$$

```
SECOND "MAD" SCENE
OII. Chr ZERO
4 6 0
O
S+80T 
OII. Chr ZERO

 \(28 t 8\) (>>)


SECOND＂NA＂SCENE
－
0 IL D

ZERO 456． ज o

会 457 457 官 空 458
志 \(\underset{\substack{\text { c．} \\ \underset{\sim}{c} \\ \hdashline}}{\substack{2 \\ ~}}\)


28 te
（＞＞－）

39 fn

40 Ex

43 Int
44 StrJ
500

144 COM

Chy ZERO
459

461合
 \begin{tabular}{ll} 
n & 0 \\
\(\underset{y}{c}\) & \multirow{2}{c}{} \\
&
\end{tabular}录

160
O.............
.

\(21 p=\)
2310 24 gc
\(28 t \in\)



144 com


0: \(1 / \frac{14}{\operatorname{man}}\)
H<<
H०
D: \(P / 1312\)
D(HAMR) \(O\) INCREAGED ACTIVIV, POINTING, ETC.
D (HEAD S WAKE)
D(UEAD Sinnec)



SECOND "MAD" SCENE

SECOND "MAD" SCENE
O IL
IL Ch
21 pr

 n
\(\underset{\sim}{7}\)
\(\cdots\) \(66 \pi I\)
\(96 \pi I T\) \(\underset{\sim}{\circ}\) \(-\downarrow\)
\(249 c\)

V-
\(-V\)

29 If


-


A-
-A


D: \(T_{n} \geq \geq \leq \leq T x\)
D: \(7 \times \leq \leq\)
. 80000 .


\[
\begin{aligned}
& \text { SECC:D "MAD" SCENE } \\
& \text { O.IL ....Chr ZERO }
\end{aligned}
\]

\title{
deal
} of:
them.
S0000.............

44 com
0 IL
Chr ZERO D

Ro


478 n
考 \(\stackrel{\infty}{\underset{7}{7}}\)
著合 8
\(\exists\) a
ふ
\(=1\) 479 录 合 SUSH
 \({ }^{\text {ITSTI }}\) \(\stackrel{ \pm}{-1}\)
\(50 \quad 0\)
he \(\qquad\) uh
．uh
they
there＇s
（ \(\mu\) ）
（？）
D：HS＜＞
D：HZ＜
D1（HEAD SHAKE）
D（HEAD SHAKE）D
DACTIVE
\(\qquad\)
0 TL
\({ }^{\text {char }}\)


481
 \(\stackrel{-n}{n}\)


SECOND "NAD" SCENE
0. IL Chr ZERO

487 \(\begin{array}{lll}\text { - } & \text { a } & 0 \\ 0 & 0 & 0 \\ -1 & -1 & \ddots\end{array}\) \(\underset{-}{2} \stackrel{9}{-}\)
 488年 \begin{tabular}{l} 
N \\
\multirow{2}{*}{} \\
\hline
\end{tabular}志 N N N N \(\underset{\underset{\sim}{\underset{\sim}{7}} \stackrel{M}{\underset{7}{7}} 489}{ }\)

\(\qquad\)




50.0
to realize what was going on
. .and \(\qquad\) have.........got it worked......... out.
PV
Active



SECOND "MAD" SCENE
OIL \(=\) Chr ZERO
504




where he's
taken
somewhere,

\[
\begin{aligned}
& \text { 号 }
\end{aligned}
\]
 \begin{tabular}{ll|l}
\(\because\) & \(\vdots\) & \(\vdots\) \\
\(\vdots\)
\end{tabular}


29 1f
L-
39. in
\(<\)
43. Int
44. StrJ

45 Sgm
500


Thet's why I say
naybe if \(\qquad\) had
-..
on
Friday

\section*{D}
29.1f
(L)
\(-1\)
\(38 . \mathrm{PH}\)
( \(\uparrow\) -
43. Int

44 StrJ
45 Sgm

500

\title{
0 IL Chr ZERO D
}
29.1f

L- -1
38. PH
\((t)\)
\(41 . \mathrm{VSg}\) \({ }_{\text {ar }}^{2}\)


144 Com

FILM BREAK
0 Tl
\[
\mathbf{G}
\]
\(\qquad\)
\(: G\) 0
1
28.te
\(\gg \quad \square\)
39 In

\section*{\(\stackrel{v}{v-1}+-80^{-}\)}
(<) \(>\)


41 VSg
43 Int
44 StrJ
45 . Sgm
50.0
\[
\left|\begin{array}{c|ccc}
a & 2 & 3 \\
0 & \ddots & \ddots & 0 \\
\text { mejbijkiz }
\end{array}\right|
\]

Maybe (be)cause you've had your session

OTL_Chr_ZERO
… D

41 VSg
43. Int
\(4+. S t r J\)
45 Sgm
50.0


\section*{FILM BREAK}

\section*{Chx Zero \(G^{\text {? }}\)}
39. fn
40.EX
41.VSg
43. Int
44. StrJ

45 Sgm
50.0


> Aha.
> Who (1.... do ...... you
> go
> to.
-
O.IL CH. C. Z.... ZERO

D
23. 1c
24 gc
\(\begin{array}{ll}\mathrm{O} \\ \mathrm{B}- & -\mathrm{O} \\ \end{array}\)
39. In

41 .VSg
43. Int 44 StrJ
45 : Sgm
\(-\quad 500\)
- 50
\(\square\)
23. 1c

28 te
\(\rightarrow-\infty\)

38 pH
39. In
fn:
\[
\therefore \quad-\quad-\quad \downarrow
\]
40.Ex
41.VSg
\[
y
\]
43. Int
\(44.5 t r J\)
\(45 . \mathrm{Sgm}\)

50 \(\qquad\)


Cantor
i. . 9
- 4



\section*{FILM BREAK}

0 H
IL Chr - ZERO
D

39 In
\[
\begin{aligned}
& \text { v- } \quad \text { v } \\
& \text { ( } y \text { ) } \\
& \left.\left.\right|_{\text {naw }} ^{a} \cdot\right|^{0} \\
& \text { we 've } \\
& \text { done } \\
& \text { - -... } \\
& \text { much } \\
& \text { staf } \\
& \leq \\
& \text { uh }
\end{aligned}
\]
42.Ex

41 vSg
43 Int
44 StrJ
45 Sgm
\(50 \quad 0\)
\(\therefore \mathrm{fn}\).
\(-1\)

40. Ex
41. VSg

43: Int.
44. StrJ

45 Sgm
\(50^{\circ} 0\)
\(\left|\begin{array}{cc|c}a- & a \\ \vdots & & 0 \\ 2 w & \text { jes }\end{array}\right|\) 1...|
OH
.Oh
yes
\(\square\)


38 PH
39. fn

41 VSg
43. Int

44 StrJ
45 Sg s
50.0
\(\uparrow\).

\section*{\(-\uparrow\)}
;


Is
Brucie
goin
anybody



\section*{FILM BREAK}
O.TL_Chr ZERO
21. pr
23.10
*
\(0-\quad-\quad-\)
\(4 \hat{n}\) :
41.VSg

43 Int
44 StrJ
45 . Sgm
\(50: 0\)
\(? \quad a(m) y^{?}\)
\(\mathrm{He}^{\circ}\)
uh


\section*{\(I\)}
was .. rea
concerned \(\square\)

144 Com

(going away \(----=--=-----\) )

\section*{FILM BREAK}
O.TL Chr ZERO D
\(21 \mathrm{Pr} \quad\left(\begin{array}{l}\text { t }\end{array}\right)\)

40 Ex
41 vSg


21 Pr
(*)

39: fn:

41 VSg
43 Int
44 StrJ
45 Sgm


\(-50.0\) \(\qquad\)
mn t sijmin + lajk and
seeming
siča

\(\square\)


OTL Chr _ ZERO \(\qquad\) \(-\) \(\qquad\) \(\because \pi-1\) - - -
21 Pr
( \(k-\) )

28 te

39. fn

43 Int 44 StrJ
45 Sgm
500

figuring ..... you know it's all my fault............. I!d done such a piserable job.



\title{
OIL ChI ZERO
}
\(\vdots \quad \vdots \quad\) ! \(\quad\) ! \(\square\)


21 pr
\(231 c\)

28 te
*-


29 1f
(L)

40 Ex
41 VSg
43 Int
44 StrJ
45. Sgm
50.0
144. Com


\title{
FILM BREAK \\ 0 TL Chr ZERO
}
\(-\quad\) -
21.pr
(*)
23.16
9. \(-9\)
39 In
(v-)
fn
40 Ex
41 VSg
43 Int
45 sgm
\(50 \quad 0\)



92 He
\(\rightarrow \rightarrow^{2}: 00\)
\(95 . \mathrm{E}\)
98 TMo

cig. pack
Z ------------------
\(\left.\begin{array}{c}1 n_{1} \text { Sho } \\ 102.75\end{array}\right\}\)

104 RA
\(105 . \mathrm{Ha} / \mathrm{Pa}\)
107. LA
\(108 \mathrm{Ha} / \mathrm{Pa}\)
\(\ldots 10 \mathrm{RL}\)
111 F

112.11
\(113 F\)

1:00
1:00 \(R\) 能P4
 cig. \((\overrightarrow{-5})^{-\cdots}(\rightarrow)(\boldsymbol{T})\) 130"



3:30 \(3: 20-2\)


\(15^{30}-\cdots-\)
© cig. pack v vv vv


 - match box



\section*{cigaretre scene}

\section*{OTL Chr zERO \(G\)}

21 pr


\(0 \mathrm{TL} \quad \mathrm{Chr}\)

\section*{Yeah.}

No I didn't .. see any
re---------tardation
there
at
all

95 E
vv
>v >v matches <<
\(\ll\) Cigarette ax AA \(\boldsymbol{B Q}_{\text {S }}\) face
98 Mo

101 Sho
102 Ir
\(104 R A\)
\(\qquad\)
\(105 \mathrm{Ha} / \mathrm{Pa}\)

107 LA
\(178 \mathrm{Ha} / \mathrm{Pa}\)
110 RL
111.F
112.12
113.5




\(\mathrm{r}^{3} \sqrt{345}\)
match box
\(\frac{1^{a}}{3^{a}}-\) match box

 -

 \(\square\)

\(\qquad\)




\title{
N N N N N N N N N N N N N N N N N N N N N N N N
}

N N N N N N N N
39. fn

40 Ex
41 ysg
42 Pt
43. Int

44 StrJ
45 sgm
\(50 \quad 0\)


\title{
n
}
-
\[
\left|\begin{array}{c}
\boldsymbol{Y} \\
\hdashline{ }_{\text {hiy }}
\end{array}\right|
\]
\[
\mathrm{He} \text { is }
\]


0 IL G

520 蓇

41 VSg

43 Int
44 Str]
45 Sgm
50.0


144 COM
is very.
advanced
for four-and-a-half




\title{
0 II \\ ch
}

\section*{523} 욱 \(\underset{\sim}{\text { N }}\)
 525 \(\stackrel{\infty}{\text { N }}\) N N N N N N N 윽 윽 N N N発, 183

23 .1c
\(9-\)
\(-9\)
39. \(£ n\)
\(<\)

41 VSg
m.

42 Pt
43 Int
44 StrJ
45 Sgm

\({ }^{2} \mathrm{p}^{4}\) mai \({ }_{n}\)


o
50.0

144 com
ExTETANALI ZING
CAMTMUED
\(\cdots\)
aIt
think their kids are

suppose all mothers
the

smart ....... but



0. IL Chr

526


N N N N N N N N N N \(\div\)

A-
39 In

41 VEg
42 Pt

43 Int
44 Str.
45 sgm
50.0
hr
"a:



I have
nc
worries.
- bawt+
about


intellectual
(Nan)


Gl \(G\) (smiles) G7's head D Same



28 te

38 PH

39

\section*{fn}

40 Ex

41 VSg

42 Pt
43 Int \(:-\)
\(4+\) StrJ
45 Sgm:
0.0


\section*{\(\lll=0 \lll<\)}

No that's a very smart one


CIGARETIE SCENE



41 VSg


43 Int
44 StrJ
45 Sgm
\(50: 0\)

\section*{ability}

Well. that's
that's
144 com







\(\qquad\)

TELESCOPE SCENE



TELESCOPE SCENE
\[
0 \text { TL }
\]

Chr zero

\(\qquad\)
\(\qquad\)
\(\qquad\)
\(\qquad\)
\(\qquad\)
\(\qquad\)
\(\qquad\)
\(\qquad\)
\(\qquad\)

500 Well this is why the telescope you see because we...
\(\qquad\)
\(\qquad\)
\(\qquad\)
\(\qquad\)
\(\qquad\)
\(\qquad\)
\(\qquad\)
\(\qquad\)
\(\qquad\)
\(\qquad\)
\(\qquad\)
\(\qquad\)
Cytarte?
\(-\cdots=-1\)
FIIM BREAK
\(0 \mathrm{Tl} \quad \mathrm{Chr}\)

39 In
\(\underset{\mathbf{v}}{\mathbf{v}} \quad \mathbf{v}\)
fn

40 EX
41 VSg
43 Int
44 StrJ
45 Sgm
50.0 \(v-v\)

Int
(y)

No
uh






we've
done
much
dabbling
in.

\section*{amateur}
stuff
such
dajtretiks
\(\qquad\)


(

TELESCOPE SCENE
\(\qquad\)


TELESCOPE SCENE

\(5 \sim 0\)
obviously.... on the week. so this is his
And
uh:

144 com
Dive

\(p\) (twas)
O. IL
Cha ZERO

\(\underset{\sim}{\underset{\sim}{7}} \underset{\sim}{\sim} \underset{\sim}{\sim} \underset{\sim}{\sim} \underset{\sim}{\sim} \underset{\sim}{\sim} \underset{\sim}{\sim} \underset{\sim}{\sim} \underset{\sim}{\sim} \underset{\sim}{\sim} \underset{\sim}{\sim}\) ま
 N N N N N N知

But
his............
\(\qquad\)
\(\qquad\)

TELESCOPE SCENE

OIL
Chr ZERO

0
\(\$\)
0
\(\begin{array}{llllll}1 & n & n & 0 & a & a \\ \dot{0} & 0 & 0 & \alpha & a & \\ 0 & 0 & n & n & n & 580\end{array}\)

500 …..... So I

I'm not the least bit

144 com
\(D\) (BROW) \(\qquad\) Dincreasingly active tonus still weak
\[
D \rightarrow
\]



(

\(\qquad\)

\title{
0 TI. \\ \\ Chr zero
} \\ \\ Chr zero
}

598
 \(\stackrel{\text { n }}{\substack{\text { ~ } \\ \multirow{2}{*}{\hline}\\ \hline}}\) \(\stackrel{0}{\stackrel{\sim}{\sim}} \underset{=}{\underset{=}{ \pm}}\) \(\underset{\sim}{\infty} \underset{\sim}{\infty} \underset{\sim}{\infty} \underset{\sim}{\sim} \underset{\sim}{\sim}\)
. ......

500
he

D \(>\)
\[
D \rightarrow
\]
\(\qquad\)
\(\qquad\)
\(\qquad\)
\(D\) (Hikake) \(D(f l i c k) D \rightarrow D\) (Wadte)

\section*{Yeah.}

\title{
0 TL Chr ZERO D
}


That.

DV
D(DRINKS)


TELESCOPE SCENE


I I
sen't
really
\[
D \rightarrow \longrightarrow D(\text { preast) }
\]

TELESCOPE SCENE

0 T
©rize 616
路著噩胥等 \begin{tabular}{ll}
\(\infty\) & -1 \\
0 & -1 \\
\multirow{1}{-1}{} & 0 \\
-1 & -1
\end{tabular}气ิ

50.0
think it
hink
because \(\qquad\)

DV \(D\)（know
\(\square \rightarrow\)

O IL ChI ZERO
50.0
some
progress
that.
obviously.
things
are
better
\(D(n a<k)\)
I (breast)

TELESCOPE SCENE

O．IL
\(\mathrm{Sa}^{2 \mathrm{Eno}}\)
尌拿墨 ？ 0
7
7
7


\author{
\(D J\) D（Fist） \\ D（scratches）\(\underset{\text { sag }}{D}\) \\ stag
}

TELESCOPE SCENE

\title{
O. TL. \\ Chr IERO
 \begin{tabular}{cc}
0 \\
0 \\
\multirow{1}{-1}{} \\
\(\cdots\) & 62
\end{tabular} 624

}
0. IL Chr ZERO
625



D(scratches)

\(\boldsymbol{\pi}\)
\(\hat{\gamma}\)









\(2 / 7 V\)
D: like to do and say.









\[
\begin{aligned}
& \stackrel{Q}{8}
\end{aligned}
\]

5642

\(\overline{2 \mathrm{Zan}}\)






\section*{END}

\title{
mccorill coliction of Mancscrips on

}

\author{
FORMERLY: MICROFILM COLLECTION OF MANUSCRIPTS ON AMERICAN INDIAN CULTURAL ANTHROPOLOGY \\ AND
}

MICROFILM COL工ECTIONS OF MANUSCRIPTS
ON THE MIDDLE AMERICAN CULTURAL ANTHROPOLOGY

\section*{Series: XV No: 196}

\section*{Photographed by:}

Department of Photoduplication - The Joseph Regenstein Library University of Chicago - Chicago, III. 60637

\section*{START}

\title{
MICROFILM COLLECTION OF MANUSCRIPTS ON CUITURAL ANTHROPOLOGY
}

FOKMERIY: MICROFIIM COLLECTION OF MANUSCRIPTS ON AMERICAN INDIAN CULTURAL ANTHROPOLOGY AND
MICROFILM COILECTIONS OF MANUSCRIPTS ON THE MIDDLE AMERICAN CULTURAL ANTHROPOLOGY

\section*{Series: XV . No: 97-98}

Photographed by:
Department of Photoduplication - The Joseph Regenstein Library University of Chicago - Chicago, III. 60637
THE NATURAL HISTORYOFAN INTERVIEW
(edited by Norman A. McQuown)
with contributions by
Gregory Bateson
Ray L. Birdwhistell
Henry W. Brosin
Charles F. Hockett
Norman A. McQuown
Henry L. Smith, Jr.
George L. Trager
Part III: Chapters 7-10
MICROFILM COLLECTIONOF
MANUSCRIPTS
ON
CULTURAL ANTHROPOLOGY
No. 97
Series ..... XV
University of Chicago LibraryChicago, Illinois
\[
\text { June 30, } 1971
\]
and

Ray L. Birdwhistell Norman A. McQuown Charles F. Hockett

Note: This chapter is devoted to the presentation of background data on the body-motion and the speech of the individuals who participated in the interview which we have in Chapter 6 subjected to variably intensive analysis and specification (leading to the transcript and transcription presented there). Before we can proceed to the statement and preliminary checking of interpretive hypotheses, which is the subjectmatter of Chapter 9, we must of course, present the base-lines for the body-motion and for the speech of the participants, and a preliminary list of symptomatic features, combinations of which (or, on occasion single features) may represent departures from that base line. In Chapter 8, we present the psychiatric background data on the participants (to the extent that the psychiatrists were able to discover it). In Chapter 9, we combine symptomatic features and psychiatri background in an attempt to present a range of interpretive hypotheses and a range of data abstracted from body-motion and from speech which, in special combinations, may strengthen or weaken certain preliminary interpretive hypotheses.
2.

\section*{BODY-MOTION BASE-LINES}
(Ray L. Birdwhistell)

\begin{abstract}
Confusion often arises as to the difference between the twoconcepts "zero" and "baseline". "Zero", as used in kinesic recordings, represents an arbitrary point of departure in a movement sequence from which all micro-kinesic recording proceeds. That is, following extensive viewing of a segment of film, a given set of positions for each portion of the body is assigned the value of zero and any perceptible variation from such positions is kinegraphically noted. In the case of this film, the establishment of "zero" was made easy by the fact that \(I\) had had a number of years of acquaintance with one of the actors (Gregory) and that the other two (Doris and Billy) were both from a familiar culture upon which most of my previous recording had been done. Yet such familiarity is often misleading, so \(I\) followed the procedure which \(I\) have found most reliable. I saw the film which we are analyzing in this book twelve times before I assigned each actor a "zero". This was then checked against the remaining several thousand feet of film which we had on the actors. And, while the situations varied from a therapy session to a visiting session with neighbors, \(I\) saw little reason to vary my initial impression that all three maintained fairly consistent systems. This consistency made possible the derivation of "zero" by what I call "initial scene slice". That is, having determined a scene which was to be microkinesically recorded, I established that set of positions held by the actors immediately prior to the scene as their zespective "zeros". I must warn that this is not always reliable. Sometimes a given actor may vary so much situationally that he must be assigned a "scene zero".
\end{abstract}

However, this applies only to microkinesic recording. Analytic experience has reached such a stage that on the macro-kinesic level, except for one exceedingly disturbed catatonic, I have had no difficulty in establishing immediately the macro-kinesic "zero". Following an extensive and intensive annlysis, the establishment of the "baseline" for an actor gives me a further check upon the validity of my "zero". I can take the baseline and recheck the "zeros" to see whether I have introduced a distortion into my formulation. Practically speaking, such a distortion seldom is sufficient to make much difference except with regard to the motion qualifiers. Twelve viewings by an experienced analyst is usually sufficient, on familiar material, to enable the analyst to compensate for idiosyncratic variation which might influence the establishment of zero.
"Baselines" are derived after the fact of micro- and macro-kinesic analysis. An actor's baseline is made up of generalizations about his idiosyncratic variation from the cultural norm. Y \(\mathrm{E} E\), these are always generalizations which, in order to establish the idiosyncratic, contain a variety of class assignments which relate to what one might expect from someone of this particular background. A baseline of an actor, then, is a statement of the actor's apparent memberships, as measured by his consistent behavior, with modifying descriptions which indicate certain idiosyncratic tendencies.

Having completed the micro- and macro-kinesic recording which is presented in Chapter 6, I derived the list of symptomatic features shown in Figure . The categories are obviously of differing shapes and, ostensibly, of varying degrees of importance. These categories are made up of classes of events which recording and analytic experience tell
me are of importance to the assessment of idiosyncratic contributions to the interactional sequence. I have, frankly, no experimental data upon which to base their choice. Yet, because of their usefulness in other situations, \(I\) have included them and attempted to do a saturation listing of their appearance in the full couch scene. This present study is exploratory and \(I\) can only hope the research-minded reader will bear this in mind as he reviews the listing. Certainly our hope of utilizing kinesic analysis as an objective instrument for the measurement of personality must ultimately rest upon the empirical establishment of some extensive listing of categories. I must urge the reader, however, that he not be misled into believing that a sum or even a formula composed of these symptomatic characteristics is equivalent to the personality of the actor. These have been derived to give me some kind of incidence check on certain actions as evaluative of response within certain contexts. As such I have used them to evaluate the course of the interview, rather than as a measure of the individual actors. However, they did prove exceedingly useful in checking my estimation of the actors' baseline. While the baseline is an estimate of the actor as a system, these items serve as checks on delusory impression.

Having completed the data-gathering operations demanded by the recording and the listing of symptomatic features, I then engaged in setquality analysis. It is from the combined result of all of these operations that the following baselines are derived.

Doris
The broadest possible description of Doris is that her behavior is within a range expectable in a middle majority, northern or western, suburb.

That is, there is little in her behavior which would excite comment other than approbation, if she appeared on a shopping tour to any one of the thousands of shopping centers which ring modern American cities. Her physical attractiveness is evident and her general quality behavior is congruent with her degree of attractiveness. Or, at least, her carriage and preening behavior is within the range expectable of an attractive, middle-class woman in her late twenties.

However, since our task is not that of measuring her degree of accommodation to the values of the larger community but rather of evaluating her behavior in this particular interview, somewhat finer measurement is demanded. The outstanding feature of Doris' baseline centers around Doris' trunk behavior. As is general for women of the middle class or above in northern Western European and American society, she handles her torso as a block, seldom engaging in other than sag and stiffening in the thoracic and lumbar regions. She does somewhat less cervical pivoting than is expectable and there is an almost complete absence of sacro-iliac rotation. I saw only one incident in which she seemed to perform a lateral body curvature and even this was of less than a second's duration.

I do not mean to imply that her torso was rigid. Rather, it was, while in tonus, simply uninvolved, except in its very inactivity. During the walking scene, when she goes to the door to answer Billy's plea, this non-involvement of the pelvic region is particularly manifest. While the general placement in space of her pubic region as related to her chin-point is well within the early mature feminine range, analysis reveals that, even in the presence of a male, she does not engage in customary anterior protrusion of the pelvic region. Rather she achieves the pubic-
chin complex by an anterior protrusion which starts in the mid-thoracic region. This incidentally is quite close to the slouch affected by Vogue models as they exhibit for females. It is not the so-called "debutant slouch" which includes the model slouch plus anterior pelvic roll.

Doris' most characteristic movement complex relates to her posterior torso movement pattern in which, without sacro-iliac involvement, she leans forward and straightens up by the revolution of the caputs of the femurs within the acetabulum. While this is often seen in upper middle and upper status women in formal movement, it is seldom so extensively employed as by Doris. There is some temptation to believe that this is a function of the intrusion of the camera but \(I\) have never seen it so consistently maintained.

Combined with the block position of the torso,. Doris rolls her shoulders anteriorly in customary stance. This served to accentuate a general anterior-posterior-anterior bowing of the central body \(=0 m p l e x\) in which the most posterior aspect of her body is probably at about the lowest thoracic vertebra.

Her neck is consistently held, unless the context demands otherwise, in an anterior slope from shoulder line to atlas. Her chin is held high enough that neck folds would not appear, even if she were of an age to have them. Again there is evidence of upper middle-class sitting position. The fact that this complex of neck and chin tends to be constant when standing makes the position somewhat more remarkable.

Her general facial behavior, which is marked by a high incidence of a complex consisting of lip protrusion, nose wrinkling and infra-orbit involvement, is somewhat more active than might be expected from the
general torso and upper limb vehavior. There is, as far as \(I\) can see, a marked reduction of eye-blink; mid-facial markers take over in situations where lid and brow markers might be expected.

Wrist and aikkle bending is reduced in favor of knee and elbow but even this is less than might be expected from a girl of this age. Toes and fingers, heel and ball of foot, and palm of hand are all quite active. In fact, one might summarize Doris as having, in the lateralmos \(=\) aspects of the body, extensive movement which is increasingly reduced as one moves centrally.

She engages in minimally distinguishable favoritism for parallel or mirror behavior. She tends always to be unilateral, engaging in sequential rather than simultaneous utilization of arms or legs. There is some tendency to lose parts as indicated by her extensive positioning of the right arm when holding the stein. Yet, there is no indication whatsoever of tonus loss in non-involved members.

Eye-focus is generally congruent, yet she engages in out-of-focus searching which is somewhat more characteristic of adolescent females from a comparable class background.

To summarize: While, in general physical appearance she is evidently in her latter twenties, there are a number of characteristics which project a somewhat younger woman. Part of this relates to her gender projection which resembles often a ten or eleven year old, sometimes a late-maturing adolescent, and rarely has the positive note of a mature woman. In class status it probably would not be too far off to say that she shows a mixed background, with some experience in girl's finishingschool postural training which is certainly influenced by a somewhat
lower over-lay. She takes a friendly but slightly inferior position vis-a-vis Gregory, but it is so absolutely different from her stance in association with her therapist that this is not to be regarded as a patient vis-a-vis or even student-teacher reciprocal. Her physical health projection is positive, although she makes certain appeals which might be mistaken as health appeals. Largely, however, she seems to separate the emotional and physical appeals in a manner which makes this difficult to judge.

In general, her body is coherent, but it is marked by a stance complex which involves her full trunk and her upper arms and legs. While she does not engage in very much ball-of-the-A-joint-of-thefinger activity, she does use her nails in substitution. It is not merely poetic to say that Doris only peripherally contacts the external environment.

\section*{Gregory}

The broadest general description of Gregory is that he is a tall, English upper-status male, partially overlaid by upper-middle majority American. He not only is tall, he moves tall. That is, when he slouches, he lifts his shoulders and then bows them. He projects his head but at full neck. He walks erect from the scapular region down. When he sits, he leans anteriorly, places his buttocks anteriorly on the sitting surface so that the extreme length of his lower limbs force him to telescope. All of this combines to project tallness, partic: \(\begin{aligned} & \text { larly to an American viewing }\end{aligned}\) group, who would expect more spinal curvature, leg extension, and chin drop in a man of this height.

Gregory's torso is flexible and throughout these scenes held in tonus but without rigidity. In general, his behavior is marked by considerable reduction of activity. Minimal positional adjustment, minimal foot and leg adjustment, and reduced velocity of hand and arm movement give the impression of considerable control. When he does move, it is generally in a purposive and full arm and hand pattern. His legs remain in position longer than is customary even for an upper status male. His intra-femoral index remains within a few degrees the same throughout the entire interview.

His face is held in auditor attention, although he seldom focusses on Doris. In fact, his focus behavior is largely concerned with objects before him; this allows him control over the filming and at the same time he is enabled peripherally to view Doris. Thus, he can evaluate any major movement whraout becoming involved in her kinesic stream of discourse. This is not an unusual adjustment on the part of an adult inale in the presence of a highly, active female. His brow and mouth behavior are well within the British upper status complex, his brows operating bi-laterally, with flick behavior and his mouth reduced at its lateral aspects to the infra-iris position. His lid behavior is congruent with his speech but is somewhat reduced in auditor respanse. I have not had etough experience in observing Englishmen to have any kind of cultural baseline for measuring British auditor response, but in general \(I\) have the impression that it is somewhat more passive than the American, even of a comparable class. It seems to have fewer "Yes, Yes, go ahead" movements or incipient interruption movements than does the American. At the same time, we must remember that the movement of the American upper status auditor has less of these, too, than does that of the middle or lower-class urban mover. This is quite regionally marked.

As a Southerner, I am quite accustomed to a high degree of auditor activity and am continually concerned with the Western New York pattern of eye-focus without a face position modification which is exhibited by my students. I linger on this point since Doris' behavior may well be influenced by Gregory's low auditor range. Her own auditor markers are so active that \(I\) must assume considerable influence from her diakinesic system.

To summarize: Gregory is throughout the films in considerable control of what is essentially an upper status English male pattern. While sitting tall, he maintains a sitting stance which keeps him on the same eye-level or below that maintained by Doris. His reduced reactivity is probably both a function of his peripheral viewing and a status-reduced auditor pattern.

His body is coherent, but the telescoped position plus reduced interactivity make it difficult to assess his involvement in the scene. In general, it is possible to say that in the interaction he introduces fewer messages than she might expect from a comparable adult American male. On the other hand, Americans adapt to status differences and diakinesic differences at times with a general "foreign" estimate which probably serves to ameliorate the influence of his reduced activity.

Billy
Billy is a well-coordinated little boy, whose primary baseline characteristic, at least as measured by the small amount of film footage that we have on him, is his minimally interactive behavior. This may be a function of puerile invisibility. If we use this latter criterion, we
can say that even though he engages in repetitive interruption behavior with his mother, the primary characteristic of large sections of his behavior is that it is organizedly reduced to the point that the adults will let him remain when tabooed subjects are discussed. His self-involvement is more apparent than real.

Behaviorally, he holds his trunk very much in the same kind of pattern as that used by his mother, a fact which is masked by the minimal movement engaged in by face, hands and feet. Two things stand out in Billy's baseline. One of these is the tremendously reduced eyewink behavior, even when he is facing the lights. His eyes are customarily over-wide. This would not be unusual in a somewhat younger child who would combine over-wide with non-projected focus. Billy's eyes are in focus but he seems to hold all movement to the minimum except as related to objects. He seldom focusses on people's faces, tending to use peripheral movement-measurement rather than center-vision shape-emphasis.

Of special interest is Billy's handling of his legs. His hip and knee joint movements evidence considerable flexibility-beyond that customary for even an exceedingly limber five-year-old. The fact that he can sit with apparent ease with his heels against the lateral aspects of his buttocks and with his buttocks and knees on the floor evidences this plasticity. Further, and this must be discounted because of the brevity of material for study, there is some tendency in Billy's behavior to move away from certain parts of his body. That is, he will take a position in space and then move the remainder of his body at a greater velocity than one of the members, usually an arm or a leg. While \(I\) think that this
is probably critical to the comprehension of Billy's baseline, I also think that it must be put into proper perspective. One of the things that characterizes the behavior which we, sum up as "he left reluctantly" is this differential movement velocity of parts. This is particularly apparent in early adolescents, but probably also appears in the behavior of four and five-year-olds. Yet, it differs from that behavior which mothers call "dawdling", which is made up of generally decreased velocity of full body movement, foot-shuffling, head wagging, and hand-dragging. Only extensive research in developmental behavior will put this retarded body-part movement into perspective.

In summary, then, Billy is a coordinated little five-year-old who is obviously from a middle-class family. There seems to be no gender confusion here, and, if anything, his coordination is advanced for his age except for some extravagance of leg movement, represented by plasticity when seated and lateral leg swinging when walking and running. His movement pattern is reduced but this may very well be a function of his attempt to be invisible around adults.

\section*{Vocal Activity Base-Lines}
(Norman A: McQuown)

Doris' American English speech does not stand out as peculiarly regional - - in large stretches of the middle and western states she would "disappear", as not markedly Southern, Northeastern, or Northern. Her use of "standard" English grammar marks her as reasonably well educated, as does her choice of vocabulary even when discussing non-technical subjects. Indeed, vocabulary choice when discussing technical matters, such as her own psychotherapy, is reasonably precise and reasonably appropriate. Her paralinguistic range is not extreme in the choice of paralinguistic features - - indeed, it is somewhat restricted. Certain sequences of features, both linguistic and paralinguistic, such as \(2 \rightarrow 2 \longrightarrow\), are with her, however, so abnormally frequent, and so surrounded \(b:\) what is otherwise a not sharply marked linguistic and paralinguistic environment, that such features, for her, must be considered a part of her baseline. Departures, therefore, from her baseline, particularly those in the direction of non-middle western, nonacademic, linguistic forms, and those in the direction of more numerous, more varied non-neutral paralinguistic variants, will be readily apparent to a paralinguistically neutral middle western academic. Such departures have been noted in the listing of symptomatic features in Doris' speech.

Gregory's English speech is basically British, not of a localized British regional variety, but rather of the educated upper-status product of public school and university. It is not only lacking in British regionalisms - - it likewise lacks the extremes of the Oxford-

Cambridge status-distinguishing varieties; it is not snobbish in its mannerisms, merely well-bred. His use of "standard" English grammar and his choice of vocabulary strengthen the impression conveyed by his pronunciation - - the overall effect is one of well-controlled and wellintegrated use of language. His paralinguistic range is extremely restricted, much more so than Doris'; indeed, he rarely departs from neutral middle ground. Departures, therefore, in the direction of American English, either in pronunciation or in vocabulary choice, are easily noted, by reason of their great incongruity with the general background of his speech. Although for the most part the character of Gregory's speech does not mark him as anything but an academic, to a middle-western American academic, rank Briticisms stand out sharply. Increasing frequency of these is readily noted. Departures, then, either in the direction of American English, or in the direction of specifically British English, in pronunciation, grammar, or vocabulary, have been noted in the listing of symptomatic features in Gregory's speech.

Billy speaks so infrequently that it is difficult to establish his basdine. In general, it is that of a small boy, alternating paralinguistically between the muted and the boisterous; linguistically it is uniformly unmixed, either by non-General American regionalisms, or by any special indications of social status. His general pattern would disappear within that of his mother (except for \(2 \uparrow 2 \rightarrow\), which in Billy's speech is nowhere to be found). Symptomatic features in Billy's speech, therefore, are infrequent or, possibly, in the brief stretches we have, totally absent.

\section*{Kinesymptomatic Features}
(Ray L. Birdwhistell)

\(16,17,18\)

ILLU


\section*{bumptomatic 子atures}

STKAT 10 N NO.OO




\section*{Gregury" syinptomutic}

I LLUSTRATION NO. OC


も.
\(\frac{\text { Boys symptomaxic feat }}{\text { ILLUSTRATIUN N }}\)



\section*{Phonosymptomatic Features}
(Norman A. McQuown)
\([\) Charts \(]\)

\section*{Doris' Symptomatic Features}

Figure No. 00

\section*{PARALANGUAGE}
\begin{tabular}{|c|c|c|c|}
\hline Spread Register & (凤) & Narrowed Register & (*) \\
\hline 89-92 & & 0-49 & \\
\hline 1850-1856 & & 214-407 & \\
\hline 2320-2346 & & 491-617 & \\
\hline & & 644-1333 & \\
\hline & & 1865-1874 & \\
\hline & & 1950-2087 & \\
\hline & & 2117-2309 & \\
\hline Rasp & (9) & Openness & (0) \\
\hline 52-62 & & 345-406 & \\
\hline 263-320 & & 1713-1725 & \\
\hline 830-904 & & & \\
\hline 918-959 & & & \\
\hline 1031-1034 & & & \\
\hline 1191 & & & \\
\hline 1294-1304 & & & \\
\hline 1846 & & & \\
\hline 1865-1868 & & & \\
\hline 1930-1932 & & & \\
\hline 1940 & & & \\
\hline 2069-2087 & & & \\
\hline
\end{tabular}

Overvoicing \(V\)
89-92

1850-1856

2148

Sharp Pitch Shift
\begin{tabular}{rl}
\((\sim)\) & \(\left(\cdots{ }^{\prime}\right)\) \\
\(1865-1870\) & \(1871-1874\) \\
\(1889-1892\) & \(1892-1895\) \\
\(1916-1919\) & \(1919-1922\) \\
\(1934-1937\) & \(1937-1940\) \\
\(1952-1955\) & \(1955-1958\)
\end{tabular}

Preċise Articulation Control (Ps)
1850-1853

1889-1895
1916-1922

2117-2123

Undervoicing (V)
1865-1868

Smooth Pitch Shift (~ノ) (~) 89-92

1850-1856

1982-1985 1985-1988
2018-2021 2021-2024
2081-2084 2084-2087

2117-2120 2120-2123
2143-2144 2145-2147

2147-2150

Slurred Articulation Control (S1)

Smooth Rhythm Control 1850-1856 2051-2087 2138-2147

Full Resonance
51
89-92
1850-1856
2120-2126
2144-2150

Overfast Tempo
( \(>7\) )
0-4
185-205
458-474
1053-1064
1337-1363
1570-1593
1607-1641
1713-1725
1850-1853
1865-1874
1949-1988
2075-2087
2313-2347

Jerky Rhythm Control (マ)
1865-1874
1889-1895
1916-1922
2018-2024

Thin Resonance ( \(t\) )
1865-1874
1949-1988

Overslow Tempo ( \(\ll\) )
783-797
1069-1125
1179-1191
1237-1239
1854-1856
\begin{tabular}{lcc} 
Laughing & Whining & Crying \\
\(1279-1283\) & 903 & \(458-474\) \\
\(1295-1330\) & 1870 & 1847 \\
\(1610-1614\) & 1930 & \\
& 1938 &
\end{tabular}
\begin{tabular}{|c|c|c|}
\hline & Overloud ( \({ }_{1}^{1}\) ) & Oversoft ( \(\downarrow\) ) \\
\hline 1 & 50-52 & 0-49 \\
\hline & 89-92 & 458-474 \\
\hline & 183-184 & 1513-1516. \\
\hline & 206-210 & 1713-1725 \\
\hline & 271 & 1854-1856 \\
\hline 7 & 629-631 & 1865-1874 \\
\hline & 1069-1123 & 1973-2087 \\
\hline 7 & 1123-1125 & 2117-2120 \\
\hline & 1125-1158 & \\
\hline \(\hat{1}\) & 1158-1160 & \\
\hline & 1160-1178 & \\
\hline 1 & 1178-1180 & \\
\hline & 1180-1233 & \\
\hline 1 & 1233-1235 & \\
\hline & 1235-1361 & \\
\hline 䒚 & 1361-1363 & \\
\hline & 1363-1366 & \\
\hline
\end{tabular}
^1 1366-1368
1368-1407
1 1407-1409
1409-14791562-1565
1570-1641
1850-18532122
亿 2147-21502194-2196
1 2326-23433 2343-2347
Overhigh ( \(\uparrow\) ) Overlow \(\downarrow\)1713-172518711986
19532069-2087
1974
2144-21472313-2317
```

Drawled (%)
50-82
89-92
157-159
297
Clipped (: )
1600
1938
4 0 0
504-506
584-587
644-646
677-679
925
952
1031=1033
1109-1111
1123-1125
1233-1235
1237-1239
1366-1368
1407-1409
1471-1474
1562-1565
1 7 7 3
1 7 8 5
1853-1856
1961-1964
2148-2149
2232-2238

```

Vocal Segregates
\begin{tabular}{|c|c|c|c|c|c|}
\hline (2) & (z) & (ब) & \[
(\hat{\otimes})
\] & \(d\) & 7 \\
\hline 68 & 1009 & 1868 & 6-9 & 10-14 & 700 \\
\hline 271 & & 1934 & 222-225 & 138 & 770 \\
\hline 644 & & 1940 & 232-235 & 330-340 & 1511 \\
\hline 866 & & 2141 & 264-270 & 904-907 & \\
\hline 903 & & & 407-440 & 1035-1038 & \\
\hline 932 & & & 798-815 & 1065-1068 & \\
\hline 952 & & & 1008-1009 & 1235-1236 & \\
\hline 1109 & & & 1857-1864 & 1335-1337 & \\
\hline 1121 & & & 1875-1889 & 1479-148.1 & \\
\hline 1123 & & & 1895-1901 & 1505-1510 & \\
\hline 1169 & & & 1943-1949 & 1641-1661 & \\
\hline 1237 & & & 1965-1973 & 1763-1773 & \\
\hline 1261 & & & 1988-2018 & 2152-2155 & \\
\hline 1371 & & & 2027-2045 & & \\
\hline 1472 & & & 2048-2051 & & \\
\hline 1477 & & & 2066-2069 & & \\
\hline 1713 & & & 2087-2117 & & \\
\hline 1850 & & & 2126-2138 & & \\
\hline 2018 & & & 2153- & & \\
\hline 2051 & & & & & \\
\hline
\end{tabular}

\begin{tabular}{cccc}
1186 & 3 & 2 & \(\mid\) \\
1192 & 2 & 2 & \(\mid\) \\
1235 & 3 & 2 & \(\mid\) \\
1334 & 2 & 2 & \(\|\) \\
1369 & 2 & 2 & \＃ \\
1407 & 3 & 3 & \(\mid\) \\
1474 & 3 & 2 & \(\not ⿰ ⿰ 三 丨 ⿰ 丨 三\)
\end{tabular}\(|\)

\section*{Gregory's Symptomatic Features}

\section*{Figure No. 00}

\section*{PARALANGUAGE}

Laughing
8517

Overloud ( \(\hat{\imath}\) )
2972

Clipped ( \(~(~) ~\)
3211
Vocal Segregates


Language
Phonemic
\begin{tabular}{lll}
2351 & 22 & \# \\
2972 & 31 & | \\
2988 & 21 & \(\mid\) \\
3218 & 231 & \(\mid\) \\
3229 & 11 & 非 \\
3732 & 232 & |
\end{tabular}

Morphophonemic
p. 33 Transcript
ga/h/den
5645 aft/Ahl
p. 146 Transcript
literatu|ah|
;

Lexical
p. 31 Transcript
only kid
p. 33 Transcript
garden

\section*{Billy's Symptomatic Features}

\section*{Paralanguage}
Narrowed Register (光)1675
Openness ..... (a)1675
Overfast Tempo ..... (7)1675
Overloud ..... (才)
1675
Overhigh ..... ( 1 )

Chater 8

Tie eschiniric Duervieur
of ce
Henry W. Brosiri, fol.D.

\section*{Acknowledgements}

In an experiment in which the transactions between members of a faminly are the object of study, the investigators owe a considerable dept
to the family for their interested cooperation because without them there would not be available the material essential for analysis. We want to take this opportunity to thank all of the families participating in Mr. Bateson's studies and particularly the family called Clarence in this chapter for their permission to use this data publicly. Their intelligent and sensitive applecation of the needs of the project and charming helpfulness made this work
a pleasure.

Method of Obtaining the Films and Historical Data


These families became acquainted with the project through Mr .

Bateson's public lectures in which he invited interested families to marticipate. After preliminary discussion g of the hypothesis involved and the nature of the filming procedure, Mr. Bateson and his camera man visited

the home (on two occasions to photograph the family during Mayfune, 1956.

by Gampiv in Caper b. A ti oi


The scenes consisted of
(1) Doris, Billy and Gregory in the living room. The Amer.


scop er analysis of data presented from this film.
(2) Larry, Billy and Gregory in the living room.
(3) Larry, Billy and others in the bathroom.
(4) Doris, Billy, Larry and the neighbors.

(弫) Another film (of 50 minutes duration) of Doris and her
therapist was made by Mr. Bateson in June, 1956.- (Voe II Conte, Solis, Chang, web The biographical material was obtained by Dr. Frieda Fromin-Reich mann and Henry, Brosin in the following visits:
(1) Four visits with the therapist.of-Dorism
(2) One visit with Doris and Billy in their home.
(3) Conferences with Gregory Bateson.


Since our material is necessarily limited and discretion is essential,
no attempt will be made to round out or complete the personal histories
or the psychodynamics as we know them. The brief outlines which follow;
provide sufficient factual data to serve the reader his background infor -
mation for some understanding of the setting of the linguistic-kinesic

analysis. The principal aim of this book is' 'to illustrate the theories and

methods of this analysis and not to fournishi an exhaustive study of the

psychodynamics of this family. Numberotrs problems relating to the pro-

tection of participants in research in psychotherapy and the intrusion on their privacy are discussed in detail besternberg, Chapman and Shakow, and need not be repeated here. \(\square_{\text {, }}\)
-Sternberg, R. S., - Chapman, -J., and Shallow, David," "Psychotherapy Research and the Problem of Intrusions of Privacy \({ }^{+1}\)-.-Psychiatry, 21:195-203,--May,-1958.

An attempt will be made, after some of the major biographical facts and
emotional relations are described, to fit together the interactions, between the members into a coherent picture of a three-person system as contrasted with three 2 -person systems.

\section*{The Father}

Larry is a thirty-four year old, white native American male of Protest-
ant origins who was born on a farm in one of the plains states. He was the only child of this marriage. He is a handsome man of medium height and

slender builf, with a charming social manner, although he can be direct in
his approach. Obviously well educated, he likes to discuss abstractions.

He wears his clothes casually but gives the appearance of being we 11 groom-
ed. He has ample reserves of free energy, without being forbidding. He
has no physical disorders or complaints. His father was an itinerant
school teacher, farmer and businessman, who shifted jobs frequently
in an effort to make a fortune quickly, but who was always poor. Larry's
mother died while he was quite young and he was reared principally by his
father's second wife who apparently was a good stepmother. She finally
divorcedLarry's father because of his ambitions, ideas and improvident
habits. Larry worked hard at the usual jobs to get through his school and it was a real recognition of his abilities for him to be admitted to one of the best Eastern colleges in spite of the handicaps which he suffered while living in the mid-west. He graduated with a Master's degree and has had no trouble holding good jobs in his profession. His continued devotion to intellectual adventure and the power of the intellect through the use of scientific method is apparent in his interest in communication theory as applied to human behavior, dianetics and this project. He met his wife in 1946 while he was/junior in college and she was a sophomore. They were married two years later, before either had graduated, but with a little help they lived well the first year of marriage. Since subsequent events are known principally through his wife, Doris, the development of the marriage will be continued there. His relations at work and with neigh bors are excellent in so far as their milieu permits. He has friends at approximately the same social and professional level who share similar
tastesand interests. Currently astronomy is one of his hobbies and he is co-owner of a small telescope. Neither he nor his wife belong to a church, social or athletic club, fraternal or similar organizations. They depend on (on) their professional associations and neighbors for their social life which is loosely structured. The quests for identity and social purpose in their various attempts to find more permanent ties is one of the leading themes in this family as well as for the many other families in suburbia;
l \(-\)
Seo(Taylor S. and Taylor, C. etal., "'Suburban Neurosis \({ }^{\text {H., Lancet, January- } 18 \text { in 1958. Also }}\) World Oriental.Health-10:90-92,-May-1958w

5\%-.
Unfortunately ur data does not, enable us to furnish even brief sommaries of some fo rial systems which we observed in action.


\section*{The Mother}

Doris is a very pretty twenty-eight year old white, Protestant American woman who was born on the Atlantic seaboard. She is physically healthy with
abundant energy. In contrast to Larry's early life, sem as reared in comfort-茄若
able or even luxurious physical circumstances. Her mother came from a well-

to -do family and fer marriage to-her-husbamd(apparently) was) conventional,

but. the marriage was turbulent due to what Doris regarded as excesses in
her father's behavior. There were three children, of which Doris was the oldest,
with brothers two years and four years her junior. The mother remains a
shadowy figure throughout all of our material, in contrast to the father who

is in the foreground at all times. The lack of conscious attachment is all
the more remarkable because her basic speech patterns are those of her
mother rather than those of her peers, an occurpence which is statisti-

dally quite unusual. As Doris grew past her mid-teens, her/hostile relations chinjeit \(\triangle\)
with her brothers altered so-that she tried to form alliances with them in
a search for maturity.

Her father emerges as a powerful self-made man who worked himself
up to a position of wealth and power but without as much social acceptance Is the family wanted. Apparently Doris was simultaneously attracted and repelled by her strong but irascible father. At times she also tried to defend
her mother. Like many young girls in comparable circumstances, Doris's first attempts 央o achieve feminine maturity were 焰rked by "acting outur.)

She discovered that although she was supposed to be her father's favorite,
he wanted his first-born to be a boy. She reports that she uses his method of rages to exert control over others. She recognizes his use of money and guilt as other methods of control but does not use them. We need more evidence to show that her hostility patterns(including the controlled rages) are powerful means to maintain health. While her body movements are not remarkable, in our suburban centers the closer analysis by Dr. Birdwhistell in Chaptf, 7 reveals certain distinctive characteristics which invite comment. The relative non-involvement of the torso, the way she leans
 forward and straightens up while sitting, reduced eye blink, increased mid-face motility with occasional out-of focus eye searching are some of the ways in which she relates to her family and society. Her voice, even

```

quality which is in contrast to her total manner.

```

Doris was happy to escape from these acute conflicts, where she was
a buffer between her mother and father, by going to a prominent eastern

college. She was able to achieve academic distinction as a psychology
major, easily, but without any internal feeling of satisfaction or reward. She continued to be lonely here, felt unattractive, having dates with only one man until she met Larry in 1946. The first year of marriage; (1948-49), is reported as being reasonably happy, but with the passage of time she became dissatisfied. This was augmented by Larry's working hard at getting his Master's degree, her dissatisfaction with her job, and her belief that


Larry wanted children. She also felt she was not living up to intellectual expectations for her. Moving to several cites for new jobsp(1949-51), did nd bring about improvement, nor did two efforts to utilize dianetic methods of auditing in which both she and Larry were interested. The first year of the baby's life, \((1951-52)\), was an uncomfortable one with feeding difficulties, colic and much crying. \{She did not nurse the baby. \(\}\) She became markedly
depressed and Larry tried to protect he baby. In 1955 they moved to a congenial
community where she began therapy and the domestic pattern became less
turbulent. She is a cooperative patient who has been making steady progress.

\section*{The Son}

Billy is a well formed, well nourished boy of four and one -half years, of normal height and weight, who plays actively and somewhat aggressively with his peers. He is usually impassive, blinks rarely (giving a manner described by one of the team as "looking out from behind his eyes 1). This impassivity is notably altered when playing with his father, when he becomes obviously affectionate, as in the bathing scene. His movements are usually quick and graceful, with unusual flexibility of his joints, but the motility patterns are (those of not noticeably different from his peers. He is extremely active without being warm and friendly, unless he is in a special situation, as when Gregory played with him and his puppet Tucks. He is not organically sick nor does to vil appearances he have any physical limitations. He is obviously intelligent and this is corroborated by school tests. He has not been in therapy upon the advice of his mother's therapist. He has a pattern of returning to his mother at 2-4
minute intervals usually with a demand, which are of interest because we see him returning to her for sustenance, but also to check up on her. He is alert to her needs and tries to meet at least some of them as we see in the "pillow scene". From other data, it seems that she does not really believe he can play in a satisfactory manner by himself. While she is occasionally annoyed by his persistent recurrence, she can be warm and supportive when dressing him. She tries to do all that is right for his comfort and well being. This family recognizes that they have a problem of adjustment and perhaps the proof of it is that they are seeking outside help. The Family The numerous complex patterns apparent in the interactions ion the father-mother-son system do not invite easy over-simplifications. We are able to see from the gross inspection of their overt behavior that though they are attractive, relatively successful members of a professional family, they are not living without strain. While we do not pretend to the full knowledge essential to a good understanding in depth of the psychodynamics we can offer a few tentative hypotheses which need much more
(1) Larry is a relatively self-contained man whose organization of his inner resources does not facilitate the strong sustain ing support of others. With his organization his professional life absorbs enough of his interest and energy to divert him from actively engaging Doris to her full potentials. The demands and complexities inherent in a career such as Larry's clearly affect the family. Understandably enough, earning a living in a competitive field requires sufficientg of his energies to prevent his occuping both parental roles. Comparably, surburban life contribute to strengthening Doris's position. It stands to reason that the role demanded of a small child in this three-person situation will at timesbe difficult.
(2) In this three-person system, Doris needs support if she is to function successfully as a woman, wife and mother. Without this support she is forced into patterns which accentuate the
difficulties of her husband and child in dealing with her. Her training and interests are not enough to withstand the assaults made upon her by her complex inner needs or/the external demands made by her family and community. Her continuing relationship to her father are current reminders of her buffer role in her childhood. Her penchant for triadic roles, however innocuous, may represent attempts to achieve more intimate relationships than she had perhaps, to her mother. Her
identifications with her father persist and may dominate her behavior with Billy. In view of the fact that Larry is unlike her father, it is noteworthy that there are some indications that she might like to see more of her father in Larry's behavior. His failure to fit into her paternal image may contribute to her wish for him to help her with some of the maternal functions, since Larry does not compel her to occupy a strong and exclu sive maternal role. This, in turn, increases her distress concerning both Larry and Billy, because of her feeling that she is
not carrying her responsibilities adequately.

(3) We are familiar with numinous transformations which occur in a family after the birth of the first child,


Ordinarily the parental bonds are sufficiently strong, particu-
larly if good preparatory work has been done by various
community influences, to include the newcomer and provide
him with the manifold attentions necessary for his well-being.

Itis-an-interesting-question how different babies utilize
available techniques to make known their needs and quickly

establish some mastery over the parents in view of the

as inserant
possible reciprocal relations being in the "imprinting" process.
Early infant care requires constant alertness on the part of
the mother, thus utilizing much of her time and energy and
inevitably curtailing some of her other activities, unless she
has remarkable skills. The readaptation thus required is felt as a hardship by her, if she has not had good models in her own childhood and youth to help give her the basic skills needed, and if she does not have sufficient appropriate satinfactions and rewards from the husband, relatives, neighbors and friends. The husband must learn to give first priority to the wife-mother-child unit. While losing some of the wifemistress satisfactions, he gains rewards from the new father-mother-child unit. For all three persons, this requires work over time with various changes in libidinal ties, attitudes, habits and expectations. In this family the prenatal psychological of us comity preparation did not seem adequate for the newcomer, in view of the disturbed feeding and sleeping habits reported about Billy.

Although both parents worked devotedly for his welfare, he seemed to need more reassurance than is ordinarily expected重 most first-born children. His patterned behavior for
maintaining close touch with his parents is well seen in the film and is described in other chapters. His rhythmic recurrent return to the mother, his skill at becoming "invisible" while in direct view of spectators, his impassivity while overhearing highly personal comments about himself which probably cause \(\notin\) him to reflect on his part in the family, his method of dealing with "double-bind" situations, his responding to
\[
p . c^{\circ} \quad L \cdot 6
\] and reciprocally initiating activity as in the "Pillow Scene,"
are activities which can be studied on the film-tape with
advantage.
(4) Perhaps something should be said about the dynamics of the

scene in which Mr Bates is visiting with Doris and Billy in the presence of the cameraman. He is in a new three-person system which makes unusual demands upon all three participants.

A skilled interviewer with many years of experience with
动whe as wit?
schizophrenic patients and -numerous preliterate tribes in the
friary
field, ME-Dateson succeeds in the difficult task of 'being
warm, friendly, reassuring, without allowing these attitudes (irnstorm)
to alter the visit into a therapeutic hour. He invites informa-
dion, allows Doris and Billy to choose their own topics, and;
most importantly, does not make gross comments or inter-
rogations. He does respond linguistically and kinesically to

both his and'her questions and comments and thus avoids the ( \(t, i\)
Scylla of deadly frozen stereotypes of some professional
interviewers, as well as the Charybdis of overly loquacious,
anxiously reassuring types of interviewing. His comparative
lexical reticence makes-the-kinesic-analysis-of greater
ox bis acciovicicas.
interest,forwe-see-that-with-his-highly-controlled-imperturn,
there-are-many-small-but.definite-activities-which-became-clear
markers. for his non-lexical-comments about the progress

of-the-interview. As can be seen from the data presented,
(Editor: please check this and insert a page - ) number-if-you-wish-)
he can express satisfaction and discomfort，skepticism and じ～ぶ
delight with relatively small movements．At times he is
able to carry on the interplay in harmony with Doris and

Billy at several different levels simultaneously in a highly ．
gratifying manner which is reassuring to both．As various

narcissistic，erotic or aggressive components emerge the
observer can detect the interviewer＇s skill at her \(2 t\)

encouraging or，dampening the steady flow of messages by

his use of the matchbox or beer stein．If one accepts the challenge that no human interaction can be absolutely
neutral，and that＂intellectual＂and＂emotional＂levels of
communication are merely relative abstractions，the observer
can follow the interaction from beginning to end as an

intelligible continuum akinte a chess game or drama in
which the opening exploratory movements can be clearly
rot ores
distinguished from the middle game and the endgame．There

are several emotional crises evident which the interviewer

keeps in check unobtrusively but with definite signals. As
various figures of Doris' and Billy's past are projected upon
him, he responds deftly and sympathetically, but continues. (inguvitan)
to maintain his identity as a transient, scientific observer.
time whether such minute analyses of brief periods of 2-5 minutes, or , the semi-microanalysis of longer periods are worth the effort. Perhaps (
little more is added compared to a conventional clinical analysis of the film-tape by several experienced clinicians. Only future experiments under controlled conditions can demonstrate the special values for the practicing clinician. For scientific recording and verification of pricing clinician. hypotheses, this method seems to have numerous distinct advantages. For learning situations where therapists in training wish supervision of their technique, there is no doubt that small samples of behavior on film-tape offer an unusual opportunity-for superior tutorial direction and advice.

Care has been exercised in presenting this data to emphasize
the concrete behavior of the principals in this action as members of a stream or continuum of communication. We are aware of the theoretical (trisot) and practical barriers to an analysis of a continuum as opposed to'a
(corvice)
series of discrete events. The chapters on-ineory present possible resolutions. There has also been a minimum of reference to models for family interaction.as-presented by Freud,--Jung,-Adler,-Parsorrs, F.-Kiucliohn, J.-Spiegel,-inorder-to-focus-on-the-data-available With wition ofur
greater familiarity with this data and altered concepts, numerous interpretations based upon variouss other conceptual models will become available.

COLLATION

Note: Although this (9) and the following chapter (10) bear my name, they could not have been written except as the end-product of an on-going and extensive intellectual interchange among all* the contributors.

> N.A.M.
*Including, for most of Chapter 9, Dr. Starkey Duncan, whose prior data-researching, and preliminary hypothesisformulation made possible the sub-selection whose incorporation into this chapter has been my responsibility.

The previous chapters have set the stage for the collation of data deriving from a varlety of approaches. The extent to which such collation, given the present state of development of the contributing approaches, is fruitful, and the degree to which it, given full maturation of the techniques for handling the bodies of substantive data bandile by such approaches, can approximate fully validated interpretive results, will, I hope, here become clear.

Chapter \(\mathcal{A}\) presented the general theoretical framework within which our whole operation has proceeded, Chapter 2 presented, in outline, both general and specific linguistic knowledge necessary to a structural analysis and sociocultural identification of vocal b/havior. Chapter 3 presented both the theuretical background for and the specific technical detail of a system of analysis of body motion behavior. It likewise presented the conditions prerequisite to a reliable interpretation of the results of such analysis. Chapter 4 presented a brief history of past efforts, in the peychiatric fleld, to depl with both kinds of behavior, and an estimation of the value to psychiatry of full exploitation of the descriptive frames outlined in Chapters 2 and 3.

Chapter 5 presented the background of the specific body of interactional material which is here presented and which constitutes the interview of which we here write the natural history. Chapter 6 presents the text itself of the interview with its transcript and (in part) io. transcription. Chapter 7 presents a provisional general statement of the background characteristics both of the speech and of the body motion of the participants in the interview and a specification of some of the
salient features of each which may be symptomatic of particular adaptations of the participants to each other or to their environments (both present and past). Such salient features may lend themselves both to an interpretation of the particular personal constellations of sociocultural characteristics inherent in the participants and to those momentary crystallizations of such constellations evoked by the dynamics of the interaction between them. Chapter 8 presents a general picture of the sociocultural background of each participant which may contribute to a psychiatric interpretation of the sequences of behavioral constellations.

In the present chapter we shall outline, in cross-section, the procedures which have brought us thus far in the analysia of the interview and of the participants in it. We shall present a series of questions which guided us in the preliminary analysis of selected scenes within the interview. We shall then present a series of interpretive hypotheses which might be tested with such materials, and of specific data-seeking questions whose answere might contribute toward the checking of such hypotheses. We shall list such behavioral evidence as might provide the answere to such questionf. We shall, finally, present an interaction profile of portions of the interview in which the views of the dynamics provided by each of the three approaches, the linguistic, the kinesic, and the psychiatric, are checked against each other.

In the processing of the sound-filmed (and tape-recorded) interview the following stages may be noted:
(1) "Soaking"(maltiple viewing-listening) (Birdwhistell and Hockett, with occasional participation by McQuown) (Bateson, Brosin, and Fromm-Reichmann)
(2) Scene selection and intensive study (Birdwhistell, with Hockett and McQuown, and Bateson, Brosin, and Fromm-Reichmann)
(3) Matching (and tagging with a frame number) of particular points in the kinesic record with their counter parts in the linguistic record (Birdwhistell and McQuown, with Brosin)
(4) Identification of symptomatic features (Birdwhistell and McQuown, with initial participation by Hockett)
(5) Specification of clusters of symptomatic features (Birdwhistell and McQuown)
(6) Uncovering of the interaction profile (Birdwhistell, Brosin, and McQuown)

Birdwhistell reconstructs the following account of these stages:
The film ... with sound .-. was played through fourteen times in joint sessions before each of the analysts turned to his special medium. The inguists and the kinesicist again extensively reviewed the full collection of materials, each concentrating on those of his own medium. The psychiatrists joined them for listening or viewing, meanwhile continuing to gain perspective on the family being interviewed and on their associations with the researcher-interviewer, with the therapist, and with the neighbors who appear in several sections of the film not covered by the intensive analysis.

With the perspective gained through these experiences, the whole group collectively selected certain scenes for special consideration. The first of these chosen was the "cigarette" scene (12373-12,883) which appeared to mark a critical point in the interviewer-interViewee relationship. This scene, in which Gregory "lights" Doris" cigarette, seemed furthermore to highlight the dynamic aspects of their relationship. Since it seemed likely, moreover, that this two-person transaction was to be comprehended only within the Eramework of a coexisting three-person system, the attention of the group was then drawn to the initial "sofa" scene (0-1668) in which all three persons were active. In this scene, Doris and Gregory talk while Billy "listens", his back to the adults. A startling coincidence in this scene, between Billy's movement to leave and Doris' shoulder activity prompted the team next to turn their attention to the relationship between Doris and her son. The "pillow" scene (1668-1886), in which Billy presents Doris with a pillow, and the ensuing struggle as to its placing, demanded a Eine-grained analysis of their movements. The results of this analysis were so ambiguous that it was felt to be necessary to transcribe and analyze other scenes in whith there was a direct exchange between mother and son. Special accention, accordingly, was given to the "airplane" scene (2938-3507). This scene involved the specification of particular features which could only be understood by contrasting them in these contexts with identical or similar featuras in other contexts elsewhere in the interview. Following this and other analogous amalytic trials, a variety of scenes within the interview were subjected to varyingly intensive analysis.

Repeatediy, during this research period, the team as a whole sat together for a full screening of the entire interview. only in this way was it possible not to lose perspective. It soon became evident that a topography of interaction for the whole interviaw might be worked out. While the film was in general at no point completely disrupted, there was clearly a series of shift points which marked off individual sections. In the cigarette scene, for example, the intinacy evoked by Doris' request to have her cigarette lit (and clearly demonstrated by the tight rhythmicity of the transaction) was effectively reduced by Gregory's shift of tempo on his owa cigarette movements \((12,754-12,806)\) which clearly \((12,824)\) terminate the scene. The repetitive interruptions by Billy of the interaction between Gregory and Doris scemed likewise to serve some function other than that of satisfying Billy's ueed for attention.

It appeared not unlikely, then, that even without microanalysis af the entire interview, it might be possible to project the undera standings gained from the spot-intensive analysis onto larger stretches and uncover, at least provisionally, full profiles of such stretches. As the team repetitively reviewed the film as a whole, it became clear that even though the trail of analysis, which the research problems themselves had imposed, had established some boundaries to the relations of the persons in interaction, the interaction itself contained selfregulatory mechanisms which required charting, if the interaction was to be understood and its topography established.

A series of devices aided in the fixing of change-points and in the charting of the interaction topography. The first such device was a byproduct of scene-selection. The "cigarette" scene was set off from the rest of the interview because it was in this scene that Doris and Gregory achieved the greatest intimacy as evidenced by the adjustments required during the lighting of the cigarette. She, as a woman, did not light her own cigarette, and clearly ( \(12,492-12,528\) ) indicated that she wished the service performed. Gregury's resistance ( \(12,492-12,528\) ) to playing the complementary (male) role vas not sufficient to withstand her demand. His cigarette as orchestral baton ( \(12,754-12,806\) ), however, provided us with one device which in this instance served to reestablish the inter-viewer-interviewee relationship which had been temporarily displaced by the male-female centered reciprocal.

Other devices serve not to mark off beginnings and ends of scenes, but to punctuate activity within them. Gregory's "sympathetic" proferring of the matchbox (1983) to Doris in her post "~"pillow", scene distress constitutes one such device. His use of the matchbox held vertically between himself and Doris in other sequences to serve as a brake on the interaction constitutes another. Such explicit actions as the boy's entrances into and exits from the transaction between Doris and Gregory constitute still others. Such devices, although punctuational fr m the point of view of the interaction between Doris and Gregory as a whole, may, nonetheless, likewise serve to mark the beginnings and ends of parts of that interaction or of other interactions which intersect with it.

Although the scenes and sub-scenes chosen in this manner were selected from the whole film, they are not necessarily the only scenes which might have been so chosen. It is evident that subtler factors conditioned our choice of these as critical. The agreement between psychiatrists who based their selection on clinical experience and the linguists and kinesicist who based theirs on data abstracted from their respective media was too great to be mere coincidence. The fact that the members of the research team (some native Americans like Brosin, Birdwhistell, Hockett, and McQuown, one Briton, Bateson, and one German, Frommolehmann) have all been immersed in American society and culture io of cardinal importance. The search for cueing items (linguistic or Kinesic, of prima facie significance) led quicicly to a further development, the specific recognition that such immersion enabled us to label such items symptompric and to make use of them as special tools for working out the interaction topography.

A second consideration permitted us to add to the list of such items those items or item-assemblages which appeared as unusual. It is not relative frequency or infrequency alone which constitutes the measure of unusualneas, but rather, and more importantly, the fact that some items appear as 'breaks' in a previously established pattern. Such breaks may be signalled not only by significant presence of such items, but also, and almost as Erequently, by significant absence. Some of these symptomatic items, finally, if they seemed critical in the solution of problems of interpretation advanced by a psychiatrist member of our team, ware labeled diagnostic.

Following upon our preliminary isolation of such items as seemed to justify the label symptomatic, we proceeded to check their significance in
a variety of contexts. Some proved subsequently to be of considerably more utility than others, either in checking the base-lines of the individual actors, or in laying out the topography of the interaction. The establishment of such utility is, for the time being at least, purely empirical. There is no theoretical justification for considering some items to be a priori more suited to particular purposes than others. Birdwhistell's account details the happenings of our first three months of intensive study. In subsequent sassions, those specifically devoted to cullation, we worked within the fullowing frames of reference:

Bateson suggested a series of questions about a particular scene which might be asked of the linguistic and of the kinesic data, or of the general psychiatric evaluation (which makes use of all available data without consciously resolving them into behavioral sub-categories):
(1) Is thia a piece, part of a plece, or several pieces? (Is there only one or are there several plots?)
(2) What is the map of the interaction? What is its ciimax structure?
(3) What is the conntour of this map? Is it progressive or is it stable?
(4) Are the structures repetitive or is there a succession of different structures? Are there changes in the climax structures? Are there changes in their parameters?
(5) What is the focus of the sceae? Who is the principal protagonist? What (or who) are the props? What is the camera aim? Is there a Greek chorus?

The answers to such questions have in part been incorporated into the "stage directions" which accompany our transcript and transcription of the Interview.

Bateson has pointed out, however, that the above series of questions, which he himself proposed, limit attention to certain sequences. These are the sequences in regard to which the proposed questions can be answered in a consistent manner. There are, however, numerous sequences of interchange in which it is precisely these patterns of relationship that are inconsistently defined. Such sequences he has called "double binds" (Bateson et al., 1963) and it is appropriate here to point out that inconsistencies of this kind are rather common in the interview material which is analyzed in this book.

Human beings and, indeed, mamuls generally, devote a great deal of their commanicational behavior to trying to define for themselves and each other the basic premises of their relationship to each other. They exchange signals which propose (or affirm or deny) that the relationship shall be characterized by such themes as dominance, submission, dependence, spectatorship, competition, cooperstion, intimacy, distance, and so forth. In periods when a relationship is functioning smoothly, the signals ragarding these themes may be relatively consistent throughout long sequences. But in relationships undergoing change and in various sorts of pathogenic relationship, gross inconsistencies may appear

Individual A may signal to \(B\) that he expects respect from B, but when respect is accorded A may punish it with an appropriate contempt. B may, as a result of his own actions, be put continually in the wrong by A's continual shifting of the premises of the relationship. In such cases it is usual to find \(B\) either defending himself or taking his revenge by unexpected oddities of behavior which in turn leave A guessing as to the
appropriate themes or premises of the next step of an interchanga. In their more benign form, inconsistencies of this kind may be humorous and even contribute to a progressive evoluation of the relationship. In other cases such inconsistent sequences may be exceedingly painful to one or both of the persons concerned, and Bateson has suggested that sequences of this kind play a significant role in the etiology and maintenance of achizophrenic symptoms in one or both of the participants.

The analysis in this book has not been organized around this hypothesis, but it ie perhaps appropriate to cite an instance in the transcript which illustrates doublembinding inconcistency. Perhaps the most dramatic sequence of this kind is the episode which Doris 217 AE,1ine 1describes as characteristic of bed-time (Chapter 6, ppd \(\overline{2} 17\) AG, line 5)

Doris: "... particularly at bedtime after the fiftieth time when I have gaid: get into bed, or he has been read to and ...you know, all the routine and ... and more then ... he and Lee usually get in there and talk for about a half an hour and ... he'n oh - uh we figure... you know ... this should be the end of the day (laugh) ... and he will come out and I will say get the hell back in here and I don't want to see you till tomorrow morning or something along these lines and then he will cone out ... Monmy, Tuckie wants to give you a hiss (aigh). Wha' ya gonna do? (laugh) But ... he's he'e pretty tricky ... in lote of ways or not tricky but ah perceptiva as to how he can get through." The pathos of this passage derives precisely from the way in which inconsistencies are piled one on top of another. What is described is a child who has already discovered a quasi-schizophrenic trick of commanication. He has discovered that it is safer, instead of comitting himself
to an unpredictable or dangerous emotional exchange, co throw in the puppet Tuckie as a substitute for aelf. In this manauver he is auccessful at the first level. It is with a sigh that Doris quotes his words, "Momaly, Tuckie wants to give you a kies." She imitates him with empathy for the tragedy of his position. She then reverses herself, "Wha' ya gerasa do? (laugh) But ... he's pretty tricky ... in lote of ways or not tricky but ah perceptive as to how he can get through." It is not possible to guess what Billy's next appropriate maneuver should be. Should he disguise Tuckie's hope for a loving interchange, or should he have Tuckie kies the bedpoot?

Further general axes which might be ueed to characterize the behavior In the interview are these:
(1) Quality (Introspective, Normal, Editorial)
(2) Time (Lagging, "Here", Anticipating)
(3) System (Systemic, Intex-Systemic, Figmented Systemic)

Crossing these three axes of behavior are three more which might be observed:
(1) Conscious (including Pre-Conscious) -- Unconscious
(2) In Awareness -.- Out of Awarenese
(3) In Focus -a Out of Eocus

None of these (except for the quality axis) were eystematically observed In the processing of the material, since the sound-film medium does not provide adequate access to the data. Por the obaervation of the time axis and of the syatemic axis, one must (among ariner things) be able to observe eye-convergence. For the observation of the systemic axis,
skin-tones must be visible. Color film is required, if we are to increase our ability to judge visceral behavior, and such judgment is essential to placing activity on one of the last three axes.

Brosin suggested the following general hypotheses (relative either to therapy in general or, less specifically, to the interpretation of any interview) which might be checked by the utilization of linguistic and kinesic data in coordination with psychiatric insight:

Most general are these:
(1) There are common factors in all neuroses.
(2) There are identifiable and spacific affective (as opposed to intellectual) components of the communicative stream.
(3) The operation of unconscious factors is apparent not only in every day life but also in the behavior of patients.
(4) There are comon factors in all therapeutic proceduree.

Specifically focused on the therapist-patient (or interviewer-
interviewee) relationship are the following general propositions:
(5) The patient has a good ego or has good therapeutic potential.
(6) The patient and the particular tharapist will get along well (or poorly).
(7) The personality of the therapist as a person (in contrast to that of his official role) has entered into the therapeutic transaction.
(8) There has been essential change in the patient's behavior.
19) The patient is working toward (or has received) insight.

With more specific reference to problems of identification or of identity are these:
(10) Evidences for particular identifications of the patient with other figures are present in the comemication stream.
(11) Change from one identity to another is clearly observable (and specifiable) in the shift from one preferred signal system to another.
(12) Evidence for the Identity-confusion may be found in the speech and body-motion bohavior of patients.
(13) The transactions in transference are clearly manifest in the speech and body-motion behavior both of the patient and of his therapist.

With specific reference to problems of change are the follo ing:
(14) There is evidence ia the speech and body-motion behavior of temporary change (or adaptation) of the participants in the session.
(15) Evidence for the leval of organization of behavior is directly recordable and specifiable in changes in speech and body-motion behavior.
(16) Changes in degrea of affect are directly observable in specifiable changes in speech and bidy motion behavior.
(17) Shifts in level of literality are recordable and specifiable in the variation in a participant's speech and bodymotion behavior.
(18) Adaptations to audience, accomodational shifts in meaning level, and in the use of appropriate logical types are observable and specifiable in speech and body-motion behavior.

With specific reference to problems of organization of the interchange between pat ent and therapist, we find these:
(19) It is poseible with data derived Eran the speech and budymotion behavior of the participants to specify the initiators of new activity.
(20) Where such activity is regulated, the evidence for regulation and for the identity of the regulator is to be heard (and seen) in the speech and body-motion behavior of the participants.
(21) Where such initiating or regulating activity is repetitive, the evidence for cyclicity may be found in the speech and body-motion behavior of the participants.
(22) Propg are important to the regulation of therapist \(-\infty\) patient Interaction and their precise function may be specified by focusing on the speech and body-motion activity which involves such regulators.

Since the interview which was in this book subjected to analysis was not an interview between therapist and patient, but merely an attempt at recording a guided cross-section of intra-familial and interviewer-interviewee behavior, the specifically therapeutical implications of these hypotheses could not be and were not here investin gated. Notwithstanding this limitation, some insight may nevertheless have been obtained into the manifestation in the speech and body-motion of the participants of the wore general processes involved in interaction, as well as into the possibilities of role and status identification from signals appearing in such behavior.

Since we have in this book provided a stable notation with which It is possible to record changes in overt behavior (both of speech and of body-motion), we have, with this notation, isolated and recorded the evidence from which we here derive particularistic answers to the generalized questions posed \(\Omega s\) hypotheses by the psychiatriat.
(1) There are common factors in all neuroses. We have (and shall, for sowe time, continue to have) inadequate data with which to test this general hypothests. We should need adequate samples of behavior manifesting each of a variety of nouroses. We should need complete analysis and specification of the speech and body-motion behavior found in these samples. We should, finally, need careful collation of psychiatric interpretations of the behavior in each sample with the linguistic and kinasic analyses of the sample. With the tools now available, however, there is no longer any technical reason why we could not establish a linguistically and kinesically grounded typology of murosis.
(2) There are identifiable and specific affective components of the communicative stream. There is little evidence that any components of the commuicative stream are a priori more likely to manifest affect than others. A few such affect-manifesting components may be noted:

In Doris' body-motion behavior there are a number of instances
of:
Frame

Page
(1) lip-biting
\begin{tabular}{rl}
440 & 7 A \\
9,178 & 135 \\
10,579 & 153 \\
10,602 & 154
\end{tabular}
(2) swallowing without drinking
\begin{tabular}{rr}
4,478 & 69 \\
6,429 & 96 \\
13,566 & 196 \\
14,269 & 206
\end{tabular}

In her speech, there occur instances of:
(3) overloud ( 1 )
\begin{tabular}{lr}
\(622-632\) & 9 \\
\(2,147-2,152\)
\end{tabular}

9
60 P 609
 19

In her choice of words, the following appear:
(6) "no human companionship"

5455-5477
82
(7) "it can have been a monster"

60Z - 60AA
(8) "daddy isn't anything but a little dormat"

Even these are susceptible of other interpretations: Lip-biting may on occasion occur as part of the suppression of a belch (1), she may be swallowing saliva (2) 6,429 , she may be striving for clatity in the presence of external noise (3) ( \(2,147-2,152\) ), or she may be suffering from carbonf dioxide (from the beer in her nasal passages (4) (60P-60Q).

In Gregory's speech we note instances of:
(1) spread register (i)

12,547-12,568 194
(2) overlow and oversoft ( \(\downarrow\) ) (レ)
\[
\begin{array}{ll}
12,575-12,580 & 194 \\
12,618-12,634 & 195
\end{array}
\]

In his choice of words, we note:
(3) "Danm that machine!" 120L, line 5 These, too, are susceptible of other interpretations: he may be concentrating on lighting Doris' cigarette (2) (12,575-12,580).

Doris' choice of "companionship" may be pathetic, her choice of "human" may be hostile, and her selection of the phrase may indicate her boredom with the routine duties of housewife and mother.

In general, it should be noted that any component, on any level, in any part of the commuicative stream, may have either affective or intellectual import, multiple affective significance, or variable intellectual connotation, as well as simultaneous affective and intellectual effect.
(3) The operation of unconscious factors is apparent. Although there is relatively little evidence in our materials for the operation of unconscious factors (such as slips of the tongue, "purposeful" forgetting or contradictory action) in the behavior of the participants in the interview, the following may be noted:

Doris, in her speech, uses:
(1) "adopts" for "adapts"
(2) "had one head in the game"

177, line 1
217 AZ, line 5
In her body-motion, we note:
(3) a ring-finger feel
(4) an awkward scratching
\(` 10,820-10,88 \mathrm{C}\) 157-158

The unconscious factor behind (1) may have been a previous thought with respect to possible adoption out, in (2) a bow to Gregory's intellectuality, in (3) a gesture toward the restraining influence of marriage, and in (4) a shutting out of the "other" family. Behind (1) it may, of course, have been over-reaction to earlier schooling which made a "big thing" of the lexical contrast between "adapt" and "adopt", and in (4) she may merely have been scratching an itch.

Gregory, in his speech, uses:
(1) "sewed" for "showed"
(2) "sexed" for "set" and "fixed"

Although (1) seems to be garden-variety dyspraxia, (2) represents both a phonetidpiedid and a Freudian slip. It is possible, on the other hand that (l) sepreselit on an unconscious adaptation to the mother's club audience.
(4) There are comon factors on all therapeutic procedures. Since the present intexview is not defined as a therapeutic session, and since Gregory doas not voluntarily assume the role of therapist, it is doubtful that much data bearing on this question is to be found in it. Until we have adequate data on the therapeutic practices of a sufficient variety of therapists in interaction with a varied sample of patients, therefore, we shall be unable to test this hypothesis, or to set up a linguistically and
kinesically grounded typology of therapeutic procedures. There is now no longer any purely technical reason, however, why we cannot do so.
(5) The patient has a good ego. Although no one of the participants in the interview is defined as a patient, there is nonetheless a fair amount of evidence on the state of the interviewer's and the interviewee's egos, if not on their potential for change:

Cregory, during most of the film, preserves his
(1) hunched posture
(2) on occasion, he grins

1298-1359
19A
(3) during extended period he presents the matchbox

1950-3486 30-52
(4) once he wields his cigarette like a baton 12,754-12,824 185A

In (1) Gregory may evidence the natural withdrawal from the center of the scene of an individual who physically bulks large, or he may be projecting his support for Doris in her exposé of her problems. In (2) he may be mani-h festing receptiveness for Doris' dry humor. In (3) the matchbox may represent solace for Doris during her tale of difficulties, or it may constitute Gregory's shield against female invasion. The cigarette-bation la (4) may evidence one of the rare occasions on which Gregory re-assumes control of a situation which has gotten out of hand, it may reflect a momentary piercing of his own ego's armor, or it may constitute an assertion of his sympathy for Billy and his impatience with the family which has mismanaged its first child.

Doris, on occasion *
(1) knits her brow 2829-2852 43
(2) once (knits her brow and) looks questioningly after Billy
(3) grimaces

1816-1830 26A
473-487 7
810-843 12

Doris' brow knits (1) are frequently associated with Billy's interruptions and may indicate her concern with what motivates them. After the pillowscene, however, with its double mis-connection, it may also indicate her distress at her cwn malfunction. Her look after Billy (2) may be indicative likewise both of self-distress and of puzzlement with respect to Billy's intervention. Her grimaces (3) may coincide with moments of her own psychic or psychophysical distress.

Billy, during a long scene
(1) manipulates a toy gun
(2) blinks his eyes, during this scene, at particular points \(\begin{array}{lr}184-192 & 3 A \\ 654-659 & 10 A \\ 745-750 & 11 A\end{array}\)
(3) and, at a later point, brings his toy airplane in to be fixed 2692-27\&3 41-42

Billy's manipulation of the gun (1) may be either abstracted (he is listening attentively and keeps his hands busy with the gun as a mask for his eavesdropping) or intent and planned (he is so intent on the content of the conversation between Doris and Gregory that he oits it out with fingers and gun). His eye blinks (2) constitute wincing reactions (184-192, 654-659) to his mother's verbal blows (in one case, lexical; cry, 183; in the other, paralinguistic: overloud on "middle", 652), or, perhaps, sympathy for ber suffering (sigh, 740). Billy brings his airplane in to be fixed by his mother (2700) just after she has referred to some of her problems with him as \({ }^{\text {m }}\) mechanical things.
(6) The patient and the particular therapist will get along. There is some evidence of a fairly high degree of compatibility between the interviewer and the interviewee.

Gregory has unusual skill in adapting to Doris:
(1) he completes Doris' phrase ("was doing, yes")
(2) he smiles during her explanation (which winds up 'happy meeting ground anywhere in the middle")

603-617 9A
(3) he leans toward her (while she is saying Wheli, this is the time that he's got to have five million things done for him.")
\[
8782-8842 \quad 129 A-130
\]
(4) he "lights" her cigarette (as he is saying "is very advanced for four-and-a-half') \(12,641-12,668\) 182B
(5) he replies reassuringly (saying "that's a very smart one.") 12,754-12,780 185

Doris' rhytha in the interaction and her particular gambits are designed to facilitate that adaptation:
(1) there are periodic breast - presentations
\begin{tabular}{lcc} 
(a) & \(3955-3970\) & \(58-59\) \\
(b) & \(4668-4683\) & \(71-72\) \\
(c) & \(5455-5477\) & \(82-83\) \\
(d) & \(8350-8376\) & 123 \\
(e) & \(11,165-11,186\) & 162 \\
(f) & \(12,464-12,488\) & \(180 A\) \\
(g) & \(14,698-14,870\) & 212
\end{tabular}
(a) as she says "it took away his yerys closest and best playmate"
(b) fust after she says "definite attempt to break up a relationship"
(c) as she says "sitting here with no human companionship"
(d) as she says "why do you have to pick the tima"
(e) as she says "they're the ones that need it (laugh)"
(f) as she says "he's not retarded"
(g) just after she says "it's not as black as it looks"
* italicized items correspond to particular gaubit
(2) there is an occasional hair-preen
\[
11,017-11,052 \quad 160
\]
(as Gregory says "that's this next door family")
(3) There is an occasional lid-flutter
\[
14,311-14,313 \quad 206
\]
(as she aays "I'm not worried about that")
(4) there is an occasional dress-preen
\[
13,505-13,538
\]
(as she says "This is why the telescope, you see . . ")

In Gregory, (1) seems to be an attempt to put her at her ease, (2) an effort to dampen her tension, (3) a moment of supportive commaion, (4) solicitude for her concern with Billy, and (5) reassurance that Billy is all right.

There is, however, in Gregory, likewise, some evidence for occasional disorientations
(1) looking at Billy, rather than at Doris
(2) Failing to light Doris' cigarette \(33-35\)
(3) saying "best what?", that is, misunderstanding the proper name "Bess"

217 AO, line 6
(4) not looking at Doris as she says "Lee fussed... "
(5) up-ending beer-mug at end of pillow scene
(and Gregory does not again look at Doris until 2003)
In Doris, (1) (2) (3) (4) all seem to be devices for asserting her femininity; (1) seems also to constitute a control for the course of the interview, (3) reassurance to herself and to Gregory of her lack of serious concers, and (4) an indication of the precocity of her child and his potential candidacy for the circles Gregory runs in.

There is in Doris, too, some evidence for misdirection (or misfiring) of her gambits:
(1) hand gestures
\[
10,159-10,192-10,212
\]
(although made roughly in Gregory's line-of-sight, they fail to induce Gregory to re-establish eye-contact with her)
(2) drawing on her cigarette
\[
12,417 \quad 178 A
\]
(faila to get it lit)
(3) saying "it's not as black gs it looks"
\[
14,639-14,662 \quad 211
\]
(fails to elicit from Gregory anything more than "mohm" many Erames
later,
\[
14,918
\]

For the most part, however, she is quite successful:
(1) her turning to look at Gregory causes him to return her look 509-516 8
(2) her use of over-1oud ( 17 ) on "middle" elicits an "mohm" from
Gregory

621-625 9
(3) her laughter during "too dumb to know the difference back in those days" brings a gris to Gregory's face

1279-1335 18A-19A
Doris' successes show up clearly in her relations with Gregory.
In her relation to Billy, moreover, there is evidence of very close symbiosis:
(4.) Doris' right shoulder starts to move forward on frame 1060, and Billy's right shoulder starts to move forward on precisely this frame (although Billy's back is toward her and he cannot see her); Doric' shoulder movement ends on frame 1087, and Billy is on his feet by frame 1110 .
(7) The personality of the therapist is manifest. Although carefully refraining from assuming the role of therapist, Gregory's personality, both in its formal and informal aspects is clearly manifest. Indications of formality in the behavior of the interviewer are to be found in the following gambits:
(1) "that is the one!" (zeferring to the problem of which problem) 0 I, line 4
(2) "Well, thet's uh o.k. by me." (referring to their letting themselves be filmed)
(3) "there are a lot of them no doubt - fof example" referring to Doris"patterns and routines")
\(60 \mathrm{R}, 60 \mathrm{~S}\)
(4) 'Yeah. No, I didn't see my retardation there at all," (referring to the possibility that Billy needs therapy) 12,405-12,453

Evidences of informality are:
(1) "Aren't we all?" (in response to Doris' suggestion that she was and"immature character in many many ways")
2098-2108 32A
(2) 'Yeah, we have an only kid, and we're wrestling with that problem." (of an only child, who, like Billy makes normal demands on his parents, in the absence of other children to play with)

60 D , line 5,\(6 ; 60 \mathrm{E}\), line 2
(3) "Ours, I'm glad to say, eats like a horse ..." (in response to Doris' characterization of Billy's eating habits) 60 I , line \(5,60 \mathrm{~J}\), line 1

Gregory's formality is, in general, relaxed, and controlled, his Informality less so, and reassuring, rather than directive.
(8) There has been essential change in the patient's behavior. There is no evidence of essential change in the behavior of the interviewees.
(9) The patient is working toward (or has received) insight.

There is some slight evidence that the interviewee is gaining insight, for is recalling past insights). Doris is aware of the potential value of the puppet. Tuckie as Billy's surrogate in life crises:
(1) "I know what you're trying to do." (as Billy tries to get Doris' attention)

845C-8490 125
(2) Billy brings in his puppet Tuckie to be kissed

217 U, line 1 - 3
(3) Tuckie's name is Billy's invention.

217 Z, lincs \(2-5\)
(4) "Tuckie can gat through where nobody else can."

217 AA, line 2
In (1) Doris seems to have an inkling of what Billy is "trying to do," although she has little sympathy with it. In (2) (3) and (4) she relates the story of the little dog-puppet, Tuckie, aware of the uses of a puppet surrogate, but unable either to recall or imagine the origin of its name, or imaginatively to clarify to herself Tuckie's function for Billy.
(10) Evidences for particular identification of the patient with other figures present. There is no doubt that such evidence is present in itha commuicative stream. Very little of it has gotten into the trans-
cription, however, since that is largely macrolinguistic - not microphonetic. A fair portion of the evidence for such identifications, therefore, is not present in the transcribed data. That the evidence is present in the commanicative stream may be considered certain, since one exparienced dialectologist, familiar not only with a wide variety of American English dislects, but also with some of their socie-cultural correlates (expressed In local geographical and social status terms), was able to identify rather precisely the origins of Doris' speech: according to Henry Lee Smith, Jr., she has four layers in her speech, the first clearly identifiable with upper New York State, the second with a highly specific enviroment in Baltimore, the third with an Eastern girls' Einishing school, and the fourth with the Middle West. That Dr. Smith was able to produce such a characterization is attributable to a number of facts of his personal biography: (1) he happens to have specialized in English dialectology, (2) he is a native Baltimorian, (3) he has taught at a girls' Finishing School, and (4) he has a special talent for integrating bits of disparate data into such dialect-based characterizations. To uncover the pertinent data present in the interview materials we have been investigating a number of as yet unfulfilled requirements must be met: (1) fine-grained phonetic identifications of dialect variants must be abstracted from the materials of the Linguistic Atlas of the United States and Canada, (2) such variants must be perceivad in and transcribed from our own interview materials, (3) sociocultural correlates of such variants must be established for Atlas informants (and for a broader range of other informants, more socioculturally diverse than those of the Atlas. Until these requiremants
have been met, we must continue to rely on such biographically accidental constellations of talents as that possessed by Dr. Smith. An inspection of the portions of Chapter 8 in which Doris' biography was outlined will show how remarkably accurate Dr. Smith's characterization was.

Gregory's departures from British English are relatively easy to spot, as are his occasional introduction of hyper-Americanisms at certain pointe. But precise specification requires the frame outlined above.

The quantity of Billy's speech during the interview is very emall and an evaluation of his dialect would be difficult even if the requirements outlined above had all been met.
(11) Change of identity is clearly observable. Although precise indication of such change would rely heavily on the descriptive and Interpretive frame specified under (10) above, in the material on wich Ke worked intensively there is some evidence for shifts in signal media indicative of shifts of identity.

Doris shifts to
(1) adult-to-infant voice on several occasions:
("Oh, thanks, honey") 1710-1725 24B
("there isn't any poison oak out there") 120A, ines 1 - 2
("No, we're going to have dinser.") 120I, line 1
"Mormy, Tuckie wants to give you a kiss.") 217 AF,line 6, 217 AG, line 1
but does not so shift, when talking to Billy during the airplane scene:
("What, honey! There you are.")
\[
\text { 2757-2811 } 42
\]
(2) A high, girlish voice, in the phrase "Bo darned mad"
(3) speachless gesturing (when talking about her neighbors)
\[
11,058-11,077
\]

In (1) she taices on the role of mother of a small child; in (2) she returns to adolescence; and in (3) she takes on the character of a housewifa.

Gregory's identity is unusually stable, that of a not directly involved but nevertheless sympathetic listener. Occasionally, however, he does shift from his role of spectator to that of a more directly involved human being, as evidenced by
(1) a "softening" of the voice (こ) (Aren't we al1?") 32A
as a response to Doris' comments about her own immaturity.
Billy's identity is also quite stable, that of an unusually quiet and unobtrusive small boy, which "breaks" only when television is mentioned, when he responds with an exclamation:
(1) which is overloud (1) ("What!" "ryes, yes!") in answer to Doris" question as to whether he wants to watch Mickey Mouse.
(12) Evidence for identity - confusion may be found. There is little evidence of identity-confusion in the speech and body-motion behavior of the participants in the interview. On one occasion, poris finds hersalf in the position of having sonfused Gregory with her husband:
\[
4176-4561 \quad 65-70
\]
("and ... lots of times it's it ... seems to be ub a definite attempt to break up ... a relationship between us [with gesture indicating Gregory and Doris]. Between my husband and myself [very fast]).
(13) The transactions of transference are clearly manifest. Although Gregory does not define Doris as a patient nor himself as a therapist, Doris cannot completely avoid the patient stance. There is some evidence of her attempting to cast Gregory in the role of therapist:
(1) use of psychoanalytic jargon
("a standard mechanismi!) 61
("the classic personality pattern") 7705-7754 115
(2) use of histrionic weeping ("pretty miserable situation.
\begin{tabular}{|c|c|c|}
\hline He uh ...') lip-bite & 419-472 & 6A-7A \\
\hline ("Lee f.. Lee fussed ...") & 473-487 & 7A \\
\hline use of grimace ("he uh & \multicolumn{2}{|l|}{sigh m-m was a uh} \\
\hline physical feeding fr. . \({ }_{\text {a }}\) & 817-831 & 1.2 \\
\hline
\end{tabular}

On the other hand, she on occasion assumes another stance inapprcpriate to her role as interviewee, and more appropriate to a role as wife, putting Gregory in the position of a not uncomitted male:
(1) kitten on-the-couch stance
(2) eye-flutter
(3) hair-preen
\begin{tabular}{rr}
\(14,698-14,870\) & \(212-214\) \\
\(14,311-14,313\) & 206 \\
\(11,017-11,052\) & 160
\end{tabular}

It is clear that Doris sometimes relates to Gregory as she would to her therapist, sometimes as she would to her husband.
(14) There is evidence cf temporary change (or adaptation). Such change is evident in Doris throughout the interview. Gradients of egofunction are evident along these axes (among others):
(1)
(a) coordinated : uncoordinated
(b) coherent : incoherent
(c) of-a-piece :: split into parts
(d) directed : undirected
(e) 'choate' : inchoate

Doris scratches awkwardly
(a) (2)

Doris surges off couch
(a) (2)

10,819-10,917 157-158
861-886
12A-13

Speech non-fluencies :.......(b) (2) are to be found throughout; one such
is to be noted at \(\quad 0 \mathrm{I}\), line \(5-0 \mathrm{~J}\), line 2
(as Gregory says brightly 'That is the one!")
Doris' bpeech and body-motion are of-a-piece (c) (1) during long
stretches such as

1068-1661
4471-4550
15-24B 69-70

Doris' speech and body-motion are split (c) (2) (speech to Gregory, body-motion to Billy and to cameraman! 1763-1850 25,25A-26,26A

On occasion Doris seems to lose a body part (left hand lost while holding mug)

7398-7897
110-117
On occasion, likewise, Doris seems to "freeze" (with a long stretch of speech with minimal body-mothon)

9670-9960
142-146
Both Billy and Gregory seem to be generally coordinated (a) (1).
Gregory, on occasion, holds a stance (the match-box presentation)
for a very long tine.
\[
1950-3486 \quad 30-52
\]

But this seems to be directed (d) (1), as does the cigarette baton wave
\[
12,754-12,824 \quad 1.85 \mathrm{~A}-186 \mathrm{~A}
\]
(15) Evidence for the level of organization is specdfiable. There is
some evidence for the level of organization of behavior alfag these axes (and there is some evidence for shift from one axis to another):
(a) age
(b) gender
(c) status
(d) role
(a) health

Doris shows occasional age regression (a):
(1) "Ah-h-h-nh-nh-nh" (adolescent?)

0 O, line 4
(2) looks at Gregory out of the corner of her eye (adolescent ?)
\[
5552-5557 \quad 84
\]

Neither Gregory nor Billy, on the other hand manifest age shifts.
Doris manifests her gender (b) in various ways; annong these are:
(1) special 'lady-like" lexical choice ("I got so darn mad")
(if, line 1
(2) halr-preening
\[
11,017 \quad 159
\]

Doris attempts to project a status (c) which she feels will enhance her qualities in Gregory's eyes; she affects, therefore, a pseudo-intellectual vocabulary:
"classic personality pattern" 7708-7742 115
Gregory attempts to project "sympathetic peer"; he actually projects, In part, upper-status academic (with his posture throughout, and with his occasional use of a technical term), in part, attentive neighbor (with his frequent "yeah, yeah" and his wry smiles). The data which underly these evaluations are diverse and of unequal value:
"natural history" 6p M, line 6
"yeah yeah yeah" 120 P, line 5
There is, of course, no assurance that these explanatory hypotheses reflect the reality, and alternative hypotheses might be generated by other data.

Doris plays a number of roles at various points in the interview:
(1) housewife \(\quad 0-1661 \quad 18-24\)
(2) nother (throughout the pre-pil 1713-1725 24B
"Oh, thanks, honey."
(3) one of the girls © F, line 1
"and I got so darned mad"
(4) neighbor

177 D, line 2
"We have a cold beer, Yes."
Billy plays the role of a pretty consistent small boy throughout, a fair part of the time abnormally quiet, the remainder of time appropriately noisy.

Gregory plays the role of professional interviewer.
"We're trying to get in and do the natural history of it a little." 610
"There are lots of them, no doubt. For example?
\(6 \$ R, 6 \$\)
Doris manifests generally good health, although her presentation of it is low-keyed. On occasions, genulne suffering breaks through:
"Lee f'... Lee fussed" 440
On occasion, likewise, she projects heartiness:
\begin{tabular}{ll} 
"Hullo!" & 177 C, line 5 \\
"We heve a cold beer, yes!" (laugh)" & 177 D, line 2
\end{tabular}
(16) Changes in degree of affect are diractly observable. There is
evidence both of "flattened" and of "fattened" affect in the materials through which we worked.

Although Gregory shows little such change, he, on occasion, speaks with
(1) oversoft ( \(\Sigma\) ) voice
\begin{tabular}{lll} 
("M-hur) & \(1382-1384\) & 20A \\
("Yeah." "Yeah!) & \(1638-1648\) & \(23 A\) \\
("Aren't we all?") & \(2098-2108\) & \(32 A\)
\end{tabular}
or with a combination of
(2) overlow ( \(\downarrow\) ) and oversoft ( \(\sim 2\) voice
("brought") \(12,575-12,580\)
181
("four-and-a-half") \(12,618-12,631 \quad 182\)
or, on occasion, even with
(3) spread ( 4 ) register ("why, that drawin'g...") \(12,548-12,569\) 181 As manifestations of "flattened affect," (1) and (2) may indicate (a) Gregory's depression as he thinks over Doris' presentation of her problems with herself and with Billy, (b) his depression as his focus momentarily shifts from her problems to his own. As a manifestation of "fattened" affect, (3) inay likewise be indicative either (a) of his desire to be supportive of Doris, or (b) of Gregory's own affective condition.

If the wider contexts of (1) and (2) are inspected, we find that (1) occurs periodically as Doris relates her story; (2), however, which adds overlow register \((\downarrow)\) to the ovaraoft intensity characteristic of the Eirst situation, occurs only when the topic of Gregory's conmentary shifts to Billy and Billy's problems. It may be that (1) indicates a perfunctory reassurance to Doris that her audience is still with her, or, perhaps, Gregory's own boredon with the unending tale, and that (2) (with added overlow register)indicates a real concern for Billy's situation. It may also be, of course, that both (1) and (2) are directed to Doris, and that (1) is genuinely supportive of Doris in hex discomfort, whereas (2) is merely indicative of Gregory's attempt to erase his own gratuitous "I don't see any retardation there" \((12,400-12,446)\) and to comfort Doris in the anxiety axoused by his remark.

Billy shows even less evidence if change. In the gun scene, however, he shifts from
(1) relative imobility, but with his body in "quiet body alert" to 0-216 11ㄴ3A
(2) concentrated activity on the gunplay to
(3) a quick cemmination of participation (as he jumps up and moves off)

1060-1110 15A-16A
"Flattened affect" manifest in (1) may be indicative of (a) his deprescion over what he is hearing, or (b) his irapending participation in Doris" narrative. (2) may be indicative either (a) of his active participation in Doris' narrative, or (b) of his boredom with the narrative and a shift of interest. (3) may be indicative either (a) of distress at the turn of the narrative, or (b) of boredom with the never-ending tale and, in either case, of his desire to leave the scene. Of these alternative interpretations, only (1) (a) and (3) (a) might be characterized as "Elattened" affect. When the telovision program, on the other hand, is mentioned, there is a momentary surge of enthusiasm manifested as
(4) overkigh (1) and overloud (i)
which probably must be interpreted as "fattened" affact.
Doris shows a great many instances of behavior susceptible of interpretation as manifestations of "flattened" affect:
(1) narrowed register ( \({ }_{1}^{d}\) ) occurs over considerable stretchas:
\begin{tabular}{cl}
\(0-184\) & \(1 A-3\) \\
\(220-404\) & \(4-6\) \\
\(1,950-2,087\) & 30 \\
& \(177 V-177 Y\)
\end{tabular}

After each of these she breals out briefly into normal register separation and then quickly returns to narrowed register. Coneentration of features
susceptible of such interpretation also occurs:
(2) overlow ( \(\downarrow\) ) with oversoft ( \(V\) ) with squeeze ( \(i\) )
(a)
(b)
2069-2087
60 AC
(b)
narrowed register ( \(\psi_{\|}\)) with oversoft ( \(\rightleftharpoons\) ) with overslow (<<) 9690-9840 142-144
(2) (a) - occurs as she talks about Billy's gambits for eliciting manifestations of affection ("this is a standard mecianism"). (2) (b), likewise, occurs when she discusses her own condition ("I'm a pretty unstable or immature character in many, many way"). (3) occurs as she discusses Billy's behavior when they go to visit certain familics where he feels at home.

The movement in and out of narrowed register (1) may be intarpreied (a) as an intermittent relapse either into depressio? (which may indicate an active struggle against it) or into apathy (inich may indicate that she feels that the battie is lost). It might, on the other hand, be Interpreted (b) as an indication of Doric' ovm boredom with the oftrepeated story. Her even-handed use of the combination of overlow with oversoft with squeeze, (2) both to comment on Billy's atcempts to elicit affection (2) (a) and on her own misery (2) (b), might be interpreted either as directing irritation or as assessing blame. 'The contrasting combination of features in (3) (uarrowed register rathe, thr . riow, overslow rather than squeezis may indicate her rather attenuated relief that Billy has fourul a congenial euvironment in wich to function anc: her considerably sympathy with his predicament.
(17) Shifts in level of literality are recordable and specifiable. The contrast between literal and metaphoric handling of particular messages is occasionally clearly present:

Dor13: "...depends on which problem you're talking about."
\[
0 \text { I, lines } 2-3
\]

Gregory: "That 18 the one"
\[
O_{\text {O }} \text {,line } 4
\]

Doris tries to bring the level of discussion down to a specific problem, as they begin the interview .... she is looking for a literal "out." Gregory, on the other haud, with his ambiguous remark, deliberately emphasiaes the metaphoric possibility that thatproblem is not a particular problem, but the lack of decision as to which problem is most worthy of provisional focus.

In the following exchange, however, the roles are reversed:
Gregory: "rhey're the ones that really need to be photographed."
\[
11,099-11,152 \quad 161 \mathrm{~A}
\]

Doris: "They're the ones that need it."
\[
11,161-11,201 \quad 162
\]

Gregory suggeste that their state is such as to make them interesting subjects of research. But Doris will have none of that literal focus, and leaves open the possibility of metaphoric therapeutic treatment as well. Billy terminates his gun play as Doris' distrese deepens (1074) ("you feed that child"), he rises in perfect synchrony with Doris' shoulder movement, and goes to fetch a pillow which he then profers, litarally to make her physically more confortable, but metaphorically to alleviate her clear mental distress. Doris' inability to discern the metaphor behind the literality is ciear from her look of acute puzzlement.
(18) Adaptation to audience, accommodational shifts in meaning level, and in the use of logical types are observable and specifiable.

Among the bits of evidence for shift from one audience to another, we find in Doris:
(1) a change of voice-set from Doris-to-Gregory (up to 1710) to Doris-to-Billy (1710-1725);
(2) a glance after Billy (1818) and then at the camera (1831-1840) as she returns to her conversation with Gregory (1772-...);
(3) a change of voice-set from Doris-to-Gregory to Doris-to-a-neighbor-woman \(\quad 177 \mathrm{C}\), line 5177 D , line 2

In (1) Doris' voice shifts from normal to overhigh pitch, oversoft intensity, and openness, as she addresses Billy, whereas in (3) it shifts from normal to overloud intensity and drawl as she addresses the neighbor woman. During the first short stretch of her return (2) to Gregory (after the "oh, thanks, honey"), she "ah's" as she looks, first after Billy, and then at the camera. Her brow-knit on 1822 evidences her focus on Billy, her palm-punish from 1824 to 1833, and her dyspractic "thezre" for "there's" lead to her look at the camera.

In Billy, we find very obvious (even though momentary) attention to the camera man:
and immediately thereafter, he leaves. The sequence of events is as
follows: (1) he plays with the airplane;
(2) he goes off camera and returns, without the airplane;
(3) he walks towari the door, in front of the camera, not noticing it;
(4) he stops before reaching the door; he turns, he looks at the camer a and then starts back, gawking;
(5) he makes two passes and then goes out the door.

In Gregory we note a change frum treating Doris as an interviewee whose responses need to be kept flowing to treating her as a fellow parent who is in straits similar to his:

Evidence for shift in level of meaning seems to be found both in Gregory 's and in Doris' behavior between 1279 and 1336:

Doris: "and I was too dumb to know the difference, back in those days" (with "laughter" from 1279 to 1282 and from 1295 to 1336)

Gregory: (smiles at 1310 , on "back")
Immediate!y prior to 1279, the tenor of Doris' tale is grim, with Gregory being supportive with smile (1068) and nod (1147); on 1279, her tone shifts to pseudo-funny (with forced laughter), with Gregory being receptive with a smile on "back" at 1310 , midway througn Doris" second stretch of pseudo-laughter (1295-1336). On 1338, the tenor of her tale again becomes grim, whereupon Gregory attends to his stein (1373).

In a later shift sequence, Gregory no longer plays Doris' game.
Doris: "when I'm...sitting here with no human companionship" (laugh) "This'憲s a nasty way to put it" (laugh) "Uh..."
Gregery: "But these are the truths, after all." (5592-5686) Doris shifte from grim (5400-5486) to grim and funny (5490), to grim again 5500 - 5564, back to funny (5565 to 5587). Gregory is quiatly attentive throughout all this period, and refrains from joining in the grim humor. As Doris hesitates (5592), Gregory interjects a philosophical statement.

In the use of different logical types, we find Doris shifting first from metaphoric to literal:

Doris: "They're the ones that need it (laugh)" (Metaphoric) 11,161-11,200 162 "well... this is an interesting sort of a situation..." (1iteral) 11,230-11,289 163
then from literal to metaphoric:
Doris: "we got to be much too close ... friends"
(Literal) 6942-7148 104-107
"the gal next door began to get her little green ears up (sigh) and ... pricking her little green eyes up." (metaphoric) \(\quad\) 7020-7150 105-107

We find Gregory, on the ochar hand, in his initial gambits, persistently
pushing toward the metaphoric; an early example is:
Gregory: "what is the sort of history of this whole ... problem, business as far as you're concerned..." \(\quad \mathrm{OH}_{2}\), thies 4-6

Doris: "Honh - uh it ... depends on which problem you're talking (laugh) about."

Gregory: "That is the one."
(19) It is possible to specify the initiacors of new activity. The features of speech and body motion which lend themselves to such specification are manifest on a number of occasions,

In Doris' epeech, we note:
(prior topic) Thursdays are bad days
(initiating gembit) "I was quite fascinated ..."
r
(new topic) Films in Gregory's class
And somewhat later, we hear:
(prior topic) problems with Billy's eating
(initiating gambit) "And uh I wasn't I wasn't sure
just what ..."
60K
(new topic) what should I do in this interview?
In Doris' body motion, we note:
prior topic) Gregory is looking at Billy
(initiating gambit) Doris turns her head 509-516

(new topic) Gregory turns and looks at her. 513

She has succeeded in turning Gregory's focus onto herself (momentarily at least). Somewhat later, we observe:
(prior topic) Doris' problems with the pediatrician
(initiating gambit) "Except I didn't like this guy.
(Leans forward on 1334 and turns to look
at Gregory on 1341) (at which point
Gregory smiles, looks down, and picks up
beer mug)
(new topic) Doris' problems with Larry
At 513, Doris initiates a new topic with body motion alone, whereas in the stretch 1338-1370, she combines body motion with speech. In this last
instance, both are appropriately ambiguous, arousing anxiety in all males within earshot, her reference is ostensibly to the pediatrician, but possibly to Billy, possibly to Larry, and possibly even to Gregory, as evidenced by his response).

In Gregory's speech, we note:
(prior topic) Doris is talking about coffee mornings.
(initiating gambit) "What is the sort of histury..."
OH, line \(4_{4}\)
(new topic) Doris' family probleas
Gregory shifts the topic from the genetic and perhaps pleasantly social to the specific and problom-relevanc.

Somewhat later, we hear:
(prior topic) Doris' internal family problems
(initiating gambit) "How are you sexed on neighbors" children?"
\[
\text { 3186-32 } 200 \quad 48 A
\]
(new topic) Billy's playmates
Although Gregory's initiating gambits are ordinarily straight forward, and unambiguous, this one, with its Freudiknh elip, leaves a variety of possible openings. Doris plunges through the obvicus one, but not without certain evidence of monentary disorientation:

> "No o t too well."
\[
3300-3313
\]49
whereupon Gregory recovers:
"Yeah."
(3314)
(smokes) (3315-3323)
Although Doris' initiating gambits rely fairly heavily on body motion or on a combination of speech and body motion, Gregory's rely largely on speech, not always, as we have seen, with entirely felicitous results.

In Billy's speech we note:
(prior topic) (overtly none) (probably Doris' problems with incomprehending males)
(Initiating gambit) "Hey, Mom. Do you want one of these?" 1671-1706 24
(new topic) (overtly none) (probably Doris' problens with unfathomable males)

Billy's introduction of the pillow temporarily halts the trend of Doris' previous monologue.

It reinqtrduces uncertainty:
Doris: "oh, thanks, honey." 1713-1725 24B
and produces momentary dyspraxia:


In Bylly's body motion we observe:
(prior topic) (overtly none) (probably Doris" problems witit incomprehending males)
(initiating gambit) introduction of the pillow
1668-1815 24A-25B
(new topic) (overtly none) (probably Doris' problems with unfathomable meles)

Billy's introduction of the pillow (between Gregory and Doris) (1700) temporarily halts the trend of Doris' previous monologue. Doris' subsequent actions: (1) "Oh, thanks, honey." (1713-1725) and (2) renoving the pillow from between herself and Gregory, passing it across her body, and putting it behind herself on the aide away from Gregory (1731-1776),
(3) looking acutely puzzled after Billy (1815), and then (4) at the camera, coupled with her dyslalia (1845), indicates that Billy has, momentarily, at least, achieved his purpose. Doris' continued monologue:
"thaz're .. a lot of this, I think, created a tremendous amount of tension"
1845-1942

Indicates clearly, however, that it is not easy to stem the tide. (20) The evidence for regulation and for the identity of the regulator 1s to be heard (and seen). Such evidence is repeatedly available in the speech and body-motion activity of the participants in the interview.

In Billy's body-motion activity, we note that his zooming of the toy airplane at the couch (3123-3188) [47-48] forces Doris into overloud ( 1 ) on the sequence "making normal demands and there's nobody to battle" (3140-3i83) and into extrs-overloud ( \({\underset{\sim}{2}}_{1}^{2}\) ) on "normal" (3146) which has contrastive stress in a wider context: "the child is ... making normal demands and the adults are making normal demands" (3021-3151), and makes the point that there is somebody "to battle along with them" (3175-3185). In Doris' speech activity, the introduction of (pseudo-)

\section*{laughter:}
\begin{tabular}{lll} 
"too duhumb to know" & \(1278-1285\) & 18 \\
"and get worse" & \(2348-2353\) & 36
\end{tabular}
"I know what you're trying to do (laugh)" 8493-8512 126
may serve as an appeal to a fellow human being (Gregory) who at 1275 looks not at Doris, but at Billy, and at 2348 looks not at Doris, but at hex cigarette. At 8487, however, he does extend a sympathetic matchbox.

If Doris' regulatory purpose is to elicit human sympathy she does occasionally succeed. Alternatively; the use of pseudo-laughter might serve to maintain a level of buperficiality in the narrative which precludes a discussion of "gut" material.

Doris' use of overloud ( \(\lambda\) ), or, on occasion, of (painful) pause ( \(Q\) ): "a definite attempt to break up"
\begin{tabular}{llll} 
(overloud) & \((\hat{\wedge})\) & \(4432-4471\) & \(68-69\) \\
(pause) & \((Q)\) & \(4471-4503\) & 69
\end{tabular}
might be seen as regulatory attention-getters. Gregory, from 4407 to 4471 is looking at Billy, and from 4472 to 4481 shifts quickly back to Doris, and at 4495 they are looking at each other.

Gäagory's body-motion base-1ine (legs together, body hunched over them) may have an unexpected regulatory function: Doris may pick it up as stand-offishness. On one of the very rare occasions on which his legs are spread (12,396-12,855) (when Gregory reaches over to non-1ight Doris' cigarette), the cameraman suddenly zooms in (on Doris, of course), so that we do not know precigely when Gregory's legs opened up or when they closed. Although the cameraman seems to have picked up the activity as evidence of greater intimacy, it is possible that Gregory's leg-spread is the result of his reaching over his unbending extremities in the polite male gesture. If this last alternative hypothesis were true, then all three participants in the interviow were misapprehending the reality. Gregory, indeed, leaves no doubt as to his misapprehension, when, with his cigaretite-baton ( \(12,754-12,806\) ) he quickly restores non-intimacy to the proceedings. When, at 12,807-12,824 ("whether he is happy or not"), he cocks his baton, he has returned eitirely to his base-line.
(21) Evidence for cyclicity may be found. Repetitive Initiating or regulating activity, as well as recurring clusters of features of speech and body-motion repeatedly give evidence for such cyclicity.

Doris' use of paralinguistic stress ( \(\hat{\lambda}\) ), with relatively flat stretches in between:
\begin{tabular}{lrr} 
"elsa" & 206 & 3 \\
"middle" & 622 & 9 \\
"ass" & 1010 & 15 \\
"hungry" & 1405 & 20
\end{tabular}
evidences periodicity with a cycle of 400 frames.
Billy'e retums to Doris withy,
\begin{tabular}{lll} 
the pillow & \(1675-1722\) & 24 \\
the airplane & \(2692-2783\) & \(41 \cdots 2\)
\end{tabular}
show periodicity with a cycle of 1000 frames.
Gregory's interjections ("yeal," "uh-huh," and the like), recurring at roughly four to six times per minute, show periodicity with a cycle of 360 to 240 frames.

The occurrence of body-motion "peaks" in Doris:
\begin{tabular}{llr} 
lip-bite & 400 & 6 \\
throat-clearing & \(317-825\) & 12 \\
lift off couch & \(863-894\) & 13 \\
laugh & 1355 & 19
\end{tabular}
seem to show a cyclicity which interdigitates with the overloud stresses.
If we chart Doris' speech and bodymotion cycilc turns along side Gregory's (and compare these with Billy's, as well):
\begin{tabular}{|c|c|c|c|}
\hline Soxis & & Gregory & B111y \\
\hline \multicolumn{4}{|l|}{180} \\
\hline \multicolumn{4}{|l|}{206} \\
\hline 440 &  & & \\
\hline 457-476 & "nistrable situation" & nod & \\
\hline 524-532 & "wina a went too fax & turn to D & \\
\hline 598-604 & 'wisuting ground anywhere" & looke away & \\
\hline 622 & & 'M-hm'。 & \\
\hline 850 & hand to eyes & & \\
\hline 860-890 & lift off couch & & 870 drops gun \\
\hline \multicolumn{4}{|l|}{1010} \\
\hline \multicolumn{3}{|l|}{1.100} & \multirow[t]{2}{*}{goes off with gun} \\
\hline 1143-1152 & "or else" & nod & \\
\hline 1236-124? & "do what I say" & \multicolumn{2}{|l|}{brows up} \\
\hline \multicolumn{2}{|l|}{1314-1346 "back in those days" smile; silent chuckle} & \multicolumn{2}{|l|}{smile; silent chuckle} \\
\hline \multicolumn{4}{|l|}{1355 laughter} \\
\hline 1360 & & \multicolumn{2}{|l|}{\(3 \mathrm{Mr}^{\text {a ima }}\)} \\
\hline 1405 & "dumb to know: & & crosses back left \\
\hline 1600 & "out the window" & interjection & \\
\hline \multicolumn{3}{|l|}{1670-1725} & brings pillow \\
\hline 1840-60 & "thez're a..:' & \multicolumn{2}{|l|}{ups mag} \\
\hline 2080 & "pretty ...unstable & \multicolumn{2}{|l|}{drinks} \\
\hline \multicolumn{4}{|l|}{We note similar interdigitation among thri speech and body-motion features} \\
\hline \multicolumn{4}{|l|}{of these three participants in the interview. Autonomous psyshobiological} \\
\hline \multicolumn{4}{|l|}{cyclicity and interdigitating cyclicity in interaction constitute comple-} \\
\hline mentary ex & xplanatory hypotheses of the & ase regularitiest & \(\because\) \\
\hline
\end{tabular}
(22) The function of props may be specified. The importance of props as extensions of speech and body motion behavior is readily apparent thrsughout the interview.

Doris' behavior relative to the stein (beer-mug) involves relatively little actual drinking:

\section*{Stein}
(1) stein in hand
(2) stein "lost"
(3) raises stein but does not dxink 647
(4) stein lost again

650-850
(5) part of "lift"
off couch 860-900
(6) moves stein closer 1286-1360
(7) puts stein down

1360-1385
(8) picks stein up

3350
As might be expected, possible'interpretations vary considerably.施 engages in mach flicking of cigarette into ash-tray (whether ashes are present or not):

\section*{Flick}
(1) "I tried to nurse him and \(\not X\) couldn't'
(2) "the pediatrician was say ing \({ }^{\prime \prime}\) (plus i) (rasp)
(3) "immature charactex"
(4) "built up and got worse"
(5) (after fixing airplame)
(6) (while airplane is buzzing)

Conigext
920-961

1427-1442

2054-2108
2348-2380
2816-2852 (2b:) space filler
3185-3236 (h2i!) emoke screen

Intexpretation
smoke screen
smoke screen smoke screen smoke screen
(7) (actually smokes", 3304-3313
(8) (talking about :ids) \(3890 \times 3952\)
smoke sexeen space Ellles

The two hypotheses here nvanced are chat the flacking constitutes ()
 hiatus. On occation (39gn..7952), nowever, athex (1) ox (2) are equally likely, and it 1s, of course, quise powsible that in thin case for in others) that the organism is playing both garas sumathanecunyy. Doris' heel-strapped low-backed shoe (the one on hew right Foot) is also much in evidence:
(1) (release) 180-184 ("cry")

3 (see 3A)
(2) (release) 290-304 ("time")

5
(3) (release) \(411-420\) (grimace)

6
At these points, the release of the shoe seems to colncide with a surge of vocal activity. At 130 and at 370 there are also slight movements of the stein which seems to complement these shoe-releases. Alternative explanations are (1) fishing for attention (Gregory is looking at Billy from 7-530, when he finally turns to Doris), and (2) redundant omphasis at surge points. Much later in the interview, we find Doris:
(1) engaging in a low xight-arm swing which just misses the heel-strap ("he's not retarded") 12,479-12,511 180A
(2) playing with the heel-strap \(12,741-12,754\) ("I have no worries")
(3) (after Gregory has just said "Ihat's a very amart one" 12,758-12,775)
seizing the strap again ("intellectual abilities") 12,762-12,804 184A

Possible explanatory hypotheses are for (1) PSEUDO-ABSTRACTION, for (2) DISCONCERN, and for (3) DISCONCERINENT.
 center of atcenturn

(2) squeeres the top shat \(5010-5308\)
(3) Wving tu 5352-5420
(\%) turns it in its efide 5491 m 5967
(5) whoke at the siso buttran ox stray

5596


6420
Discovet




\(5491-5537\)
(2)
\begin{tabular}{|c|c|}
\hline  & 5579-5.95 \\
\hline ce cand & 5706-5835 \\
\hline mera bound & 2035-603 \\
\hline camexa & 6039-6207 \\
\hline
\end{tabular}
A. second hypotherda drlving Exom ces, +h corxespondoncos betwean buts of

(i) "he contsistenty wanchug"
(2) "and so do 2"

 When \(x^{*}\) m sectug hoxe" \(5308 \cdot 5440\)

\(5324-5351, \operatorname{cctua}\), watagtug 5


\(0486-603\) 3
\(6039-6207\)

Here it may constitute genuine support for Doris as she relates her troubles. In a second presentation ( \(8475^{--0}\) ), however, as Doris says 'Why do have to pick the time ... I know what you're trying (8478) to do!", the matchbox may constitute a SHIELD for Gregory.

Similarly, during the pillow scene, Gregory makes use of his stein:
(1) picksit up 1385
(2) drinks (at end of pillow scene) 1833

D: "except I didn't like
this guy" (1362)
(3) up-ended stein visible 1846
(4) sets stein down 1888

Somawhat later he:
(1) has the stein;

5808
(2) brings stein up 5864

D: ["no human companionship (5738)

In these two cases, as Doris is momentarily otherwise engaged, he can be found SNEAKING-A-DRINK. In view of Doris' immediately preceding remarks, however, (1), at least, might be construad as RETREAT.

Billy's use of the gun, the pillow, the airplane, and the camera as initiating and regulating props have already been fully docwnented under (19) and (20).

Props, as extensions of speech and body-motion activity, are, like bits of such activity, always potentially maltivalent, and here, as every where else, one approaches adequate interpretation asymptotically, as contextual data compels us to gtrengthen or to weaken alternative interpretive hypotheses.

At our final collation session, our team was able to produce a sizeable sample of interaction topography, on which all our sub-specializations were brought to bear. Birdwhistell presents the following narrative of what took place:

\section*{The Interaction Profile}

Throughout the analysis of the interview, the principal focus of interest of the group was on the abstraction of the relationship between the participants in it. Every attempt was made to frame the analyses, linguistic, kinesic, and psychiatric, in terms which would turn the attention of the analysts to the on-going social relationship and which would preclude the development of a set of parallel but separate biographies. A consistent effort was made to see in the individual responses not merely indices to personal systems but also indications of the developing interaction between such systems.

Nonetheless, the requirements of the basic linguistic and kinesic analysis tended to focus attention, momentarily at ieast, on particular individuals. The setting up for these individuals of reliable linguistic and kinesic baselines consumed much analytic effort. Nuch of both the micro- and macro-analysis involved the specification of unite which were not immediately and directly referable to the dynamics of the interaction. The materials derived from these analyses were employed, nonetheless, in the search for solutiono to interactionally framed problems. The "cigarette", the "pillow", and the "airplane" scenes, anong others provided sumewhat larger contexts in which chese problems could be investigated. While the group felt relatively secure in their generali\%ci descriptionz of the nature
of the interaction as seen in such contexts, these contexts seemed, nonetheless, stlll somewhat restricted. Close coordination between the descriptions arrived at by the various approaches had not yet been achieved and it seemed desirable to test still longer sequences and larger contexts.

In situations such as that which we had described in the cigarette scene (12373 - 12883), it is possible to pick up a clear rhythmicity which marks the interaction and which constitutes a measure of the cohasion of the members of the group. But rhythwicity is the only are of a number of abstractable characteristics of that scene, and we cannot be sure that even in that the cigarette scene is typical of any longer sequences. There is, on the other hand, some natural temptation to set up extreme rhythmicity as one pole in a bi- polar continuum, along which to range and to contrast other scenes as sharply set off and as tightly organized internally as the cigarette scene, and to use such a continum as a measure for successful "reiatedness" or "closeness" among participants in one scene as contrasted with "lack of relation" or "distance" among participanth in another.

In the search for a measuring instrument which might make somewhat finer discriminations among various scenes and in the behavior of participants in them possible, it occurred to me that an essentially intuitive device which \(I\) had occasion to use in previous research might meet our needs. Without any clear idea as to what criteria \(I\) was employing in the ascription of the terms, I had been labelling stretches of interaction as inter-personal, extra-personal and personal.

The scenes marked as inter-personal seemed characterized by close attention and ready adaptability of each actor to the activity of the others. In those marked es extra-personal, the actors seem to be talking to a wider audience. In those marked as personal, a particular actor appears to be talking to hinself. In the first category, an interlocutor lends full attention to the person who is addressing him, in the second his behavior might be characterized as "divided listening", and in the third the auditor listens not at all but appears to be thinking of something else.

While the behavioral descriptions covering these categories were somewhat vague and intuitive, co-workers in the research, nonetheles:, had little difficulty in agreeing on the sequences. Alternation among the categories seemed to be patierned and customary, and almost all sequences observed scemed to show euch alternation. It seemed, furthermore, that if either the extra-personal or the personal continued for long, there was some distress evinced by other participants in the interactional group.

It has long been clear to interview analysts that sume behaviors are moie "symbolic", that is, nore highly abstract or generallzing than others. There have been few objective guide-posts upon which to base our judgement that some actionis are especially symbolic, and nothing to indicate to us of what, in particuiar, they might be symbolic. The possibility of placing such symbolic actions within larger stretches of activity, these latter characterizable in terms of a larger frane, and the former, in turn, characterizable in terms of the latter, seemed attractive.

The thee-vay conceptual split scemed, therefore, worth a trial. In discussing its possible application to our own interview materials, our sub-team (Birdwhistell, Brosin, and McQuown) focused on this central question: Whence, that \(i s\), from what aspects or from what levels of behavior, is the inpression of variation among these three categories of activity derived? Was it a matter of lexical content, or was it the body motion, or was it the linguistic or paralinguistic behavior which resulted in the impression? Or was it only some combination of all of these in some larger context that made the labelling possible?

All three menbers of the team agreed that the categories scemed "reasonable," that is, did not conflict with a common-sense assessment of social interaction. Athough a crial of these categories might not give us an entirely new tocl for characterizing interactional sequences, such a trial would, perhaps, give us a better idea of the kinds of objective behavioral phenosiena which underlay the sequences to which such differential labels had been applied.

It was agreed, furthernore, that each was to proceed in "pseudoblind" fashion, and attemet to operate independenty with his own kinds of data: McQuom was to listen to the tape, impressionistically divide the material into large negments, characterize each of the segments with one of the three labels, and then search for recurrent linguistic or paralinguistic behavioral items, or sets of such items characteristic of the itree kinds of labelled stretches. Birdwhistell was to duplicate these operations for the body-motion material. Brosin's task was somewhat more comple\%. It was felt by the team that he should bring to bear on the sight-and-sound materials the full arsenal of his clinical experience. He had interviewed, together with Fromm-Reichmann, all
participants in the film. He had case-material and interview data derivad from all of the film taken of Doris, Gregory, Billy, and his father. All of this together with any depth analyses he might choose to make of portions of the interview with respect to content were to be made use of. When the three separate analyees had been completed, the material from each would be assembled and compared and points of coincidence and divergence would be established.

Since at least thirty seconds of the materials had been previously subjected to micromanalysis, and since as a team we had viewed and listened to these and their accompanying scenes many times in the course of our research, it could not be said that the analysis now being undertaken by each of us separately was, in fact, entirely "blind." We were, however, in this, working with the tape alone, and with the silenced film, and With the sound-film plus additional background data, each of us in isolation from the others, and each focusing exciusivaly on the data of his own medium. We were, for the moment at least, exercising independent judgments.

The value of our experiment was enhanced, finally, by a piece of luck, Professor Erik Erikson was visiting Western Psychiatric Institute at the time and graciously agreed to participate in the test. He had seen none of the material prior to the actual experiment and had had only a conversational acquaintance with the linguistic and kinesic approaches to interview analysis prior ts this session. He was aeked to work with Brosin and to contribute his acquaintance with comunication analysis and his extensive clinical experience to the psychiatrist's categorization
of the material. Brosin and Erikson thus formed a sub-team with Brosin accepting reaponsibility for the final assesament of any particular passage.

Foiluolng the preliminary segmentation of two sizeable stretches of film (and of tape) ( \(1-3323,12373-12883\) ) and the categorization of the segments in terms of the interpersonal, extra-personal, and personal labels, Birduhistell and McQuonn belected certain behavioral items, recurrent in such labelled segments, as characteristic of each uf the three categorias. The two clinicians, although they did in part tely un certain special and characteristic dtems for their segmentation and aegaent - labelling, agreed to utilize titeir non-specific clinical insights for their final judgments.

Birdwhistell set up the following outline of category-featuren as a griide to his final assessment:

Interaction-Topography Criteria: Eody Motion

Category
(1) Interpersomal
(2) Extra-personal
(3) Personal

Behayior:
Body in Eonus, active**, focus on interacting respondent or on surrogate object.***

Tonus and activity variable, focus indeterminate to out-of-focus \([-]\) directed beside, abcrve or below interncting respondent.

Tonus tends to be weak, activity reduced, eyes uoually dropped, so that focus or convergence cannot be determined.

\footnotetext{
* These characteristics can only be placed, of course, after the base-line of each of the participant actors has been determined.
** Activity level is arrived at only after an evaluation of motion qualifiers of intensity, duration, and range.
*w I am , for the time being at least, willing to describe re-peatedly-glanced-at objects in the environment (shoes, cigarettes, matches, the bucket, and the like) as surrogates for the respondent. This decision is based not only on the behavior of the speaker-auditor but also on that of the yis-a-yig. There is some reason to believe that timing in this is patterned to a point which should eventually make possible specific statements as to the etiquette governing now long one can look a yis-a-vis in the eye without seening "too long", and, at the other extreme, how long one can look at a substitute object without causing distress.
}

McQuown ventures the following:
Interaction-Topography Criteria: Speech

Category
(1) Normal -

\section*{Behavior}

Sequences of intonation patterns of this shape.
\(2 \quad 2 \rightarrow 2 \quad 3 \quad 2 \rightarrow 2 \quad 3 \quad 1 \downarrow\) Occasionally on the 2 - 2 omplemented by squeeze ( 9 ) and drawl (?) Occasionally on the \(3-2\) and the \(31 \downarrow\) complemented by overloud ( \(\hat{\Lambda}\) ) and spraad register ( \(\{\) ) Colloquial choice of vocabulary, of pronunciation, and of gramar.
（2）Editorial
（3）Introspective
\begin{tabular}{|c|}
\hline Many sequences of intonation patterns \\
\hline  \\
\hline Occasionally complemented with overloud（ \({ }_{\wedge}\) ） \\
\hline on the 321 \\
\hline Occasionally complemented with overslow（＜＜） \\
\hline and with narrowed register（ \(⿻ ⿱ 一 ⿱ 日 一 丨 一 力^{*}\) ）on the \\
\hline 2 2 2 \(\longrightarrow\) \\
\hline Pseudo－intellectual choice of vocabulary， \\
\hline of pronunciation，and of grammer． \\
\hline Sequence 3 of intonation patterns of this \\
\hline shape \(2 \quad 2 \rightarrow 2030\) \\
\hline Occasionally complemented by overlow（レ）， \\
\hline squeeze（ \(i\) ），and narrowed register（ \(⿻_{i}^{\prime}\) ）on \\
\hline the \(2 \quad 2 \rightarrow\) \\
\hline Occasionally complemented by drawl on \\
\hline the \(3 \quad 2 \longrightarrow\) \\
\hline Colloquial choice of vocabulary，of pro－ \\
\hline nunciation，and of grammar． \\
\hline
\end{tabular}

Brosin reconstruces the following：
Wote：After reviewing the criteria presented by the kinesicist and by the linguist as the probable bases of their judgments，the psychiatrist agreed to try to specify，insofar as possible，the categories on which he based his judgments with respect to the same three categories（here labeled by the psychiatrist ad－personalizing，externalizing，and internalizing）． Other categories which are of interest to the psychiatrist（but for which it is even more difficult to specify the criterial bases）are：
(1) subject abstacting or engaging in defining logical propositions (with close relation of subjects to topic) (arriving at this judgment may require inspection of lexical content of subjects' prior performance or new data elicited from subject on re-examination);
(2) phantasy states (day-dreaming, myth-making, creative activity) (with loosened relation of subject to topic);
(3) reliving old experiences such as those from Wordsworth's "recollections in tranquility" up to and including active reproduction of terror states, as in some war-produced neuroses (may be anxious, euphoric, narcissistic, erotic, or aggressive) (with close relation of subject to topic);
(4) talking to one or more figures beyond those in focus or physically present at the moment (deductible from errors of everyday life, from dreams, from symptom-presentation, from defense mechantsms including life-styles and ego-identities);
(5) states of libidinal satisfaction (inferable from lexical content of prior speech, from elicited reconstruction on the part of the subject, from the subject's tone of voice and body-motiont--including such evidence of oral activity as licking, drinking, smoking, lisping, from visceral taps on urethral and genital activities, and on the more usual blood-pressure, pulse and respiratory rates, skin resistance and temperature, as well as blanching and blushing) (ateflurazran, 1961);
(6) searching or scanning behavior (seeking essential feedback from or corroboration of the messages at all levels);
(7) signaling behavior (Indicating satisfaction or distress regarding the current input or feadback;
(8) levels of activity (conscious, preconscious, and unconsious). It is clear that the three categories chosen with respect to which we produced the activity profile are not a close fit to customary psychiatric categories, but constitute, rather, overlapping entities which bear a strong resemblance to many existing concepts. The names we have assigned to these three categories constitute three sets of parallel and partially synonymous terms to erable us to maintain the thrae-way distinction on \(\because\) the one hand a clear separation of the three approaches on the other. The labels should be construed only as here defined.

For the psychiatrist there is clearly a undfylag theme in these three categories in the sense that ego functions for receiving, ordering, and integrating data and being able to \(c=\mathfrak{L}\) apropriately are seemingly progressively weaker as one goas from ad-personalizing to externalizing to internalizing. A second unifying theme is to be found in the distance in interactional terns which the subject maintains from other people at the time under consideration. In the first category, the subject is presumably maintaining customary defenses and distances, whereas in the second, the ties become looser and the distances greater, and in the third, the subject is even farther away from customary ways of dealing with people and problems. In order to attempt even this crude experiment, therefore, it was necessary to try to specify psychiatric criteria which had some reasonable correspondence to those of other workers. The working definitions used by the psychiatrist in the experiment were the following:

\section*{Caterory}
(1) Ad-personalizing
(2) Externalizing
(3) Internalizing

Data
Subject seems to be acting and talking directly to the person addressed - who is physically present and in focus; subject gives the appearance of close attention to the person addressed and his conduct varies appropriately with that person's behavior.

Subject seems to be talking to a wider audience, shows evidence of "divided listening," or of looking for external supports for weakened ego functions; subject seems to be uncertain about selfimage or ego-identity, with searching bemavior for material from other persons, past or present, often regressive in trand, with use of quotations; subject may manifest scuatization, and incipient development of both hysterical and paranoid mechanisms.

Subject does not appear to be listening or participating actively, but seems to be thinking of something else; subject tends toward withdrawal from the others In the scene and into the self, producing a clinical picture which is essentially

> depressive with regressive appeals for halp; subject may be silent or greatly reduce his verbal production and speed of output is markedly reduced.

Note: We have not tried to interpret this material in terme of preconacious or unconscious activity, nor have we tried to identify those units of behavior learned during the pre-verbal pariod. In this particular case, we mast remember that Doris had extensive training in various e.lta: therapeutic systems so that her finsights may be genuinely her own or may be reflections of carlier experiences in therapy. The transitions between these three states of being may be gradual or abrupt. For the psychiatrist using larger patterns of activity which include the lexical content, the uniti wich he uncovers are generally larger than those discovered by his colleagues, and the transitions are not as sharply defined as they nay be either in kinesic or in linguistic notations. There may well be a real overlap in the states as judged by kinesicist, linguist, and psychiatrist, or overlap in perception of the bases of judgment, as diverse evidence shifts in and out of the investigator's focus. Comparison and contrast of these varied judgmental results will make these differences precise and expose each investigator inevitably to new foci of observation.

In a typical internal dialogue, nonetheless, in which the subject tries to reject or to fight with his conscience (his super-ego, or his internalized social values), it is essehtial, for the psychiatrist, to discriminate between the defiance of, wocking at, or rage against these internal forces, and these feelings as focussed on the current topic or object under discussion. Such defiance (or mock (ng) (or rage) may be
extremaly subtle in its expression and may be accompanied by not readily apparent oral-cannibalistic need to take in so that his self-esteem will Improve.

Such determination, indispensable in the diagnosis and in the therapy of such distress, if it is to be more readily made, and if it Is to be more reliable in long-term relief of such distress, will continue to present a challenge to each of the approaches to the data here presented (and to other approaches which are not), and to the careful comparison, contrast, and interweaving of the various approaches in which we have here taken a first step.

Two considerations determined the choice of the extended sequences for analysis: one, the discovery of a sufficiently long sequence on the sound-film without major interruptions, and, two, the finding of a sequence which could be analyzed within the research-time available

Reviewing the film and surveying the data previously abstracted, we concluded that the first two minutes of the film probably provided the best sequence for our inftial trial ( 0 ( 3323) (pp. 1-50). In all, 3323 frames (or approximately \(1381 / 2\) seconds) of interactional material was surveyed. Prior to the test, 2256 frames had been done in kinemacro and 503 frames in kinemicro. Of the 3323 frames, 503 had been done in phonomicro and the remainder in phono-semi-micro. The material had all been fairly carefully surveyed by the psychiatrists. Alloting a week to this section of the research, the sequence was segmented, the segments were labelled, and the characteristics of the individual segments were specified.

Comparison of the results revealed that there was complete agreement as to labelling on 1331 Erames (or about forty percent of the total sequence). Further breakdown showed that the linguist and the psychiatrists were in agreement on 2132 frames (or on 64.16 percent of the whole), the linguist and the kinesicist on 1615 frames (or 48.6 percent), and the kinesicist and the psychiatrists on 1526 frames (or 45.9 percent). Scanning of the segmentation indicated that part of the disagrement probably related to the size of the uiaits employed by each of the three. It was clear that if only central periods between each notable shift were compared there was much greater agreament among the three segmentations.

A range chart was constructed in order to discover the relative durations of segments abstracted as units by each of the three approaches:
\begin{tabular}{|c|c|c|c|}
\hline Range by Frames & Kinesicist & Linguist & Psychiatrists \\
\hline 0-20 & 10 & 3 & 0 \\
\hline 21-40 & 11 & 5 & 2 \\
\hline 41-60 & 4 & 8 & 5 \\
\hline 61-80 & 5 & 2 & 2 \\
\hline 81-100 & 3 & 1 & 3 \\
\hline 101-120 & 2 & 3 & 1 \\
\hline 121-140 & 2 & 1 & 0 \\
\hline 141-160 & 2 & 1 & 2 \\
\hline 161-180 & 3 & 2 & 2 \\
\hline 181-200 & 2 & 1 & 2 \\
\hline 201-375 & 1 & 2 & 5 \\
\hline 376 - & 0 & 1 & 0 \\
\hline \multicolumn{4}{|l|}{Of the 45 shifts (from one segment to another) indicated by the} \\
\hline \multicolumn{4}{|l|}{kinesicist, 29 (or almost 50 percent) initiate sequences of less than} \\
\hline \multicolumn{4}{|l|}{two seconds duration. Of the 30 shifts marked by the linguist, only} \\
\hline \multicolumn{4}{|l|}{8 (or slightly more than one-fourth) initiate sequences of less than} \\
\hline \multicolumn{4}{|l|}{two seconds. Of the 24 shifts located by the psychiatrists, finally,} \\
\hline \multicolumn{4}{|l|}{only 2 start sequences of less than two seconds duration. The average} \\
\hline \multicolumn{4}{|l|}{duration of a kinesic sequence was 75.52 frames (the median 49), of a} \\
\hline \multicolumn{4}{|l|}{linguistic sequence 110.76 frames (the median 60), and of a peychiatric} \\
\hline \multicolumn{4}{|l|}{moment 134.29 frames (the median 104). In other words, the body-motion} \\
\hline \multicolumn{4}{|l|}{behavior tended to break into two-second sequences, the linguistic into} \\
\hline \multicolumn{4}{|l|}{three-second intervals, and the complexes evaluated by the psychiacrists} \\
\hline \multicolumn{4}{|l|}{into four second stretches.} \\
\hline
\end{tabular}


These figures, clearly, must in some way reflect the nature of the media or the 1 imitations of the analytic instruments employed in segmanting them. According to Dr. George L. Trager (personal commencation). most sentences in conversational American English are from about \(21 / 2\) to \(31 / 2\) seconds in duration. It should not be surprising, therefore, that the durations marked by the linguist are approximately of sentence length. Since many American speakers use eye-focus (or, rather, convergence) as a means of indicating attention (or, of demanding it) within sentences, it is not surprising to find a higher incidence of sub-sentencesized segents recorded by the kinesicist. The psychiatrist, finally, as a literate American, will tend to use the sentence as a basic unit. Such a tendency might possibly in part explain the greater agreement between the psychiatrist and the linguist as to the labelling of the segments.

Several things arie evident from these data:
(1) There is no one-tomone coincidence in size between the units isolable in the three media;
(2) there is, therefore, no automatic coincidence in borders between the units of the different mella in the stream of discourse;
(3) sone units are larger than others and may be sub-divided by co-occurring but smaller units of behavior in another medium (largest are the psychiatrist's units, next largest the linguist's, and gmalleat the kinesicist's);
(4) where there is coincidence in burders in all three, major breaks occur; where the borders of only two match there are lesser breaks;
(5) where the borders do not coincide between any two, there may be some smear of psychic units (with lag in one or anticipation in another)

The amount of agreement in segmentation and in segment-characterization among the three approaches is heartening. It is clear, however, that neither speech data nor body-motion data alone can tell us the full btory on the psychic segmentation and segmentcharacterization of interaction sequences. On the other hand, it is also clear that linguistic and kinesic segmentation within such sequences may reveal shifte subtler than those that are easily objectifiable by the psychiatrist.

More reliable and more satisfying interpretation of the coincidences and non-coincidences in segmentation and segment-characterization as practiced by the three sub-disciplines will, of curse, require further research in each of the sub-fields. The tools for linguistic (and paralinguistic), and fur kinesic (and para-kinesic) analysis must be greatly sharpened if we are to have greater confidence in our identifications. The variety of interaciion sequences examined must be considerably increased. The precision of the labelling frames employed for their characterization must be very much improved and their relevance to problems of psychiatric (and other) interpretation clearly specified.

\section*{C H A P T E R 10}

Summary, Conclusions, and

Outlook

Norman A. McQuown
\(z=\therefore<-1\)

The six-man rescarch-team through whose efforts it has been possible to put together this book was first assembled at the Center for Advanced Study in the Behavioral Sciences during the academic year 1955-1956. Its make-up was largely pre-determined by the selection committee which chose the scholars who were in residence at the Center during that year. Ralph W. Tyler, Director of the Center, played in this process a decisive role, as did Clyde M. Kluckhohn, among his advisors. Among those chosen was Dr. Frieda Fromm-Reichmann and her role in the formation of the team was the crucial one (Bateson, 1959). Two linguists (Charles F. Hockett and Norman A. McQuown) were in residence during that year, as were a number of cultural anthropologists (Alfred I. Kroeber, David M. Schneider, David Aberle) and another psychiatrist (Henry W. Brosin). Meeting in a seminar on problems of language behavior, after initial discussions among all of these, Dr. Fromm-Reichmann persuaded McQuown to attempt a linguistic analysis of psychiatric interview materials. The analysis was carried out during the months of December 1955 and January 1956 and the results (McQuown, 1957 ) were presented to the seminar. McQuown suggested the desirability of analyzing the body-motion activity present in such interviews and areangements were made in February 1956 for Ray \(L\). Birdwhistell to visit the Center and present to the seminar the techniques of kinesic research. In the search for suitable materials, Birdwhistell persuaded Gregory Bateson to show the seminar some of his sound-filmed family-interviews and Bateson, himself, became interested in the possibili.ties
of linguistic-ikinesic analysis of his materials. In the course of planning possible research on such materials, both Charles F. Hockett and Henry W. Brosin became enthusiastically involved and the team was complete.

Active research did not begin until these six could be freed for a fairly extended period, that is, not until June 1956. It lasted intensively for a three-month period (June, July, and August of that year). Birdwhistell was obliged to return to other duties in mid-August, Fromm-Reichmann, Hockett, and McQuown completed their year at the Center on August 31. Subsequent very brief sessions brought the team together, but never again for as intensive work as had been possible at the Center.

At the first of these subsequent sessions (held at the University of Buffalo from October 10-14, 1956), the Iinguists Henry Lee Smith, Jr. and George L. Trager were persuaded to take an active interest in the work of our team. A second session (Fromm-Reichmann and Hockett absent) was held in Buffalo from December 27-29, 1956 during which those present worked on a second set of family-interview materials the analysis of which was to serve them for presentation before the American Orthopsychiatric Association. A third meeting was held in Buffalo on February 28, and March 1 and 2, 1957 to complete work on these same second-family materials. A fourth session was held in Buffalo on May 3, 4, and 5 at which preparations were made for presenting samples of our first-family materials before the American Psychiatric Association. Fromm-Reichmann \({ }^{t}\) s death \((A, \because \because, \because)\) had deprived the team of one member, and the multiple obligations of the other members
forced a moratorium during the summer of 1957. A fifth meeting Was held in Buffalo from October 18-20, 1957, this time without Fromm-Reichmann, with Hockett reporting on new work which he nad begun with Pittenger (Pittenger-Hockett, 1960 ) at Syracuse, and With less active participation by Smith and by Trager. A sixth meeting (Bateson and Hockett absent) was held in Buffalo from February 28 through March 1 and 2, 1958 and a seventh was planned. At this seventh meeting, held in Pittsburgh from June 15 through T9, 1958, Birdwhistell, Brosin, and McQuown worked through a sizeable batch of first-family interview material and Erik Erickson joined forces with Brosin in some of the psychiatric evaluation of the materials covered. Hockett was obliged to withdraw from active participation in the project at this point and turned over his accumulated linguistic materials to NicQuown. A second moratorium was called during the summer of 1958 , since McQuown was in Mexico and Bateson, Birdwhistell, and Brosin were otherwise engaged. An eighth meeting was held in Pittsburgh fig October 1958 at which the four remaining members of the team were present. McQuown, unfortunately, found himself winding up a Mexican project during the remainder of the academic year 1958-1959, terminated it on August 1, 1959, and was then obliged to return to Mexico, thus bringing about a third moratorium during the summer of 1959. A ninth meeting was held in Pittsburgh from September ; 1959, and in January 1960 McQuown became involved in another Mexican project. In May, 1960 , he became involved in a third Mexican project, thus bringing about a fourth moratorium during the summex of 1960. A tenth meeting was held in Pittsburgh from September
- bi..., 1960 and an eleventh from February 1 through 4, 1961. Four of the original six members of the team remain active is The course of our team work was not always smooth, there was occasional distress, and rare but nonetheless real anger. That four out of the original six members had had previous extensive interdisciplinary contact, in fair part at the Josiah Macy Foundation symposia, certainly contriouted to the remarkable fact that the essential disciplinary components of the original team are still represented on it.

That it has not been possible after the three all-too-brief months at the Center, to provide the team with another such sustained and intensive research experience is regrettable, but not unpredictable in a busy academic and professional world. This fact is, of course, reflected in the quantity and quality of research results, which for this volume can only be illustrative, and typical, rather than substantive, and probatory. Even though the substantive research results presented here, therefore, are limited, it has, nonetheless, been possible here to present the tools for opening up a new field and for carrying out further research in it and to illustrate their use in a number of research contexts.

The by-products of our interdisciplinary research experience have been many. I here list some of them as stated by the various members of our team:

\section*{Bateson:}
(1) We have learned more about interaction as punctuated into contexts of learning and we have accumulated
empirical data on the continuity and cyclicity of the dounle-bind.
(2) We have discovered empirical markers for shifting logical types and have found that such markers tend to be metacommunicative.
(3) We have seen that both the digital analysis of "pip" or "bit" phenomena and the analogic analysis of total pattern or system phenomena are appropriate on every level.
(4) We have experienced both the value of micro-analysis of the structure of short sequences and the usefulness of macro-analysis of the structure of total scenes.
(5) We have both new information and new kinds of information on the resistance of systems to parametric change.

Birdwhistell:
(1) Kinesics as a research area has been revived and a new macro-kinesic recording system has been worked out and tried out.
(2) We have been forced both into technological innovation (better film focus, better sound track) and into a recognition of the need for it (good color film, a fool-proof calibration system for coordinating sight and sound).
(3) We have been obliged to explore the area of parakinesics ana to devise a frame within which

> to describe parakinesic phenomena.
(4) We have learned that the amount of the body involvea in simultaneous language and gesture is large and we have begun to explore the extent to which they supplement or reinforce each other.
(5) We bave been forced to recognize that no single channel and no single unit within any type of channel by itself means any particular thing: what is conveyed must be discovered anew in each context, and whatever it is, though it may involve ambiguity, it never gives rise to contradiction.

\section*{Brosin:}
(I) Our work has strengthened the assumption of psychic determinism: we have discovered system within system within system in multilevel homeostasis.
(2) We have been provided with new tools for the study of group dynamics and their use bas forced us to recognize new dimensions of complexity in group organization.
(3) Our investigations have provided new support for social matrix theories of personality (character?) (temperament?) development and have reinforced the conviction that items of behavior as such are never abnormal-only constellations are.
(4) We have been forced to suspect the artificiality of recognized physiological limens and to expand
tremendously the area of sub-recall learning (of things which happen in as little as \(1 / 24\) of a second).
(5) We have an entirely now conception of psycholofical time and a new appreciation of how much interaction takes place in a second of chronological time.
(6) With Fromm-Reichmann we now recognize the possi-

 communicable bases for psychiatric intuitions are now at hand.
(7) We can now detect specifiable speech and body-motion behavior that confirms for us the adage that repression is the price of civilization and shows us the details of the mechanism for learning not to learn.

\section*{McQuown:}
(1) We have seen that although the general principles of behavioral analysis are the same for both speech and body-motion behavior, there are no two cultural systems with entirely analogous structures.
(2) We have come to realize that we have no established base-lines for speech and body-motion behavior in any of our sociocultural groups (none for children, none for suburbia, none for geographical areas),
against which we micht find it possible to measure individual behavior.
(3)

We have been forced to recognize that without comparative studies of speech and body-motion behavior in families which would give us some idea of the norms for such behavior and its range of variation, we cannot place the behavior of any one family along that range.
(4) We have been obliged to develop the area of paralinguistics devoted to a systematic study of all those vocal phenomena which are separate from language, but in which language is embedded.
(5) We have been brought to a realization of the need for new linguistic research into larger-than-sen-tence-size units, into spontaneous conversational materials, and into the variability manifest in the speech of members of a much wider variety of social groups.

We have all come to recognize the central value of the new tools in behavioral analysis: the replicability of the analyses achieved through them. Uncertain though our interpretations of oehavior may be, we may now produce a corpus of specified behavioral phenomena on which such interpretations are based, a corpus which is available to all for repeated examination, for correction where correction is demonstrably necessary, for refinement where refinement is desired, and for the testing of new interpretive hypotheses where the old ones have proved to be unsatisfactory.

The tools, furthermore, althouch they have received their initial trial on family interview materials at the hands of psychiatrists, and those interested in the etiology of mental disturbance, are multi-valent and may be employed in the investigation of behavior in a wide variety of contexts:
(I) in typical family intercourse;
(2) in the doctor-patient relationship;
(3) in psychotherapeutic interviews;
(4) in the relationship between father-confessor and parishioner;
(5) in the communication between buyer and seller;
(6) in the classroom;
(7) in "committee" work;
(8) in the courts of law;
(9) in labor-industry negotiations;
(10) in personnel selection;
(II) in the advertising field;
(12) in the motion-picture--movie viewer context;
(13) in the legitimate theatre-actor-audience relationship;
(14) in the functioning of legislative bodies;
(15) jn international conferences;
(.16) in unofficial international contexts (tourist, business, professional);
(17.) in the relationship between anthropological field-worker and his informant;
(18) in the cross-cultural comparison of different communities;
(19) in the investigation of the relationship between different communicational systems and different world views;
(20) in the study of the functioning of human (as opposed to non-human) communication systems in general.

Application of the new tools in such a wide variety of contexts will require, of course, the training of new technicians expert in their use in describing the behavioral facts, and of new investigators skilled in the interpretation of such facts. Such application will inevitably lead to the refinement both of the descriptive tools and of the interpretive frames within which descriptive results are evaluated. As new knowledge, finally, becomes available through their application, it will force a re-examination of each of the specialized sub-fields in which they are applied and a reintegration of the total knowledge available within them.

THE NATURAL HISTORY
OF
AN INTERVIEW
(edited by Norman A. McQuown)
with contributions by

Gregory Bateson
Ray L. Birdwhistell
Henry W. Brosin
Charles F. Hocke*:
Norman A. McQuown
Henry L. Smith, Jr.
George L. Trager

Part IV: Appendices 1 - 10

\section*{MICROFILM COLLECTION}

OF
MANUSCRIPTS
ON
CULTURAL ANTHROPOLOGY

No. 98
Series XV

University of Chicago Library
Chicago, Illinois
June 30, 1971
\begin{tabular}{|c|c|c|}
\hline Toreword & & (McQuown) \\
\hline Chapter 1 : & Commurication & (Bateson) \\
\hline Chapter 2 : & Vocal Activity & (Hockett) \\
\hline Chapter 3 : & Body Motion & (Birdwhistell) \\
\hline Chapter 4 : & Implications for Psychiatry & (Brosin) \\
\hline Chapter \(j\) : & The Actors and the Setting & (Bateson) \\
\hline Chapter 6: & Transcript, Transcription, and Commentary & whistell, Hockett, Mc(uown) \\
\hline Chapter 7 : & Communicative Base Lines and Symptomatic Features & \[
\begin{gathered}
\text { (Birdwhistell, } \\
\text { McQuown) }
\end{gathered}
\] \\
\hline Chapter 8 : & The Fsychiatric Overview of the Family Setting & (Brosin) \\
\hline Chapter 9 : & Collation
(Bird & whistell, Brosin, Mc Quown) \\
\hline Chapter 10 : & Summary, Conclusions, and Outlook & (McQuown) \\
\hline & Appenlices & \\
\hline Apperdix 1: & Paralanguage: A First Approximation & (Trager) \\
\hline Appendix 2: & Symbology for Speech Transcription & (Hockett) \\
\hline Appendix 3: & Symbology for Speech Transcription & (Mc Quown) \\
\hline Appendix 4: & Microkinesic Transcription & (Birdwhistell) \\
\hline Appendix 5: & Macrokinesic Transcription & (Birdwhistell) \\
\hline Appendix 6: & Sample Kinesic Transcription & (Birdwhistell) \\
\hline Appendix 7: & Retranscription and Collation Charts & (McQuown) \\
\hline Appendix 8: & Machinery & (McQuown) \\
\hline Appendix 9: & Citations from the Literature & (Brosin) \\
\hline Appenaix 10: & Bibliography & (Brosiz) \\
\hline
\end{tabular}

Department of Anthropology and
Linguistics, Univ. of Buffalo]
PARALANGUAGE: A FIRST APPROXIMATION
George L. Trager, University of Buffalo
[P5. Speech as a whole. Paralanguage.]
0. Introduction.

For many years linguists and other students of language and of communication as a whole have been aware that communication is more than language. They have known that all the noises and movements entering into the activity of people talking to each other and exchanging communications needed to be taken into account if a total picture of the activity was to be arrived at. At the same time it was known, by a sort of tacit consent, that much of what went on was not accessible to study by such scientific methods as had yet been devised. Accordingly, linguists limited themselves to examination of such parts of linguistic structures as they could define and examine objectively, and other communication systems than language proper remained undefined.
0.1. With the development of techniques of phonemic analysis, it became possible to include accentual phenomena of many kinds in linguistic study. The present author in 'The theory of accentual systems' (Trager, 1941) [see 5, References, below] set forth the necessity of treating accentual phenomena--stress, pitch, quantity, and others--by the same techniques as had been applied for centuries to vowel and consonant phenomena. A few years later English pitch phonemes were analyzed (Wells, 1945). Then the study of intonation phenomena in English was begun on a large scale (Pike, 1946): in this work and the practical applications that have stemmed from it, many phenomena were alluded to that were not strictly analyzable in terms of the phonemes of pitch, or any other phonemic entities in the system set forth, but which were clearly parts of the total utterances being examined and analyzed.

In The field of linguistics (Trager, 1949), the study of language and its attendent phenomena was designated as macrolinguistics, which was subdivided into prelinguistics, microlinguistics, and metalinguistics (p.2). Prelinguistics was said to include 'physical and biological events from the point of view of the organization of the statements about them into systems of data useful to the linguist' (2). And the statement of the 'relations between language and any of the other cultural systems ... will constitute the metalinguistics ...' (7).

Following this programatic statement, a first application to the actual
material of English speech was made in An outline of English structure (Trager and Smith, 1951). Part III, Metalinguistics, of that work (81-8) set forth some preliminary considerations of 'metalinguistic phonology' and 'metalinguistic morphology', and attempted to describe some of the factors that could lead to a definition of style.

In the spring of 1952, Birdwhistell, Smith, and Trager engaged in a research seminar at the Foreign Service Institate which led Birdwhistell to define and delimit his preliminary material on body motion and to publish the results (1952).

As another result of the same seminar, and in pursuit of some of the suggestions in An outline of English structure, Smith put out in prepublication mimeographed form An outline of metalinguistic analysis (1952). The principal concerns were with items to be included under a 'metalinguistic phonology'. Categories were established, symbols provided, and suggestions made as to how the phenomena might be described. As will be seen below, the categories have been almost completely rearranged as a consequence of work since that time.

In the fall of 1952, Smith and Trager engaged in another research seminar with Edward T. Hall, Jr., which led to a preliminary publication (Hall and Trager, 1953). There it was pointed out that language was accompanied by other communication systems, one of motion--kinesics (see 3, below), and one of extra-linguistic noisesm-vocalizations. This idea was expanded and revised by Trager and Hall in their 'Culture and communication ...' (1954). There communication was placed in a larger setting, called symbolics. Included in symbolics were the phenomena allonated (above) to prelinguistics, identified by such terms as cerebration, encoding, voice set, voice quality, body set, and motion quality. Communication itself was divided into language, vocalizations, and kinesics.
0.2. In the summer of 1956 research was conducted at the Center for Advanced Study in the Behavioral Sciences at Stanford, California, by a group of psychiatrists and anthropologists on material from psychotherapeutic interviews recorded on tape and film. The group has continued its association, has involved Trager and Smith in the project, and is preparing an extensive publication (Bateson and others, 1958). In this work a great deal of new material was gathered in the areas so far designated as vocalizations and kinesics. One publication has already resulted (McQuown, 1957).

Similar work by Smith with R.E. Pittenger resulted in a publication containing some even more precise :: tutements about the kinds of events being recorded in the areu of vocalizations (Pittenger and Smith, 1957).

In preparation for the publication alluded to (1958), and for further work under a joint project of the Upstate Medical College of the State University of New York and the Institute for Research in Human Communication of the University of Buffalo, as well as for other research being engaged in by the various persons so far named, it seems appropriate at this time to set forth as a first approximation to definitiveness a statement of the fields we are working in, the kinds of events being observed, the tentative classification of these events in terms of a postulated frame of reference, the terminology being used, and other pertinent matters.

The author is responsible for the detail of this presentation, but he has developed it in constant communication with the colleagues mentioned, all of whom agree with the statement in general, though necessarily reserving the right to differ in many details and even in major classifications. The whole area is still too new for anything more precise. As virtual co-authors must be mentioned Henry Lee Smith, Jr., Norman A. McQuown, and Ray L. Birdwhistell.
1. The communication systems.

It is taken as a given that language is the principal mode of communication for human beings. It is further assumed that language is always accompanied by other communication systems, that all culture is an interacting set of communications, and that communication as such results from and is a composite of all the specific communication systems as they occur in the total cultural complex.
1.1. Language will be described here only to the extent of saying that it is the cultural system which employs certain of the noises made by what are called the organs of speech, combines them into recurrent sequences, and arranges these sequences in systematic distributions in relation to fin each other and in reference to other cultural systems. That is, language haf sound, shape, and sense. This brief description is based upon the extended discussion presented by the author in his article 'Language' (Trager, 1955), and further commented on in the article 'Linguistics' (Trager, 1956).

When language is used it takes place in the setting of an act of speech. Speech ('talking') results from activities which create a background of voice set (1.2, below). This background involves the idosyncratic, including the specific physiology of the speakers and the total physical setting; it is in the area of prelinguistics (Trager, 1949, 2-3). Against this background there take place three kinds of events employing the vocal apparatus: language
(as described); variegated other noises, not having the structure of language-vocalizations; and modifications of all the language and other noises. These modifications are the voice qualities. The vocalizations and voice qualities together are being called paralanguage (a term suggested by A. A. Hill, who has been interested in the development of these studies). Paralanguage is part of the metalinguistic area of activity.

The setting of language and paralanguage may be diagrammatically depicted thus:

Voice set
[as a background against which are measured:]
\(\left.\begin{array}{c}\text { voice qualities } \\
\text { [and] } \\
\text { vocalizations }\end{array}\right\}\)\begin{tabular}{c} 
[These being termed] \\
paralanguage
\end{tabular}

\section*{[found in systematic association with]} language.
The words paralinguistic and paralinguistics are self-explanatory.
Voice set is briefly discussed in 1.2 and voice qualities are taken up in 1.3. Then section 2 and its subdivisions (2.1-.3) are devoted to the vocalizations.
1.2. Voice set as here delimited is, as stated, a matter of prelinguistics. It involves the physiological and physical peculiarities resulting in the patterned identification of individuals as members of a societal group and as persons of a certain sex, age, state of health, body build, rhythm state, position in a group, mood, bodily condition, location. From the physical and physiological characteristics listed are derived cultural identifications of gender, age grade, health image, body image, rhythmic image, status, mode, cultural condition, locale-and undoubtedly others.

In analyzing and recording the paralinguistic phenomena to be described, it is necessary to state what the voice set back of them is. Such a statement is at least in part an abstraction going back from the actual observation of the paralanguage. But it is not the intention here to discuss the exact nature of voice set and its relation to paralanguage-this being a large separate task. The notation of voice set accompanying a paralinguistic analysis is then to be made in whatever ordinary descriptive terms are available, and to be understood preanalytic.
1.3. Voice qualities are recognizable as actual speech events, phenomena
 Piblicuntret

Trager, PARALANGUAGE
that can be softed out from what is said and heard
The voice qualities noted so far are these: pitch range, vocal lip control, glottis control, pitch control, articulation control, rhythm control, resonance, tempo. Pitch range may be identified as spread upward or downward, or narrowed from above or below. Vocal lip control ranges from heavy rasp or hoarseness through slight rasp to various degrees of openness. Glottis control deals with \({ }^{7}\) sharp and smooth transitions in pitch. Articulation control covers forceful (precise) and relaxed (slurred) speech. Rhythm control involves smooth and jerky setting off of portions of vocal activity. Resonance ranges from resonant to thin. Tempo is described as increased or decreased from a norm.

These voice qualities as described seem to involve paired attributes, but the pairs of terms are more properly descriptive of extremes between which there are continua or several intermittent degrees. Symbols are suggested in section 4 below.
2. Vocalizations.

By contrast with voice set and voice qualities, which are overall or background characteristics of the voice, the vocalizations are actual specifically identifiable noises (sounds) or aspects of noises. Yet they are all different in scope and in concatenation from the sounds of language. Every investigator of language has found it necessary to allude to such sounds but to separate them from the actual linguistic \(\$\) material he describes.

We have found it convenient to discuss three kinds of vocalizations. There is a group of items whose number is yet not delimited, and which have a wide scope over or between linguistic material; these are called vocal characterizers--discussed in 2.1. A second group, the vocal qualifiers, again have rather wide scope and may be combined with the characterizers; they are discussed in 2.2. The third group is composed of sounds that are much like the sounds of language, but again differ from them in scope and concatenation; these are the vocal segregates, taken up in 2.3. Symbols for all vocalizations are suggested in 4 below.
2.1. The vocal characterizers are first of all laughing and crying, which appear to be much alike and may represent extremes of a continuum, something like the voice qualities; intermediate (and possibly involving other vocalizations) would be giggling, snickering, whimpering, sobbing. Then comes a group involving yelling and whispering as extremes, with muffled sounds and
muttering in between. Other groups involve moaning and groaning, whining and breaking, belching and yauning, and probably others. With all these, one 'talks through' them.

All of these, as stated, can cover large areas of talking, surrounding, as it were, the language material, or they can occur between bits of language. Together with language, they are embedded in and modified by the voice qualities and voice set.
2.2. Vocal qualifiers were at one time considered by some of us as including many of the voice qualities and vocal characterizers. But working with the material has made it clear that there is a small set of sound characteristics that can be separated out and handled very precisely, and which 'qualify' large or small stretches of language material as well as of the other vocalizations.

We now hold that there are three kinds of vocal qualifiers, those of intensity, pitch height, and extent. Within each of these we establish \({ }^{a^{\mu}}\) dichotomy, a range up and a range down from a norm or zero point. And for each range up or down we identify three degrees. The total set-up is as follows:
intensity: \(\left\{\begin{array}{c}\text { overloud } \\ \text { oversoft }\end{array}\right\}\) :somewhat, considerably, very much;
pitch height: \(\left\{\begin{array}{c}\text { overhigh } \\ \text { overlow }\end{array}\right\}:\) slightly, appreciably, greatly;
extent: \(\left\{\begin{array}{c}\text { drawl } \\ \text { clipping }\end{array}\right\}:\) slight, noticeable, extreme.
2.3. Attention was first drawn to what we now call vocal segregates by the necessity of treating such items as English uh-uh for negation, uh-huh for affirmation, the uh of hesitation, sh, the Japanese hiss, and other sounds that did not seem to fit into ordinary phonological frames in a language. The uh-uh and uh-huh noises were at first thought to be alone in this category, called 'vocal identifiers' by Pittenger and Smith (1957). The term vocal segregates was suggested by Bateson.

Some of these noises, such as \(\underline{\underline{h}}\), sh, or the various clicks, seemed in many ways to be identical with actual language sounds, in the language being studied, or in some other. But they did not appear in the kinds of sequences
that can be called words, and it became increasingly evident from the work alluded to in 0 above that they would have to be analyzed separately and by a scale less fine-grained than that of phonetics.

The number of different noises of this type that came out in the data we examined led the present writer to establish a table, something like those used in phonetics. The classification turns out to be multi-dimensional, requiring special arrangement if depicted on paper. One dimension is that of articulating organs or areas, with closure and release, or as continuant; then comes a dimension of manners of articulation, including vowel-like resonance, and then there is a final dimension dealing with voice and with clicking.

The articulating organs and areas recognized are: spread lips, puckered lips, dental, alveolar, palatal, dorsal, glottal, velic, bronchial. The manners of articulation are: closed-lip nasalization, open-lip nasalization, lateral, trill, vowel-like resonance (higher, lower), inspiration, expiration. The final categorization is as voiced, voiceless, or clicked. A category of non-phonation (zero phonation, 'pause') seems to be necessarily included under segregates. A table of vocal segregates, with suggested symbols, is found below in 4 .

It will be useful to describe in the terms just given some of the noises that are dealt with here. The usual uh-uh of negation has higher vowel-like resonance, with internal (and often initial) glottal closure; it may or may not be accompanied by closed-lip or open-lip nasalization. The uh-huh of affirmation is just like the negation except for glottal continuant internally instead of glottal closure. The reported ha, or the like, as the word for 'yes' in many American Indian languages is probably the segregate complex of the glottal continuant, lower vowel-like resonance, and open-lip nasalization. The Japanese hiss is the alveolar continuant, with inspiration. The shushing sound is the palatal continuant. Coughs, snorts, sniffs, imitations of animal cries, all seem to be analyzabdil in these terms.

\section*{3. Paralanguage and kinesics.}

Kinesics was first delineated as an area for anthropological investigation, as stated, by Birdwhistell in 1952. Since the summer of 1956 Birdwhistell has had the opportunity to conduct extended series of observations on films, in the presence of or with the collaboration of one or more linguists. The theoretical description of the field has gone along with that of paralanguage, and it appears that in their overall structure these two fields of human behavior may be largely
analogous to each other, as contrasted with language. Thus there seems to be no subdivision of either kinesics or paralinguistics exactly analogous to the phonology-morphology-semology division of language. Just how the structures of paralanguage and kinesics will work out eventually is not yet clear, however. One important correlation is between kinesic 'markers' and points of occurrence of zero-segregates. Another is the coincidence of such motions as head nods with the occurrence of vocal qualifiers.

The research projects now going on should make possible a more nearly definitive statement of kinesics before long, and should also bring added refinements to the description of paralanguage.
4. Summary.

This article has presented a synthesis of the now available data on the phenomena, which accompany language, usually referred to by such terms as 'tone of voice!. These phenomena, the necessify of analyzing which was pointed up by research on filmed and tape-recorded psychotherapeutic interviews and similar materials, are now handled under the term paralanguage.

Paralanguage is divided into voice set as background for, and voice qualities and vocalizations as accompaniments of, language proper.

In analyzing a communication, one must, to cover all the data, include material in the areas of paralanguage and kiresics as well as in language. In the research alluded to above various applications of this injunction have been made. The analyses of the material observed that have been presented here arose from this research, and various practical solutions of problems of symbolization and keeping apart of levels were reached. We conclude this presentation by suggestions for symbols.

It is emphasized that the presentation is not definitive, and the symbols especially are to be taken as the most tentative of suggestions.
4.1. Symbols for the main categories are:
\[
\begin{array}{lll}
\text { Voice set [precedes] } & \text { VS. } & \\
\text { Speech [which includes:] } & \text { Sp: } & \\
\text { Paralanguage [divided into] } & & \text { PL-- } \\
\text { Voice qualities [and] } & & \text { VQ, } \\
\text { Vocalizations [; and] } & & V_{z} ; \\
\text { Language [. The whole accompanied by] } & \text { L. }
\end{array}
\]

\section*{Kinesics.}
\(K\).
If one is doing recording on large sheets of paper, it is probably best to

STUDIES IN LINGUISTICS，Volume 13， 1958
thin
－t
tempo＊
Te
increased
decreased
－＜
The principal symbols should be used with the subsidiary ones．Symbols should be placed at the beginning and end of each stretch affected，thus：
\[
\mathrm{Te}-\langle\ldots\rangle
\]

VQ is a category in which several items may appear at once，so several lines should be allowed．

The vocalizations， Vz ，are subdivided into：
Vch vocal characterizers，
Vqu vocal qualifiers，
Vsg vocal segregates．
The Vch categories are probably best represented by letter abbreviations for the present，thus：
\begin{tabular}{|c|c|}
\hline laughing & Lf \\
\hline giggling & －gi \\
\hline snickering & Sn \\
\hline crying & Cr \\
\hline whimpering & －wh \\
\hline sobbing & －so \\
\hline yelling & Ye \\
\hline muffled & －mf \\
\hline whispering & Wh \\
\hline muttering & －mt \\
\hline moaning & Mn \\
\hline groaning & Gr \\
\hline whining & Wn \\
\hline breaking & Br \\
\hline belching & Bl \\
\hline yawning & Yn \\
\hline
\end{tabular}

These are used as are the VQ symbols：Lf．．．．Lf．
Vqu categories have these symbols：
\begin{tabular}{|c|c|}
\hline intensity：overloud & ，\(\hat{\lambda}\) \\
\hline （In－）oversoft & シ \\
\hline pitch height：overhigh & 十禾 \\
\hline
\end{tabular}


Trager，PARALANGUAGE
\begin{tabular}{|c|c|c|}
\hline （PH－） & overlow & \(\downarrow \pm ⿻\) \\
\hline extent： & & －7年 \\
\hline （Ex－） & & －屯 \(\ddagger\) \\
\hline
\end{tabular}

The symbols are placed at the beginning and end of the stretch affected：\(\uparrow \ldots \uparrow\). The Vsg table is as follows：


These symbols are used more or less like phonetic symbols，sequentially：uh－huh THF，Ch－hunh \(\mathbb{T H E N}, \underline{h m} H M\) brrr（referring to cold）PRV，tsk－tsk TE，etc．
（u）5．References．
Bateson，Gregory；Ray L．Birdwhistell；Henry W．Brosin；Charles F．Hockett； Norman A．McQuown．
Norman A．McQuown．
Birdwhistell，Ray L．
1952．Introduction to kinesics ．．．Washington，D．C．，U．S．Dept．of State， \(\frac{\text { Introduction }}{\text { Foreign Service }} \frac{\text { kinesics }}{\text { Institute．．．．Washington，D．C．，U．S．Dept．of State，}}\) Forei

Hall，Edward T．，Jr．；and George L．Trager
1953．The analysis of culture．Washington，D．C．，American Council of Learned

12

\section*{STUDIES IN LINGUISTIICS，Volume 13， 1958}

Societies．（Prepublication edition．）62p．
McQuown，Norman A．
1957．Linguistic transcription and specification of psychiatric interview material．Psychiatry 20．79－86．

Pike，Kenneth L．
1946．The intonation of American English．Ann Arbor，Mich．，University of \(\frac{\text { The }}{\text { Michigan press．}} \frac{\text { intonation }}{\text { of }} \frac{\text { American }}{\text { xi，200p．}} \frac{\text { English．Ann }}{\text {（University }}\) of Michigan Publications， Linguistics，1．）

Pittenger，Robert E．；and Henry Lee Smith，Jr．
1957．A basis for some contributions of linguistics to psychiatry．Psychiatry 20．61－78．

Smith，Henry Lee，Jr．
1952．An outline of metalinguistic analysis（tentative draft）．Washington， D．C．，U．S．Dept．of State，Foreign Service Institute．Mimeogr．，18p．
Trager，George L．
1941．The theory of accentual systems．Language，culture，and personality The theory of accentual systems．Language，culture，and per
（essays in memory of Edward Sapir）
（Misc．
1949．The field of linguistics．Norman，Okla．，Battenburg press．（SIL：OP1．）
1955．8p．
1955．Language．Encyclopaedia Britannica 13．696－703．
1956．Linguistics．Encyclopaedia Britannica 14．162A－H， 163.
－－．．．．and Edward T．Hall，Jr．
Culture and communication：a model and an analysis．Explorations 3．157－49（August，1954）．

1951．An outline of English structure．Norman，Okla．，Battenberg press．（SIL： OP3．）92p．［2d printing，Washington，D．C．，ACLS，1956；3rd printing， ibid．，1957．］
Wells，’ulon S．
1945．The pitch phonemes of English．Language 21．17－39．
［January，1958］
\begin{tabular}{|c|c|c|c|}
\hline  &  &  & \begin{tabular}{l}
2- - - \\
子 0 o
\end{tabular} \\
\hline
\end{tabular}





\begin{tabular}{|c|c|c|c|c|}
\hline & & 11 & & 12 \\
\hline \(d l^{+}\) & \(\boldsymbol{\lambda}\) & \({\underset{\sim}{4}}^{+}\) & \(h\) & \\
\hline \(k x\) & k & \(\xrightarrow{\mu}\) & w & \\
\hline \(\mathfrak{g g}\) & \(\mathfrak{g}\) & ! & hy & \\
\hline & & ! & \(y\) & \\
\hline k & \(q\) & \# & 4 & \\
\hline \(\dot{\boldsymbol{x}}\) & x & \(\stackrel{+}{+}\) & h & \\
\hline š & \(\stackrel{\text { ş }}{ }\) & \(\mathrm{V}^{+}\) & ! & \\
\hline z & そ & \(\chi^{+}\) & \(\mathfrak{6}\) & \\
\hline ts \({ }^{\prime \prime}\) & \(\stackrel{\text { ç }}{ }\) & \({ }^{+}\) & ¢ & \\
\hline d \(z^{*}\) & \% (i) & \(\uparrow\) & ? & \\
\hline dz & 勺) & \(k^{?}\) & \(k^{2}\) & \\
\hline b & \(\kappa\) & ? \({ }^{\text {a }}\) & & \\
\hline \(\check{r}\) & \(\downarrow\) & ts & \(\stackrel{\square}{\square}\) & \\
\hline \(\widetilde{\sim}\) & R & \(?^{\text {t }}{ }^{+}\) & خ & \\
\hline ! & h & & & \\
\hline
\end{tabular}

\section*{Phonetic Alphabets}

\section*{Junctures}
\# external open
\(\neq\) internal open (inter-wond)
- internal open (compound)
- syllable

1 close

In general, any simple (or complex) symbol or combination of symbols which proves umnccessarify cumbersome may be replaced by a simpler one. The ideal, for a phonemic transcription, is: one phoneme, one symbol.

BLOCH, Bernard and TRAGER, George L. "Tables for a System BI of Phonetic Transcription" (1940)
BOAS, Franz, GODDARD, Pliny Earl, SAPIR, Edward, and KROEBER, Alfred L.
" Phonetic Transcription of Indian Languages" SMC 66. 1-15 (1916)

COHEN, Marcel " Instructions d'enquête linguistique" IEP (and ed., 1950)
DEPARTAMENTO AUTONOMO DE ASUNTOS INDIGENAS " Memorial de la
Primer Asamblea de Filólogos y Lingüistas" 26-27 (1940)

HEEPE, M. " Lautzeichen ind ihre Anwendung in verschiedenen Sprachgebieten" (1928)

JENSEN, Hans " Die Schrift in Vergangenheit ind Gegenwart" (and ed., 1935)
KURATH, Hans " Handbook of the Linguistic Geography of New England" (1939)
LE MA今̂TRE PHONÉTIQUE " The International Phonetic Alphabet" IPA
PIKE, Kenneth L.: Phonemics (1946) KLPm
PIKE, Kenneth L.: Phonetics (1943) KLPt
SAPIR, Edward, SWADESH, Morris, et al. " Some Orthographic SSW Recommendations" AMERICAN ANTHROPOLOGIST 36.629-31 (1934)

\section*{3－18}

\section*{Microkinesic Recordine}

In microkinesic recording，as illustrated on pp． 00 ，the use of a pre－defined staff permits the easy recognition and timing of movie material． The micro－recoraing of direct，that is，non－filmed material，presients a mach zore difficult recording and timing proolem．Two devices bave been tried for timing specific kines or kinemorphs by a single observer or team of observers．A stop watch may be used if its presence is not a significantly interfering artifact．For more covert timing the observer can train himself to beat time with his toe bidden by his shoe．Some practice may be required before the full beat per se sond is mastered，but one can learn to record one quarter，one half，single and multiple seconds with considerable accuracy． Generaily speaking，however，in the absence of words as markers，and without the use of a film record，timing is a relatively impressionistic feature for even the best trained observer．

Similarly，while a carefully trained observer can achieve an amazingly complex record of direct material，such material is not equivalent to iflm－ based recording．Since direct miterial cannot be replayed for the assessment of the zero point，it is strongly advised that several hours of viewing pre－ cede even the trained observer＇s recording of any subject＇s activity．

Since micro－recording is related to the notation of least particles of perceived movement，the trained observer consistently works from a zero point provided by previous analytic research with an iniormant using film material． This cultural zero point muist be kept in mind and explicitly stated when the particular behavior of a particular subject is recoried．Since an extensive list of kines is presented elsewhere \({ }^{1}\) only the logic of kine annotation is presented below．Careful reading of this presentation should permit the reader to underistand the transcript，pp．00，below． 1．R．L．Birawistell，Introauction to Kincsics，（University of Iouisville Press，Louisville，KY．1952 pp．35－72

\section*{3－19}

\section*{Notsiag ais State}

Direction or position：（at pointit or central texdeasy）
\begin{tabular}{|c|c|}
\hline \(\longrightarrow\) & 1eざ＊ \\
\hline \(\leftarrow\) & とieht \\
\hline \[
\uparrow
\] & superior \\
\hline \(\downarrow\) & inferior \\
\hline \(\triangle\) & anterios \\
\hline \(K\) & posterior \\
\hline
\end{tabular}

Direction of movement：（throughout movement to point of central tenaency）
\begin{tabular}{ll}
\(>\) & leit \\
\(<\) & right \\
\(\wedge\) & superior \\
\(\geq\) & inferior \\
\(\leq\) & anterior \\
\hline & posterior
\end{tabular}

Position held：．．．．．．．．．．
Repeat：a position：-1 －+
Scratching：zzzzzzzzzzz
Feeling： 0000000000
The relative body positions are recordea by numezals representing clock positions．（ \(n\) ）signals any sispect of the body when the subject is stianding erect，with the nose in the mialine and pointing along a parallel with an imaginary line extended forweni from the feet．Escin numeral refers to a clock

3－20
position tron（ n ）．（ 1 ）equals a 30 degree ande，（a）a 60 degree angle， （j）a 90 defree angle，etc．to（ \(\sigma\) ）which is 180 degreea from（ \(n\) ）Beyond （ 6 ），ior convenlence，recording returns to（5）kna so on．fo record jostions of less than 30 degreas from \((n)\) ，the 30 deeree anglo is divided rouchly into 4 partis which are reccirded as plus or minus \(15^{\prime}, 30^{\prime}\) ，or 45＇． Triese（＇）are expressed veroally as＂minutes．＂Corbinations omit＇：3：30．

For midale majority Anerican viewers there seem to be three significant degrees of stress reconied as（ \(a\) ），（ - ），and（ 0 ）．These indicate respecively nominl stress，hich stress，and lax．Nultiples of signals indicate impressions of overhigh and overlar：\(=\) and 0 respectively．

\section*{Motation of bocy positions or kines}

As moted on pp． 00 ，the recording chart is divided into six staves： nead and face；shoulders，neck，trunk and hips；rigint arm and hand；left arm ani hasd；right leg and foot；and left leg and foot．The head and face is further sub－divided into four staves of：lyead，forehead and circum－orbital activity（and，if necessary，the nose），the mouth and circum－mouth activity， and chin（and neck，when necessery）．The arm and hand staves are divided into three sub－staves of arm，hand，and wrist．The leg staves are sub－divided into leg，foot，and ankle．The intrafemoral index is recorded under the left leg staves wiaen necessary．

Whenever it is usefur，臽glish ortiograpiny may be used to append any statements not covered by the annotational system．
Head
\(h\) is used to cover all activities of the head．As an example，\(h \rightarrow\) ， inaicates that tis：head is turned left 60 degrees from \((x.) \cdot h \downarrow \uparrow\) indicates a full
nod．\(\rightarrow \vec{\longrightarrow}\) indicates sind bead whake．

\section*{yocesea and circum－oroit}
lising the eyes，\(\varnothing\) ，，as the base line，the forehead，nose and circum－ orbital behavior con be quasi－realistically sketched in．
\[
\theta
\]
indicates both brows raised，brow furrowed，the lateral aspects of the orbit double－lined，eyes in tocus on auditor，and nose wrinkled．Lids ana eyeballs may be sketched in：

Mouth \(\longrightarrow\)
\(\Leftrightarrow\) is used to sigmal tiee moliti at zero．This may be varied as \(\longmapsto\) or \(\longrightarrow\) orr \(\longrightarrow\) Linine around mouth and cinin is added in quasi－realistic
manner．＂《n，\(\sim \infty\) ，or \(\langle\boldsymbol{\sim}\)

stress．Arrows provide movement and position from zero．
The shoulaers and trunk are shown in a siagle figure \(T\) or \(T\) or \(T\) which inoicate shoulders straight，arooped and hunched．T indicates a bend at the base of the thoracic region；\(\mp\) shows trunk bend at pelvis．\(T^{N}\) in－ dicates an involvement of the left shoulder．Arrnwe plus clock positions are utilized to show the position of the members．\({ }^{\text {采 }}\) is bent at the pelvis to a 60 degrea angle，the shoulders are rolled anteriorly sor 30 degrees．By the utilization or x－pivot a pivot actior can be shows e．g．ifipivot or \(\bar{T}_{x \text {－pivot．}}\)

Right arm and kand
\(R L\) denotes the righti arm．Fositionsl and directional notes can be made：\(R^{N}\left[\begin{array}{l}B \\ \text { This indicates that the risht arm is extended at the elbow，}\end{array}\right.\)

\section*{\(3-2\)}
with the upper amm held close to the body and the wrist at n. Tre logic for the hara gives the thunb a numperal 1 , the forefinger 2 and so on. The finsl joint is \(a\), tise seconi \(b\), and the thini \(c\). Itwe full hand without toe inaurs touching and the fingeas exuerasid at \(n\) is \(\|\|\|\). The thumb hooked, forefinger crooked (bent at \(\varepsilon\) and/or \(b\), but no lower than the joint of \(b-c\) ), and witin 3,4 and 5 curdeai (fingers bent beyond joint \(b-c\) ) is recordea \(7 / 3\). \(\mathrm{Band} L\) indicatins wicicit hara is necessary only wien staved paper is not used. \(\sim\) nis used to indicate pain and direction.

\section*{iefit exra arà hand}

The same logic is used as for right hand and arm. Bi-membral and oi-manual activity midy at times be signalled within a single staff as ( Lin!). Trais signsls crosised arms, right over left.

\section*{Riget arm ard hord}

The annotational logic for leg and foot parallels that utilized for the Erms ara hands. Rif ric \(\rangle\) denotes the richt leg. Positional and directional
 over the leit leg, with the right femur extending right and anterior to one \(o^{\prime} c l o c k\) left and slightly more thian tinree o'clock anterior. The upper leg is at about a. 45 decree angle with the lower and the ankle is at n. The foot and shoe are quasi-resilisticsilly recorded. The transcript on pp. 00 contains a number of examples from wich tine following is derived \(\frac{2}{2}\). Tris indicates that the ankle is beat back toward tine lower leg, two hous above \(n\) and the toes are hookei, pulling the loose shoe away from the heel. and sole. \(\mathbb{U}^{4}\) illus-. trates an ankle bent to four o'clock with a non-weigiat-bearing toe to the floor.

The heel is raised.
To show walking, \(C \subset D\) is used together with if the walking is continual. When atived paper is not used, right foot may be filled in wile leaving an outinined lert. \(u\) 国
 dicates ruming.

\section*{Left \(1 e_{i s}\) and root}

Annotational syivem parallels that for the rigint leg and foot. For bi-membral activity, h is used. Tris same figure can be utilized to record the inthra-femoral index. 昷 indicates a staiding ilgure, with legs akimbo at a © © degree angle.


Listed below are a serles of recorded kinemes which have been selected as demonstration items. These have been tested as meaningful for midale majority Americans. While this is not, an exhaustive list, the listing includes a sufficiently oroad survey to demonstrate the logic of macrokinesic recording. Duration, repetition and direction of movement, when kinemic, is reconied as it is for microkinesic recordings. Rhythm is indicated by! at beat points.

The following annotational systera has been designed for reproduction by typewriter. Tre addition of four keys \(>, V,<, \wedge\) for direction is all that is necessary for the adaptation of a business typewriter for kinemic recording. It should be remembered, however, that the intensive analysis of a protocol will require bath kinic and kinemic recoring ton achieve control of both the conventional and the idiosyacratic elements of a scene.
kinimmes which have been selected as demonstration items. These have been tested as meaningful for middle majority Americans. While this is not, an exhaustive list, the listing includes a sufficieritly broad survey to demonstrate the logic of macrokinesic recording. Duration, repetition and direction of movement, when Kightate is reconded as it is for microkinesic recordings. Rhythm is indicated by ! at beat points.

The following armotational system has been designed for reproduction by typewriter. The addition of four keys \(\rangle, V,\langle, \wedge\) for direction is all that is necessary for the adaptation of a business typewriter for kinemic recording. It should be remembered, however, that the intensive analysis of a protocol

will require both kinic aind-kinemic recoraing ton achieve control of both the


\section*{3-24}

Kinemorphs, in which there is a depetadert, relationship between kinemetrien kines from more than one motion area, are noted by a fractional


Timing without a. frame couint presentis the same problem for macrorecording as it does for micro-recordiat. Without technical assistance timing remains a product of skilled impression. This may be indicated by utilizing the notational conventions for musical scores wich indicateg tempo without referring to the duration of the particular particle.

\section*{Kinesic Macro-recoming Key}

\section*{Head}

Symbol
*(with nose as pointer)

H
H
\(?\)
\(\left.\begin{array}{l}\left(\begin{array}{l}>1,2, \text { or } 3\end{array}\right) \\ (<1,2, \text { or } 3) \\ \left(\begin{array}{ll}1,2, & \text { or } \\ 3\end{array}\right) \\ (\checkmark 1,2, \text { or } 3\end{array}\right)\)
\(\because\)
MIN
HIN
HI

HS
HS
His
Hs
Hs
HQ
HiQ
\(-\quad \mathrm{HiQ}\)
(with top of head as pointer)
Hq
Hq \(\quad\left(\begin{array}{lll}>1,2, & \text { or } & 3 \\ <1,2, & \text { or } & 3\end{array}\right)\)

\section*{Interpretation}
head in median sacittal plane
head left one, two or three o'clock head right one, two or three o'clock head up one, two or tinree o'clock head down one, two or timee o'clock ! : at zero
full superior-infertior nod
(full inferior-superior nod
half superior-medial nod halt inf'erior-medial nod
full head shake ieft-right-median full hoad shake right-left-median
helf head shake left-median half head shake right-median
fuil head sweep; left-richt-median full head ibwep rigat-left-median head cock left one, two or three
head cock right one, two or three * Note 1,2 , and 3 etc., refer to points on a clock either clockwise or inverted clockwlise..thus 6 is directiy opposite \(n\) (or normal) and is \(45^{\text {hi }}\) are used.

Kresic Macro-meccrines Key (Cort'a)


Kinesic Macro-Tecordinf Key (Cont'd)
Moutia



\section*{Arms}

The arm can be seen as a member forming trinee angles, which, taken together with their position \((\dot{g})^{\prime}\) in space, determine the recording system outlined below. The term LAnim describes.the leit arm hanging at the side. Tre initial a refers to the shoulder, the secord in to the elbow and the rinal a to the wrist. The nimerals rapresent slock points; the arrows following the mumerals indicate the diracion of the member imediately inferior to and forming the base line of tine joint angle. Thus LAn3 2 n indicates that the left arm, humerus roughly parainel to or touching the body (depending on Z) bends at the elbow, with the lower arm thrust forward at a 90 degree angle to the upper and with the wrist keld at \(n\). Minute marks (1) can be used to refine tie recording when it is seen to be kinemically necessary. Since this is a macro-reconding key, only already standardized positions will be described below. u plus arrow indicates ulnar pivot; \(r\) plus arrow indicates radial pivot.
\begin{tabular}{ll} 
AA & bi-armed activity \\
RA & rigint arm \\
XAA & arais behind back
\end{tabular}
\begin{tabular}{|c|c|}
\hline 3-28 & \\
\hline AXA & asch: folice across chest; \\
\hline AxA. & ame scross body-hands touching bejow the chest \\
\hline AxbA & argis across body-hands touching across beliy \\
\hline AxgA & arms across body-hands touching across genitals \\
\hline AmA & arms nanging at sides \\
\hline "ATA" & amms swinging (as in walking) \\
\hline A, TA & rijgit hand in pocket, left hanging \\
\hline AoTA & rigint, hand carrying object, left herging \\
\hline A-TA thand record & right kand on hip, right hand recorded \\
\hline A; TA & rigit haial thumb in beit \\
\hline A-TA hand record \(\operatorname{In} 3 \mathrm{n}\) thand record & wight hand on hip, left hand across chest upper-lower arm angle ait 90 degrees \\
\hline RAN & rigint hand nod involving lower aná/or upper arm \\
\hline RAn & richt hand nod involving wrist and hand only \\
\hline RAS & riget band shake or sweep-upper andor lower arm involved \\
\hline RAC & \begin{tabular}{l}
right hailf (or portion thereof) \\
circle involving arm
\end{tabular} \\
\hline AAC & bi-armed circle involving arm \\
\hline \(\mathrm{R} / \mathrm{S}\) & right band shake or swe.:p, wrist ard band irvolved \\
\hline R/C & right halif (or portion thereof) circle involving wrist and hand only \\
\hline
\end{tabular}
\[
3-29
\]

\section*{remin notucjor}

Tine logic of hand notabion, beceuse of the mubere of parts involved is necessarily complex. fiowever, the fact that there is considerable conventionality in hand activity simplifles the task. Preseated below are-a-series of

//c
./-/
1-/
R/M
\(\mathrm{R} / \mathrm{LI}\)
R/00
R/-00
\(\mathrm{R} / \mathrm{Y} 2\)
R/E
R/
R/is
R/. H
R/E

R/.ank
R/nk.
R/Y3
R/:
bi-mativell circle
clapping movement-right hand over
clapping movement-nc superiority of right or lef't
right hand to nose
right hazd to mouth
rigict band to eyes
right inad over eyes
right hand to knee
rignt, hand to ear
right hand to forehead
right hanc brow wipe
rigent hand to occiput
richt haind to frontal region
above brow
right haud to back neck muscle
right hand to throat -
rignt ruand to ankle
right hand fly check


The palm in recording may be used as a separate kjnetifle or as an aspect of a
full hand kinemej The direction of the palm is ofton a discrete symbol apart

R/2p
from tine variation in inger position. frus, it tecne deamable to refer in recording to the palm as (Ptarrow for airection). Otherwise the wrist number and finger numbers are regarded an surficient referral signals. If the palin is involved as in a palm caress or palm nail-dig this can be signalled by a -p convention. The fingers are numbered 1 to 5 and are unbracketed, brackets being reseived for special positions. The joints are recorded as \(\underline{a}\) or \(\underline{b}\) or \(\underline{c}\) respectively from the terminal joint as a. Finger position is indicated in the four positions which hive been tested as kinemic. These are hook, crook, curl, and close which are recorded following the / sign + finger number. \(n\) indicates finger straight beyond zero.

Rignt hand's forefinger in position backward beyond n. Right forefinger hook

Right forefinger bent at first and/or second joint forming angle witin third joint of less than 90 degrees. Right forefinger crook.

Right forafinger bent at first or second joint forming angle with third joint beyoud 90 degrees but without touching paim. Right forefinger curl.
Right forefinger bent to tight position. May or may not touch palm at portion proximal to third joint. Right forefinger close

When number is underlined this signals coordinate activity with lateral occlusion between finger. Thus: R/1?31

Rigint thumb sooked, fingers 2, 3 and 4 laterally occluded at \(Z\), finger five separate at 2 .
Rigrit hand point. Thumb hookea.
Right baiua thumb at \(Z\) not touching remilinder of fingers which are crooked.
\(\mathrm{K} / \mu_{4} \mathrm{c}(\mathrm{PN})\)
\(/ / 14 c(P /)\)
\(R / 1 \underline{4}(P))\)
\(\mathrm{R} / 14 \mathrm{c}(\mathrm{PV})\)
//5×5
\(/ / 14 \times 14\)
//1-5a
\(R / 14-p\)
\(R / \ln 4-p\)
\(R / \underline{1 c 4}\)

Hazl cip-i4c + palm up.
bi-rizitual ciap.
Heza skike position
Invertied cup.
Hands f゙olded.
Haads clasped.
Esinda steepled-apical finger joints contracting, palms separate.

Mile fist. Thumb superior and in. occlusion with posterior aspect or \(2 b\) and 3 b .

Infanitile fist. \(I\) at \(n\) and superiorly occluding with lateral aspect of 2 .
Thumb circled fist.
Underlined small letters indicate contact witin anotiner body part or external object. The object is listed imediately below the hand record. If the object is held, that is, supported by hard, tice participant hand parts are underlined and an 0 between the finger number-joint letter compounds signels the position of the opject. Underlined \(P\) indicates palm involvement. Note timo shorinand kinemeifibelow male and female cigarette examples.
```

R/12bo3b3c
ciggarette

```
R/o
cigarette

Rigint hand holding cigarette with \(2,3,4,5\) crooked and the cigarette held between joint b of fingers 2 and 3. Midale majorlty male America cigarette grasp.


Hips are recorded only wean there is specisil intolvement. otherwise the
\(T\) for tourik signifies hitps at n.
\(X_{X}^{X}\)
\(\frac{S}{X}\)
\(\frac{V}{X}\)

\section*{rigat hip tense}
buttocks tense
hip iswiag
*inverted pelvis
*protruaiing buttocks
* n for male and female middle majority Auerican differs. an for female
involves a degree of pelvis inversion which is kinetpically significant
when it appears in the male. Similarly with regard to butitock piotrusion;
 wion livilik
wiff the malea mover.
\(\qquad\)
```

xs__s
$x \times \quad$ _x
$>$

```

\section*{\(\stackrel{\text { Legs and Feet }}{2}\)}

The leg can be seen as a member forming three angles, which, taken together with their position(s) in space, determine the recording system outlined below. The term IYnnn describes the left leg in normal weight carrying, standing position. The initial \(n\) refers to the hip joint, the second to the knee, and the third to the ankle. When numbers are substituted for any of the n's, these makes reference to clock positions; the arrows following the numerals indicate the airection of the member immediately inferior to and forming the base line of the joint angle. TGus, LY3 3 n indicates that the left leg is held up at a 90 degree angle to the left and with the upper-lower leg angle at 90 degrees and the ainle at in . Minute marks (1)
can refine the recording when it is seen to be kinemically necessary. Since this is a macro-recoriling key oniy positions already standardized will be described below.
\begin{tabular}{|c|c|}
\hline \(Y Y\) & Stimaing on joth feet Arnerican n no zore than 5 inches apart for the male or 3 inches for female. \\
\hline Y-Y & Standing feet apari. Legs separated by incre thin five inches for male; more than three inches for female. \\
\hline Y--Y & Legs overspread standing. \\
\hline YY & Stiznding, left leg back. \\
\hline \(Y \bar{Y}\) & Standing, left leg forward. \\
\hline -YY- & Stooping, knees together. \\
\hline -Y-Y- & Stooping, knees apart. \\
\hline Y: & Step. \\
\hline Y: :Y & Walking. \\
\hline " \(\mathrm{Y}: \times \mathrm{Y}\) & Fumning - \\
\hline Y:S:Y & Walking: long stride. \\
\hline Y:s:Y & Walking: stride overshort. \\
\hline Y:s:Y & Stride overshort and with one foot placed before the other: Mincing. \\
\hline \(Y^{-}:{ }^{-}\) & Swagger: legs curve laterally at each step. \\
\hline Y:Y:Y & Marching: feet in direct anterioposterior line, equal time distance between steps. \\
\hline Y"Y & Dancing: repetitive pattern of nonequidistant steps. \\
\hline Y. :Y & Right foot strumble. \\
\hline
\end{tabular}

Fheel clickiret or seraping while wajkine. Clicking usiually accorapanied by marching.

Skipping
Tiptoceliag 。
Seateci: bcäy uprigit with \(Z\) or 90 degres angle sit hips, 90 degrees at kree and feet flat or the floor. (Or zero for particular actor.)

Seated, cteght leg crossed With ankle over left femur sibove knee. Middle majority American male voung or informal.
Same as above, left over.
Lags crossed, left over, at knee. American midale majority female..knee over knee. For: male, lef't knee immediately posterior to knee. More formal than \(¥ 4\).
Knee over knee cross-ma.'e actor.
Knes cross inmediately behind knee lower limbs parallel and touching. lower limbs parallel and touching. Standar
cross.

Ankle cross. Knees close.
Ankle cross with knees spread.
Legs intertwined.
Legs crossed at kneas. Leg in short superior-inferior kick or dangle (áepenaing on velocity.)
IfEgs crossed at knees. Leg in median (five to eight inches) kick or dangle.

Legs crossed at kuees. Leg in overkick (ten inches plus)

\section*{3-36}

Legs and feet (cont'd)
¥s4K

Lriveral mivement of crossed kinee over kree. Ofteal comibined with kick or asaigle.
Lateral leg movement seated.
Iateral movement, seated. Legs moved more tinan one hour.

Superior-inferior leg nod--less than oxe hour.

Superior-inferior leg nod--one hour or more.

Legs crossed above knee. Short leg sweep. Less tian one hour.
Legs crossed above knee. Leg sweep. More than one hour.

Intrafemoral index: Either seated or standing, the spread of the two legs may be seen as forming the superior planes of a triaugle; the base of the triangle being formed by an invisible line comacting the two knees. The angle with its apex at the crotch is recorded. Underlined double numerals signify angle rather than position number.

Y 45 X

YgOY

Stanaing, legs apart, roughly one half the leingth of the upper leg halt the leingt

Standing, legs apart, roughly the length of the upper leg apart.

If legs are not equidistant from maline at knee, the weightbearing leg is recorded as _Y. When sitting, leg nearest, midine is recorded _Y. Arrows following recorded member indicate direction.
\(-\mathrm{Y} 45 \mathrm{Y}\)
_Y45.

Standing legs apart one half length of cemur, rligit leg bearing weight. With legs at \(45^{\prime}\), weight is shifted from right to left leg.
3-37

\section*{The Foot}

Trats recording system is being designed for a normally shod cuiture. When the naked foot is recorded the system is comparable to that used for fingers.

\[
\begin{aligned}
& \text { of e miankinujo rciridia } \\
& \text { mio apoinite stawocs } \\
& \text { be sives to buxt } \\
& \text { sprendiy (4) } \\
& \text { ss a Kibasmoifth } \\
& \text { G(0ios any) }
\end{aligned}
\]
\(\mathrm{Ry}^{5}\) Z
Vo


\section*{"A Kinesic-Iinguistic Exorcise" \\ An Experpt From \\ The Cigarette Scene}

For inclusion in NHI and in volume odited by Dell fymes Ray Lune, 1967

Doris and Gregory, as the camera is reloaded and again begins to record the scene, are reseated upon the sofa. Each has a stein of the homemade beer supplied by Doris. Doris looks from Gregory to her beor stein and at the matches which Gregony is holding. Her left hand carries the digarette to her mouth after her right leaves the stein on the coffee table before them. Gregcry continues: "He's a very, very bright four-and-a-half-year=old. Why that arawligg that he brought in the ratch folder, extracts a matoh, half." As he talks, he opens the match folder, extracts a matoh, into position and makes contact with her oigarette as he terminates his vocalization. As he talkes, Domis moves in concert with his match manipulations until hor digarette is lighted. She speaks: n a suppose aill mothers think their kids are emart but I have no worries about that ahild's intellectual ability." A three eighthe of a second lag between "child's" and "intellectual" was equalled by another between "intellectual" and "ability." Gregory speaks, his first words coterminous with the latter hesitation and "ability": "No, that's a very smart one." As Doris talks, her right hand drops to the table edge and then past it silightly to the left to adjust hor shoe strap before dropping her hand bacoorar to the couch. This movement, with its momentary ahifts are still in concert with Gregory's, who, after Doris clgarette ls lighted rorms a triangular movaint in the This scens beine (plus or mimis ten fremes) \$12529 and is [This scens begins at (plus or minus ten by (plus or mimas iranes) \#12784.]

\section*{Introduation}
"The Cigarette Scene", an interactional sequence of some 18 seconds in duration, has remained a type site for linguistic-kinesic analysis throughout the decade following the original work on the Doris-Gregory films. Filming techniques have improved, budgets have becone sufficientiy large to pernit extenaive recording on sound film of half hour and hour long sequences of conversation, interview and interaction, and, with Jacques Van Vlack's development of the frame count \(B\) Roll, the correlation of the vocalic and the move ment stream has became more precise. Other films have attracted our research interest, but this scene, in which Gregory and Doris conteraporaneously discuss the merits of Doris' four year old son, Bruce and engage in a ritual dance-like lighting of Doris' cigarette, has remained a rich, only partially analysed corpus. The special cadence of this piece of interaction which Gregory (frames 12756-12786 and 12786-12826) terminates by a baton-like change of pace, marks the scene as critical and relevant to any final appraisal of the GregoryDoris reciprocal, The seeming imrelevance of the body movement to the content exchanged by the participants and the giove-fit coherence of the rhythmic movements of the two participants to the instrumental act of cigarette lighting has made the scene useful for demonstration purposes. In our earlier
1. The Natural History of an Interview, (Ed, by Norran A. MoQuown), in prepara tion, l956- The research for this still unpublished report was initiated at the Center for the Behavioral Saiences, during the Summer of 1956. Gregory Bateson, Henry brosin, Charles Hockett, Nounan and the author, selected ten minates of sound-1imod interview taken earler by Bateson for en and his students and by Henry Brosin until the time of this writing (June, 1967).
assessments, the dramatic quality of the interchange masked out the significance of other behavior in the performance. The parakinesic category, "RhythmicDisrhythmic", \({ }^{2}\) in the first appraisals, subsumed data, which as our analyses became more reflned were to be analysable as streas kinemes and suprasegnental kinemorphemes. This present exercise attempts to bring the earlier research in line with sane more recentily developed techniques.

\section*{Kine to Kineme}

As reported elsewhere, 3,4,5, the theory and methodology of kinesics
has been consistently influenced by that of descriptive and structural inguistics. From the initial morphological discoveries, it has been clear that visible commanicative behavior exhibited formal properties at least analogic to those describable for audible behavior. I have been fortunate to be in constant consultative contact with linguistic researchers and this contact shaped the research design and temainology constructed for kinesic research. At the same time, because of a deep appreciation of Iinguistic discipline and rigor, I have reacted against the fashionable and often careless preemption of the "emic""enic" distinctions. Throughout kinesic research, every attempt has been made
2. Birdwhistall, Ray L., "Paralanguage: 25 Years After Sapir" in Lectures in Experimental Pevchiatry; (Henry W. Brosin, Editor), University of Pittsburgh Press, Pittsburgh, Pa., 1961 ; p. \(57^{\circ}\)
3. Birdwhistell, Ray L., "Paralanguage: 25 Years After Sapir", idem.
4. Birdwhistell, Ray L., Introduction to Kinesios, an annotation gystem for ralyais of body motion and gesture, Dept. of State, (FSI). 1952. (Now available: University Microfilm, Inc., 313 North Firut St., Ann Arbor, Mioh.)
5. "Implications of Recent Dovelopments in Corraunication Research for Evolutionary Theory", in Report on the Ninth Anmual Round Table oating on Lincuistios and Lanauace Studies, William M. Austin (ed.), Washington, Moeting on Linguistios and Lanquage
to be cautious about the abstraction of isolatable elements of body motion (kines) into manipulable classes of allokines (kinemes). "Complementary distribution" is an idea of great methodological force for the linguist and has proved to be an efficient tool for phonologic analysis. Bocause of the multiple layering of body motion behavior, both in body part and temporal arrangenent, the distributicnal qualities of units of kinemorphology are more difficult to assess in the empirical data.

At the present writing, a kineme is:
A) a class of allokines which can be demonstrated in kinemorphs to be substitutable.
ii) If more than one allokine is discovered to be present in the same otructural noighboriood, the kine representing it may
a. a member of more than one kinemic class
b. an insufficiently refined kine, or,
c. the morphologs has been insufficiently analysed and we are probably dealing with an intersection of levels in the behavioral stream.

The distinctions between kine and kinome, kinemorph and kinemorpheme remain useful and efficient. However, these terms are heuristic devices. Until we become ruch more secure as to the morphology and syntactics of kinesics, (even for American English movers) our emic assigments must be registered as tentative. The history of phonological research is reassuring to the kinesicist timid about working models; tomorrow's research will validate the model or obliterate it.

\section*{Sleht and Sound}

The earliest work in kinesics attempted only the crudest correlation of body motion and speech behavior. \({ }^{6}\) I was yet to comprehend either the feasibility or necessity of sound film recording and was, in fact, resistant to the idea early suggested by HoCuown (1951) that the future of kinesiclinguistic research as related to social processes depended upon intensive and parallel phonetic and micro-kinesic recording and analysis. As an anthropologist, I was attracted by grosser elements which I felt could be abstracted and organized by the careful scansion of the complex message stream. The isolation of these, I believed, would lead to the understanding of communication - for me then, as now, the dynamic structure which sustains order and creativity in social interaction.

The complex data which began to energe as body motion research became involved in cross-cultural comparieons of human body motion and the encouragement of Henry Lee Smith Jr. and George L. Trager to study body motion as a structure with its own rules of order combined to foree me to concentrate upon the visible and silenced behavior of human beings. Small stretches of films and access to a slow motion projector by 1956 laid the groundwork for the analysis of the American kinesic system. As research proceeded, the presence of vocalization or auditor behavior was not ignored. However, it was recorded at the articulatory level as body motion behavior - not as speech behavior. Even the preifminary attempts to abstract this data, however, made it clear that beyond
6. Birdwhistell, Ray Le, (1952). pp. 29-34.
the circum-oral activity involved in speech production, behavior appeared which seemed related to or was at least usually modified by the presence of vocalization. It was not until the Palo Alto group began its research conferences that the delineation of suah behavior became relevant to kinesic research.

Out of these conferences, out of the co-research with Smith and Trager and out of the subsequent on-going research at Eastern Pemseylvania Psychiatric Institute and at its sister institution, Western Psychiatric Institute and Clinic \({ }^{7}\) came ideas which led to the isolation of a variety of circumespeech body behavioral abstractions. These abstractions cover behavior, characteristic of conversation, but which seem to have differing structural properties than those which could be traced for the phenomena assigned to kinesics proper.

In the Cigarette Scene the acts of lighting the cigarette, Gregory's manipulation of the match and Doris' adjustment of her shoe strap may be termed instrumental behavior. Poreover, the fact that Doris and Gregory are seated for an extended conversation is, at one level, instrumental. To say that an act is instrumental, however, does not define it, in itself, as without signal or message value. The performance of any act in the presence of others must be comprehended as having the stamp of individual and social practice. Yet, at this writing, acts such as walking, smoking, eating,
7. The work of Harvey Saries, Wm. Condon, Folix Loeb and Joe. Charyy at Westem Psychiatric Institute and Clinic has been Invaluable both as a check upon and as a creative incentive to the work here at Eastern Paychiatric Institute.
knitting, woodworking, still mast be filed as "instrumental" and/or "task oriented" until we know more about their communicative structure. \({ }^{8}\) However, as we can see from the analysis of the Scene below, the assignment of instrumentality to the larger frame of behavior mast not preclude the examination of concurrent behavior whether such behavior is at first glance integral to or apparently trivial to the immediate task accomplishment. There is a temptation to see instrumental acts in a social situation as "carriers" of other messages. Yet there is an equal justification, from another point of view, of assigning priority to the comumicational aoto At the moment, I am using the concept of altemating context. Fither can be the context for the other

There is a second type of customary behavior which resists kinesic analysis while having patterned form and discernible message value. Included in this category, the demonstratives, would be such acts as gestural mapping, the illustrative movements customary as accompaninents to female discussions of dress-making and design or of cosmetological arrangements of the hair. To the same category belong the illustrative movements which accompany male discussions of fishing or cabinet making and which often accompany male discussions of sporting events. Fram the limited cross-cultural data available it is clear that demonstratives are conventionalized forms but they do not
8. The work of Marvin Harris is an approach to this problem. See, The Nature of Cultural Thinge, New York, 1964. See also the review by Duane Metager in the Appricen Anthropologit, No. 67,1965 , pp. \(1293 . .\).
appear to follow kinesic rules, at least among American movers. No definitive demonstratives appear in this particular scenc. However, the limitad tridirectional sweep employed by Gregory as he axtinguishes the match frich is followed by the larger cigarette movement forange the cadence of the scene may, as we get more comparative date, be both "instrumental" and "demonstrative." The act is clearly, at one level, instrumental. However, without supporting data, we cannot define the act itself as dernonstrative - The change of cadence may very well be at times, in and of itself, demonstrative.

The durations of both instrumental behavior and demonstrative behavior are often longer than that of the accompanying syntactic sentences. This need not be so. For example, a speaker may circumscribe a shape in the air while describing an object and the air picture may coextant with the nominal clause. Comparably, an instrumental act, whether referred to in the content of accompanying speech or not may be completed within or beyonat the stretches of the speech behavior.

There is a third type of body behavior which while still but crudely understood, should be mentioned here. This behavior is characteristic of all conversational and non-conversational interactional situations. Interactional behavior includes a variety of behaviors of part or whole bodies as they move toward, away from or maintain careful spacing among participants of an interactional scene. Hall \({ }^{9}\) has done pioneering work in the isolation of certain
9. Hall, Edward T., The Silent Lenguage, Garden City, Now York; Double Day and Co., 1959.
American Anthropolori "A System for the Notation of Procemic Behavior", (The Hidden Dimengion, Now York, Doubledey and Co., 1966.
aspects of these phenomena in his work upon proxemics. Scheflen's analysis of the ravement pattems in the psychiatric interviow provides still another dinension to the understanding of body shifts as messageful. \({ }^{10} \mathrm{His}\) study, related to Mead and Bateson's earlier woxk \({ }^{11}\) of complementary, of mirroring and parailel movements of partioipants, indicates that there is a discoverable logic which mariks segnents of interaction. The work of Condon on "synchrong" and "dissynchrony" in interaction is further suggestive of ovorall interpersonal movement pattexns which promise, as analysis proceeds, to supply us with measures of interactional cormunicative signals. \({ }^{12}\) In the section of this volume (the Natural History of the Interview) on parakinesics, a number of behavioral categories are reported ae of relevance to the examinam tion of the interaction. Often, this behavior, which ranges from the presence of a rhythmic cadence to the interaction to an extent of disassociation in the behavier of the actors that they appear to be in isolation from one another,
10. Scheflen, Albert E.p Stream and Struoture of Compinicational Bohavior. context analyais of a prychotherapy session, Behavioral Studies Monograph No. One, Eastern Pennsylvania Payohiatric Institute, Cormonvealth of Penna., 1965.
11. Bateson, Gregory and Margaret Moad, Balinese Character, Speaial Publication of the New York Acadecy of Sciences, Vo1. II, New York, 1942.
12. Personal Comsunication with William Condon. His analysis of fine grained moveraent reveals very close coordination to be present in the fine movement of interactants in conversation.
seems almost to be a running comment to the participants about the interaction. \({ }^{13}\) Bateson's concept of "metacommicational" is of relevance here. Perhaps the term "meta-interactional" would leave the function of such variations in behavior more open for further investigation. In the case of the Cigarette Scene, geing beyond the data, provided by our corpus, Doris' activity might be interpreted as a demand upon Gregory for a relationship more interpersonally involved than he has seened to engage in before. As hostess, she has provided beer. Her non-lexical request for Gregory to lig act to elicit a formalizing etiquette. At some level of analysis his act can be scen as the reciprocal of hers. The cadence of which we spoke above, which Ulstinguisines this scene from the reabinder of the twenty minutes, sustains itself until Gregory cuts the beat in half with the wavad match and cigarette. This action is special and :must ultimately be accounted for in any description of the interaction. However, the point being made here is that while Doris moves her hands and arms and shifts her body, and while Gregory moves his hands and body in a concert beat, other things are continuing to happen. The "dance" is no more exclusive than is her "shoe fixing" -- interaction is multi-dimensional in tine and structure.

To return to the data, Doris, while continuing to talk about her son, turns away from Gregory, "reaches" for a glass which she does not take, drops the heel of her shoe awoy from foot and then adjusts the strap and lets her hand fall away from the shoe before it swings back to touch the table again.

Meanwhile she has "closed" her body, moving her torso closer to her legs as she talks about "all mothers think their kids are smart"... Her hand touches the table on "but". She then turns back to Gregory and focusses upon him as she says, "I have no worries about that child's intellectual ability" while shaking her head with animation. Here again, is a "layer" of behavior whioh cannot be accounted for either in strictly kinesic structure or in either of the categories laid out above. The quality of the film makes it impossible for us to confirm the impression that as she talks, the tonus of her face changes. Nor can we determine whether the tight mouth-limited smile with which the scene began taken together with the tonus shift forms a crossreferencing signal that calls attention to the signal value of the complexdty of her utterance. These phenomena which are recorded as parakinesic are detectable when we contrast these scenes with others in the larger film. However, "interpretation" of these would require more data than is supplied by all of the film and tape at our disposal.

Since the stretch which we are examining contains no clear examples of kinesic markers, these movements, which seem to be tied to particular semologic forms require no discussion here. Suffice it to say that thess movements, reported elsewhere, \({ }^{14}\) customarily but irregularly appear in
14. Birdwhistell, Ray L., "Cocmunication: A Contimous Multi-channel Process"
In Conceptual Bases and Applications of the Comunicational Sciences, University In Conceptual Bases and Applications of the Comanioational Saiences, University
of California Press (in press).

\footnotetext{
13. See also, Birdwhistell (1961), ibid.
}
utterance situations in conjunction with ambiguous pronominals, in situations where the lexeme is ambiguous about tense, position, possession and plurality, and in situations where adverbial clauses appar to require reenforcement or modification. The fact that these are lacking or submerged within other phenomena in this stretch may or may not be of significance. The string upon which we will concentrate in this discussion is Dorls's "I suppose all mothers think their kids are amart but I have no worries about that child's intellectual ability". ithen compared to comparable strings within the larger corpus, there is a kind of stereotypy here to her spesch behavior. It is impossible from the available data to determine whether this stereotypy arises from the fact that she has used this sentence before in her dealings with the outside world, whether her words are somehow fillers for a critical relationship shift, or, whether what we hear is not stereotypy at all but what Froma-Reichmann once deacribed in conference as the "voice of dispair." At any rate, regardless of our rationalization, the absence of discemible markers is worthy of note and may become of significance as we come to know more about the codes of interm action.

The Problen
In this exercise our focus is upon what Doris gays in this situation. It is not our present problem to dotermine what she means. At the same time, operating upon the assumption that description approaches explanation as it deals with a greater proportion of the available data, it should be profitable to more adequately dascribe our corpus. Charles Hockett originally transcribed


L\% if and when you need them. - RIB.

* \(\hat{A}\) overloud, (Trager)
- 13 -
this string and his transcription was modifled but slichtly by an independent analysis by Norman MoQuown. Tragermimith conventions are used here, although modified slightis for Hockett's purposes.

Chart la.

Chart 1b.

Chart 10.

In an attempt to get some kind of perspective upon the leodical aspect of this piece, twelve women of comparable age and social class baokground to that of Doris were given a typescript in standard English oxthom graphy and asked to comment upon it. All except one commented that this was
\(-14-\)
standard "woman talk", with a preliminary apology followed by a proud statement about the child, unusual only in the presence of the "but" rather than the expected "and!. The one exception to the "woman talk" generalization came from an informant who said, "Its a sentence to hide the 'but'. She is very concerned about her child." The general attitude of these informants about the "but" was consistent with the appraisal of the psychiatrists, Henry Brosin and Freda Fromm Reichmann, who saw the central lexical signal of the sentence in the conjunction. (It is worthy of note that four of a control group of six women, when showed this sentence among five other sentences and asked to recall them five minutes later, wrote this sentence as "I suppose (one case "guess") all women think their kids are smart (two cases, "bright") and I have no worries (one case "I'm not worried") about that child's (three cases, "my child's) intellectual ability.")

Careful review of the linguistic evidence (see Chart \(I a, b, c\) ) provides the following discussion. Doris's customary discourse pattern contains long strings of secondary stress. Moreover, the tertiary on "I" at the start of the string is not unusual. What is more unusual are the two double aross junctures within such a short string. Doris customarily has very long strings without terminal functures. This is a phonomenon common in psychiatric interviews (this is not ostensibly such an interview) and has been interpreted as a device to avoid interruption or interpretation. The segregates here again are not unusual in her speech patterning. The paralinguistic rasp over "think their kids are smart" is consistent with other portions of the larger protocol.

The drawl over "are smart but I havo no worries about that ohilds" is not, in the fact that it conveys portions of two syntactic sentences, a common device for her. If we were trying to assess her meanings the use of drawl here would deserve further comparative attention. Studies of silence remain preliminary among linguists. "Hesitations" and "pauses" have been remarked upon by a number of students as worthy of study but even when statistically appraised, we still know relatively little about the conventional use of the device. However, in the case of Doris, the roughly one quarter of a second between "worries" and "about" and between "child's" and "intellectual" seem worthy of note, particularly if we are in pursuit (consciously or out-of-awareness) of some kind of evidence that the utterance implies that she does have worries and among those worries, some about her child. Even though we are not here preoccupied with meaning, it is always with us and an increase in our data might amplify our understanding of the situation. Let us see how this sentence is marked kinesically.

\section*{Kinesic Junctures}

From the beginning of the systematic investigation of American movement patterns it was evident that we were not dealing with a set of isolated and disconnected gestural forms. The discovery of kinesic junctures in the behavior of American (U.S. and American English speaking Canadians) movers laid the groundwork for structural kinesics. Not only were movement segments tied together morphologically, but longer segreents and complex forms were joined or separated by junctural conventions. The fact that streams of body
behavior were segmented and connected by demonstrable behavioral shifts analogic to double cross, double bar and single bar junctures in the speech stream enhanced the research upon kinemorphology and freed kinesics from the atomistic amorphy of earlier studies dominated by "gestures" and "sign" Language. Koreover, when we attempted to study interactional situations, by means of context analysis, \({ }^{15}\) the need for rigor demanded markers to give us some way of explicitly breaking the behavioral stream, of segmenting out sections for special comparative attention. The fact that the kinesic markers, while at times coextant with the linguistic markers, often gave us a very different shape contributed to our assessment of data that did not seem to fit within linguistic terminal junctures. This became particularly evident when the major body shift which I termed the kinesic triple cross juncturc \(/ \mathbb{K} \boldsymbol{K} /\) / served to relate and segment mach longer stretches of conversational behavior. While not entirely accurate, we have come to see the behavioral stretch marked by kinesic triple cross junctures as comparable to paragraphing or stanzaing in writing. We have not attempted the systematic research necessary to relate this juncture to content but, as of this writing, the best statement possible is that it is often but not always related to shifts in content or to shifts in relationship patterning. Only further research will permit security as to whether such phenomena as these are separate, interdependent or in free distribution.
15. Schoflen, A. E.: NNatural History Method in Psychotherapy: Cowminicational Research, in Kethois of Research in Perchotherens, Cottschalk, Louis A. and


\section*{During the past several years, research upon complex strings of spech}
taken from conversation and compared with the production of simple and complex atatistical formulae, \({ }^{16}\) has provided us with two other junctural forms. The first of these, the "tie" juncture, has been detected only in conjunction with spoken nominal constructions and will be demonstrated, p. below. The second, the "hold" juncture, occurs regularly in conjunction with complex strings of discourse and apparently has a discretely semologic function. The hold juncture, involving a particular body part which holds a position while other parts continue to perform other functions, connects included and apparently intrusive variation in content, maintains the coherence of complex themes and bridges apparently trivial diversionary or explanatory discourse excursions. These six kinesic junctures are working tools. The primitive state of kinesic research does not permit us at the moment to either see them as structurally equivalent or as of more than one level of activity. My gunch is that the single bar and the tie juncture will turn out to be at a different level than are the double cross, the double bar, the triple cross and the hold. However, this may be a result of the types of data I have been analysing rather than a matter of structure.
16. Birdwhistell, Ray \(L_{0,}\) "Comanication: A Contimuous Multi-ohannel Process", gupre. No. 14.
\begin{tabular}{|c|c|c|}
\hline Symbol & Term & Gross Behavioral Deseription \\
\hline K \# & Double-cross & Inferior movement of body part followed by "pause." Terminates structural string. \\
\hline K // & Doublembar & Superior movement of body part followed by "pause." Terminates structural strings. Homomorph in initial and medial or parallel positions may ty a kinemorpheme which permits \(\mathbb{K} /\) in terminal position. We have no data which illustrates coexistence of a terminal \(K / /\) in conjunction with a complex kinomorphenic construction containing "K//" in other positions. \\
\hline 4 \(\ddagger\) & Triple cross & Major shift in body activity (relative to customary performance). Nomally terminates atrings marked by two or more K\#s as \(\mathrm{K} / \mathrm{s}\). However in certain instancest I \#\# may mark termination of a single item kinic construction. e.g., in auditor response, may exclude further discusaion or initiate subject or activity change. \\
\hline \(\mathbf{K}=\) & Hold & A portion of the body actively - ivolved in construction performance projects an arrested position while other junctural activity contimes in other body areas. \\
\hline K / & Single Bar & Projected held position, followed by "pause". Considerable idiosyncratic variation in performance; "pause" may be momentary lag in shift from body part to body part in kinemorphic presentation or may involve full stop and hold of entire body projection activity. \\
\hline K & Tie & A contimuation of movement, thus far isolated only in displacenent of primary stress discussed below, \\
\hline
\end{tabular}

\section*{- 19 -}

\section*{The Stress ïinemes}

Three of the junctural kinemes were isolated prior to the initiation of serious research and analysis designed to integrate kinesic and lingaistic data. \(\mathrm{K} \neq \mathrm{F}, \mathrm{K} / \mathrm{i}\) and, although not given separate status, K were easily detectable as operative forms in complex kinemorphic conatructions. Only as linguistic-kinesic analysis proceeded, however, did \(K /\), \(K=\) and \(K\) - eraerge in that order from the behaviorel stream. From this time on work proceeded, in a sense, in two directions. Micromanalysis permitted the abstraction of the kinic atream from articulatory description to the point that complex kinemorphs could be abstracted. Fortunately, early hunches that shifts in body part or in intensity or breadth of movement marked movement from kinemorth to kinkmorph held up in a sufficiently large number of cases that as the "terainal" junctures were isolated, their function in relationship to strings of kinemorphs could be postulated and a primitive syntactics could be derived to permit the investigaicion of bounded sequences of behavior. This proved immediately productive.

The Cigarette Scone as a unit for study was originaldy chosen because of the unique interactional cigarette lighting. While the film was being changed Doris had reported to Gregory that a paychologist had examined her son and felt that he did not need any special attention. The sound made by the camera starting seemed to trigger Doris and she makes a rajor body shift which is recorded as a kinesic triple cross. The termination of the scene is marked by Gregory's body shift and match lid closing which follows directly upon his triangular cigarette wave. The cameraman shifte his focus and we are precluded from determining whether Doris acquiesces to his juncture The fact
that after a 34 frame duration of gilence, she places her hand finmly on the table as she shifts indicates that she has. It is worthy of coment that oven after this major shift they contirue to discuss the little boy's pereonality.

that child's intellectual ability // (See Chart \(2 a, b\) and \(c\) below for correlam tion with linguistic traneaription.)

The kinesic single bar, noted in the phonational gap between "worries" and "about", is questioned because while har head activity is the only part in manifest movement, it, in its sotivitir, meets the minimal axticulatory requirement for held part. However, there is no manifest (In relationship to her ongoing movemant pattern) stop in that activity. Analysis of the film does not lead me to see the presence of the morpheme of "dead pan", nor can I find any evidence of "destressed", discussed below under the stress kinemes. The "hesitation" in the head aweeps is assigned single bar status, but I hold little conflidence in the assignment. It may be simply that kinesica like Inguistics mat learn how to deal with cessations of activity which are not codeable by any prevalent classification system. The \(\mathrm{K}=\) is manifest, her very active torso holds over the remaining stretch. I suapect that it is the \(K=\) which gives the impression of the presence of a K/.

MoQuom and I had insisted thet the analysis of maman communicational behavior was in such a primitive state that, insofar as time permitted, we could not afford either in the

Iinguistic or Kinesic transcriptions, to dispense with the most microscopic recording achievable within the state of the art. We felt that it would be more profitable in the long run to do shorter atretches in an intense fashion than to do longer stretches of macromrecording. In the annotated transoript which accompanies the Natural History of An Interview, the reader will find that the kinesic "macro" is often crude and arbitray. Unlike linguistics with its background of research, kinesics had no canons which would regulate the size and relevance of shapes which we termed macro." On the other hand the past ten years have given me little reason to vary ny decision that mioroanalysis is, for our purposes, sufficiently flnemgrained, if every third frame of a movie taken at 24 frames a second is recorded. \({ }^{17}\) As the jears have passed, the micro line has continued to supply data to and confirm hypotheses made about conclusions derived at much higher levels of analysis.

Data has a way of hiding in a corpus and has in itself little power of resistance to false, over-fine or over-gross retrieval techniques. In the case of the behaviors that were to become the kinesic stress phonemes, two factors served to obscure them. The flrat of these factors came from an all too available waste basket called "speech effort" into which I threw the nonkinemorpinic activity which occurred between the isolated functures. Naively and innocently influenced by the fact that these activities were roughly
17. The elegant work of Condon, Sarles, Loob, Charny, et al, to ny mind contitutes a partial affimation of this position. developing which will ease the micromrecording of exotic movement aystems.
correlatable with shifts in vocalic pitch and stress and reenforced in my conclusions by introspective support as I miniced the speech patterns, I, at firet,
dismissed such evident variations in movement as artifacts of speech production. The difficulty of matching speech and movement because of the crudity of our correlational teahniques contributed to the artifact theory. It was only later when Henry Lee Smith Jr. and George L. Trager worked to atrengthen ny knowledge of descriptive linguistios and to sharpen my ear did it become evident that, while clearly production of speech strings requires effort or at least is not laborless, the regularities I was becoming aware of could not (because of their aystematically variable appearance) be so diamissed.

Kinesic stresses are discussed at length elsewhere. \({ }^{18}\) Suffice it to say here that four distinct variations in movement pattern, ,usually with the head, the hand or the brows, serve to mark the flow of speech. These have been temed "primary" / V/, "secondary" / 人 / , "unstressed" / - / , and "distressed" / O/ . At least one stress occurs between all kinaic terminal functures. By definition this is a primary stress. The following example from a film may serve to illustrate the stresses. In response to the question /What was John's last name'?//, //Doe// is marked by a single movement, //Doe//. If the emphasis is upon John (not Harry), in the question, the question itself would be marked with //John// under primary kinesic stress
18. Bindwhistell, Ray L., iden
and //last name// aither has a secondary plus unstressed, two secondarys, or two unstressed: thus, //John's last name // or // John's last name// or \(/ / J o h n ' s\) last namo//. The atressing is reversed if "namen not "John" is being enphasizod. Thus //John's last name// or //John's last name// or //John's last name//. The third stress of "unstressed" was derived following the 1solam tion of "destressed", the fourth stress which is a reduction of stress below the norm of the produced string. In the filmod corpus was discovered: //What is Johns you know bills friends last namo//. The string takes on more form when the kinesic junctures are added: //What is Johns \(\mathrm{K}=0\) last name//.

Although several thousands of exercises have been run from sound filmed data, it is still not possible to establish a rule which states an absolute relationship between these kineeic stresses and junctures and the Linguistic stress and intonation patterns (by the Smith-Trager conventions) which accompany ther. In general, a primary kineaic atress tende to coincide with the primary linguistic stress. Yet, in more than twenty per cent of the cases it does not. Perusal of the data indicates that the highest point of loudness and pitch, when these points coincide, is usually mariked by a kineaic primary. However, this does not always occur. A long atring of linguistic secondary stresses or a long string of phonation at a pitch 2 level Is usually marked by destressed, but not, alway. In nominal phrasos which are often marked by kinesic secondary-primary or kinenic primary-secondary or

The concept "free variation", a useful one for structural analysis, may be misleading to the reader concerned with either psychological or sociom logical conaiderations of meaning. All that the term is intended to designate is the fact that forms of a given level are aubstitutable without special structural adaptation at that level. Throughout the structures of either linguistic or kinesic phenomena, "emic" forms are abstracted from class mambers, which are described as being in free variation with one another. However, there is no implication here that the choice of one of a series of alternatives (defined in structural terms) at any level of structure is not of consequence at the level of social interaction. The difference between / 5.g/ and /5i4/ may at one level of analysis be seen as trivial but at another be of great consequence. These forms, under certain morphological or syntactical analyses may be seen as identical, but, at the semological, as as well as at the phonological, as absolutely distinct. Comparably, the fact that in a stream of action, the movement of the head may be seen to transport all kinesic stress signals while in another stream a movement of the brows or, in another, the hand is utilized for this activity is of little consequence in kinemorphological analysis. However, this may be of definitive signiflcance for questions asked of this data at the level of social interaction.

When the tentative hypothesis is established that at certain levels of analysis we may discover, as research proceeds, structural forms from kinesics which are substitutable for structural forman from inguistics, there
is no suggestion that the "choice" made by the conversant is not of consequence to the interaction. We are postulating an interdependence of Iinguistic and kinesic structure, not a final equivalence of semological or interactional function. In the discussion to follow, it will be seon that structural distinctions are made in the abstracted speech stream which do not appear in the abstracted movement stream and vice versa. At one level of analysis it is possible to say that the kinesic suprasegmental activity is functioning to make distinctions that might have been made by the linguistic suprasegmentals, and that we could not have been aware of these distinctions if we examined only the audible aspects of the activity stream. It is furthermore possible to say that these same (at this level of analysis) distinctions sould have been made in the linguistic stream without an alternation in the structural activity in the kinesic stream. All that we are saying is that unless we analyse both the linguistic and kinesic stream we have no way of knowing what distinctions have been made by the conversant.

There is a temptation to say that when one chamel carries a distinction which is not made hy the other, the fuller channel carries the "real" meaning. This implies that a given performance has a particular meaning. Under no circumstances must the reader be mislod by the heuristically limited corpus which we are examining in this exercise. From the examination of extensive sound filmed interactional sequences, I have every reason to posit the proposition that in human experience there are at all observational times
many streams of meaning in process. The particular section of the stream we analyse is always a partial and only as wo cone to comprehend the larger rules of communicational structure will we be able to determine the relevant meanings in particular sequences. In short, it is m hope that as we gain more complete control of the varisized forms of both linguistics and kinesies, we shall be able to examine limited sequences with an increased control over the data we ignore when we limit our corpus. In ny opinion, a great proportion of the arguments popular in linguistics today about "gramear", syntax and meaning are viable only because of the limited universe which is under scruting.

\section*{- 24}
kinesic tertiaxy-prinary, the kinesic stress may be consistent with or differ from the linguistic stresses. To sumarize, while statisticaily, inesic stress patterning tends to be consistent with linguistic stross patterning, this is not invariable. I assume that further research at the emologic level and greater refinement of research with relationship to both iinguistic and kinesic stress patteming will provide more perspective upon these phenomena. I am attracted by a conception of commanicative structure which would include the possibility that, at least Por American English, kinesic and linguistic suprasegmentals may be in free variation. However, I would hasten to say that the burden of proof for such a proposition would at the present state of knowledge rest upon me.

The kinemes of stress conbine to form a set of suprasegnental kinomorphemes which have tested out in studies of complex sentences and statistical formplae. These are:

*/~~/ and / O-/ may as research develops turn out to be at */ higher level of stiucture. The fact that the form crosses a higher level of stiucture. The fact that the fora cross


K। KINEMORPHIC
KINEMIC
KINIC


\section*{- 25 -}

Charts \(2 a, 2 b\) and \(2 c\), below, will demonstrate the kinic, the kinemic and the kinemorphemic levels of analysis of Doris' ciroum-leocical stress bem havior. The structural belance of this selected segment is immediately obvious. The \(/ K=/\) is the added factor in the latter seotion of the utterance. However, ignoring this, if the suspected / K/ / is added, our type becones: \(/ / \sim / レ\) \# \# \# / / This balance could be related to the cadence in which Gregory and Doris are moving in their interactional dance. On the other hand, this may be a stylistic factor related to the production of a stereotyple utterance. At this stage of lineaic and conmanicational researah, however, such statements remain little more than conjecture. (One of ny assistants who was proofing this paper points out that the sentence above, when apoken aloud, has the same quality of balance in its accompanying supra-segnental structure.)

\[
\begin{array}{ll}
K_{1} & \text { KINEMORPHIC } \\
K_{2} & \text { KINEMIC } \\
\text { KINIC }
\end{array}
\]


\(* \quad\) P,h,r,ə,m, VOCAL SEGREGATES (Trager)
\(* *\) (Trager)
*** Y, RASP (Trager)
Phonetic transcription omitted. Circled numbers are numbers assigned 1956. Open numbers are from edge reading of sound film 1967.

Thart 20.

- 26 -

A final task remains for this exercise. In Charts \(3 a, 3 b\) and \(3 c\), the linguistic and kinesic materials are assembled for comparison.

Chart 3a.

Chart 3b.

Chart 3c.

A linear examination of the charts points up a serios of items for special examination:
1. The movement of the kinesic stress from its expectable position, oither over /mother's/ or over/ail/ as in // all mothers // or // ain mothers//, gives us a form // all mothers \(/ /\) as in \(/ /\) not \(V_{\text {dog }} / /\) which contrasts with \(/ /\) hot \(\widehat{\operatorname{dog}} / /\) and \(/ /\) hot dog \(/ /\).
2. The form // their kids // in the string is specially marked by the kinesic primaxy-secondary form.
\[
-27-
\]
3. Neither of these distinctions appear to be marked either in linguistic stress or intonation.
4. The kinesic single bar between/rothers/and, fink/is unmarked in the linguistic stream.
5. The linguistic stress and intonation appearing over /smart/ is absent in the kinosic line but may be subsumed under the kinesic/\#/.
6. The kinesic primary stress, over / but / bounded by kinesic double cross junctures, in emphasis seems comparable to but not identical with the rather complicated linguistic situation in wiich /but/ is not specially denoted in either pitch or stress but is followed by a "pause" and glottal stop, and is the nexal point for the paralinguistics. But/is included within the rasp, which marks//think their kelds are smart but//and is, at the same time, within the drawl which covers //out I have no worries about that childs//. It is furtherraore excluded from the overloud which extends over //I have :"o worries about that childs//.
7. The initial /I/ is kinesically unmarked while being at pitch 3 . This may be a function of the cigarette lighting which masks either a kinesic stress or a pronominal mariser. The second / I / is marked with a kinesic secondary (perhaps flavored by a pronominal marker) while she speake with tertiary stress over / I/.
8. The intonation pattern of 3-2-2, as marked by Hockett, over /no worries/ has same parallel in the primary kinesic stress over/worries/.
- 28 -

I think that the kinesic stress pattern of secondary-primary or primarysecondary that might have been axpected in this construction may have been absorbed in the kinemorphic construction of "head-shaling" which extends over //I have no worries about that childs//.
9. The kinesic primary stress which is puilled to a point between /childs/ and /intellectual/ to give us a form parallel to /ail mothers/ is of special interest. More statistically normal forms would have been either //that childs inteliectual ability// or// that childs inteilectual ability// or//that childs Intellectual ability//. The / \(\sim /\) recorded for the last form indicating a contimuation of movement which seems to cross kinesic functures, either of single bar or double cross. The linguistic pause, marked by Hockett, may be of consequence in the case. The segregates and the termination of the overioud and drawl are also to be noted here.

\section*{Surmary}

The nine points listed above are sufficient to illustrate sase of the complexdties which confront the linguist, the kinesioist or the commanication analyst who would attempt an ascessment of the relationship between kinesic and linguistic phenomena at this level of analysis. This limited segment, containing two syntactic sentences, represents an abstracted corpus which is short enough to be subjected to intense analyads but does not seem to contain sufficient information to settle many of the questions which come
to mind. One general point may be made from these data. Any discourse analysis, conversational analysis, communicational analysis or interactional analyais which would attend to but one modality - leacical, linguistic or kineaic - must auffer ircm (or, at least, be responsible for) the aseumption that the other modalitiee maintain a stead or non-influential state.

NATURAL HISTORY OF AN INTERVIEW

> Appendix 7B

Bibliographic Citations of Clinical Samples of Nonverbal Behavior
by
Henry W. Brosin, M.D.

\section*{NATURAL HISTORY OF AN INTERVIEW}

\section*{Appendix 7B}

Henry W. Brosin, M.D.

\section*{Table of Contents}
I. Freud
p. 8-12 II. Ferenczi, Groddeck
p. 12-15 III. W. Reich
p. 15-19 IV. P. Schilder, H. Head, S.E. Jelliffe
O. Fenichel, et al
p. 19-22 V. F. Deutsch
p. 22-26 VI. Braatøy, Feldman, Grotjahn, et al

Because of Freud's direct and indirect influence upon many students of behavior, and since Freud-inspired publications from various disciplines
in increasing numbers it seems worthwhile to outiine those aspects of

Freudian practice which bear upon our theme. As a physician trained in a good school, Freud's early case histories show an admirable wealth of pungent detail about his patients which make these cases exciting reading even after many years of repetition. Time does not permit our listing all of his shrewd comments about the non-lexical behavior which is imbedded in the fabric of the recital of the early cases. Freud's early descriptions were full and rich, with ample visual material, and therefore useful examples of linguistic-kinesic activity are plentiful. As mentioned earlier, Darwin \((1872,1877)\) deserves full credit for his extraordinary mastery of the potential methods by which human communication, human development, and ethology as the science of the biology of behavior ( K . Lorenz) could be studied, and these have been lauded by M. Mead (1955), K. Lorenz (1955) and G.F. Mahl (1966). Mahl (1966)
itemizes six ideas of Darwin relevant to our purposes and then credits Freud with adding the concepts associated with the idea that repressed wishes, thoughts, emotions and memories were often expressed in action instead
of in thought. That Freud was well acquainted with Darwin's EXPRESSION OF EMOTIONS IN MAN AND ANIMALS (1872) is shown in two explicit references to this work in STUDIES ON HYSTERIA (1893-95) in the cases of Frau Emmy von N. (p. 91) and Fraulein Elizabeth von R. (p. 181 of Vol. II of the Standard Edition). In the first example, Freud refers to human equivalents of Darwin's "principle of the overflow of excitation", and in the second states: "as

Darwin taught us, this event consists of actions which originally had a meaning and served a purpose. ....Indeed, it is perhaps wrong to say hysteria creates the se sensations by symbolization. It may be that it does not take linguistic useage as its model at all, but that both hysteria and linguistic usage alike draw their material from a common source." (p. 181)

To the next published work by Freud in this area is THE PSYCHOPATHOLOGY OF EVERYDAY LIFE (1901) which can be used as a textbook for clinicians who want to sharpen their skills in observation and interpretation. Chapter Nine
on Symptomatic and Chance Actions explains why "symptomatic acts"
seems to be a better name than "chance actions" for those acts which "give
expression to something which the agent himself does not expect in them
and which he does not as a rule intend to impart to other people but to keep
to himself". (p. 191) The same term, "symptomatic act" was chosen by the
authors to designate an event or significant sequence of behavior which was examined in this study. (See Chapter 6 and 7)

Freud continues his exposition in this monograph with several useful
descriptions. "....there is sense and purpose behind the minor functional
disturbances in the daily life of healthy people" (p. 162 of The Standard Edition)
"The actions described so far (Chapter VIII), in which we recognized the carrying out of an unconscious intention, made their appearance in the form of disturbances of other intended actions and concealed themselves behind the pretext of clumsiness. The'chance' actions merely in the fact that they scorn the support of a conscious intention and are therefore in no need of a pretext. They appear on their own account, and are permitted because they are not suspected of having any aim or intention. We perform them 'without thinking there is anything in them', 'quite accidentally',' just to have something to do'; and such information, it is expected, will put an end to any enquiry into the significance of the action. In order to be able to enjoy this privileged position, these actions, which no longer put forward the excuse of clumsiness, have to fulfil certain conditions: \({ }^{2}\) they must be unobtrusive and their effects must be slight.
"I have collected a large number of such chance actions from myself and from others, and after closely examining the different examples
have come to the conclusion that the name of symptomatic acts is a better one for them. They give expression to something which he does not as a rule intend to impart to other people but to keep to himself. Thus, exactly like all the other phenomena which we have so far considered, they play the part of symptoms.
"The richest supply of such chance or symptomatic acts is in fact to be obtained during the psycho-analytic treatment of neurotics. I cannot resist quoting two examples from this source which show how extensively and in what detail these insignificant occurrences are determined by unconscious thoughts. The borderline between symptomatic acts and buagled actions is so ill-defined that I might equally well have included these examples in the last chapter."

In Freud's major case histories we find more examples of his case
of slips of the tongue and other symptomatic acts which are breaks in patterened
behavior, often called parapraxis, which together with the examination of
free associations, and the interpretation of dreams, which he specifically
states are the three technical devices of particular use in psychoanalysis
(Freud, 1910, pp.29-39). The first published ma jor case history in 1905,
familiarly known as Dora, was actually written in 1900, at approximately the
same time Freud was writing the PSYCHOPATHOLOGY OF EVERYDAY LIFE (1901).

He did not avoid interpretations of Dora's hemicranial headaches, coughing
spells, periodic aphonia, chronic dyspnea with phasic exacerbation, depression,
fatigue, lack of concentration, any more than he did the more obvious trans-
actional symptoms such as withdrawal from social affairs, hostility toward

2(In 1901 only: 'a certain condition'.)
both parents, an acute attack of loss of consciousness followed by amnesia
after a quarrel with her father (Freud, 1905). Unfortunately, this level of
description was not sustained by most psychoanalysts, with a few notable
exceptions, in subsequent clinical reporting.

It is also worth noting that in this same essay (1905) Freud anticipates
the development of fuller presentation and boldly states the duty of every physician
to publish what he knows that may be of use to others. In the same vein he
discusses the need for his overcoming the technical barriers to publication.

He discusses the obligation to protect the patient from publicity and the need
for accurate reporting. Clearly he recognizes the relationship between the
clinical situation and the task of the objective reporter.

Dora's play with a reticule, a small woman's drawstring bag used
as a pocketbook or carry-all, worn at her waist, has become as famous as
the wedding ring play in other case histories.
"There are two sorts of conscious attitudes possible towards these symptomatic acts. If we can ascribe inconspicuous motives to them we recognize their existence; but if no such pretext can be found for conscious use we usually fail altogether to notice that we have performed them. Dora found no difficulty in producing a motive: 'Why formed them. Dora found no difficulty in producing a motive: 'Why should I not wear a reticule like this, as it is now the fashion to do?
But a justification of this kind does not dismiss the possibility of the But a justification of this kind does not dismiss the possibility of the
action in question having an unconscious origin. Though on the other action in question having an unconscious origin. Though on the other
hand the existence of such an origin and the meaning attributed to the act cannot be conclusively established. We must content ourselves
with recording the fact that such a meaning fits in quite extraordinarily we'? with the situation as a whole and with the programme laid down by the unconscious.
"On some other occasion I will publish a collection of these symptomatic acts as they are to be observed in the healthy and in neurotics. They are sometimes very easy to interpret. Dora's reticule, which came apart at the top in the usual way, was nothing but a representation of the genitals, and her playing with it, her opening it and putting her finger in it, was an entirely unembarrassed yet unmistakable pantomimic announcement of what she would like to do with them--namely, to masturbate. A very entertaining episode of a similar kind occurred to me a short time ago. In the middle of a session the patient--a lady who was no longer young--brought out a small ivory box, ostensibly in order to refresh herself with a sweet. She made some efforts to open it, and then handed it to me so that I might convince myself how hard it was to open. I expressed my suspicion that the box must mean something special, for this was suspicion that the box must mean something special, for this was the very first time I had seen it, although its owner had been com
to me for more than a year. To this the lady eagerly replied: 'I to me for more than a year. To this the lady eagerly replied: 'I always have this box about me; I take it with me wherever I go.
She did not calm down until I had pointed out to her with a laugh She did not calm down until I had pointed out to her with a laugh
how well her words were adapted to quite another meaning. The box how well her words were adapted to quite another meaning. The box-like the reticule and the jewel-case, was once again only a substitute for the shell of Venus, for the female genitals.
"There is a great deal of symbolism of this kind in life, but as a rule we pass it by without heeding it. When I set myself the task of bringing to light what human beings keep hidden within them, not by the compelling power of hypnosis, but by observing what they say and what they show, I thought the task was a harder one than it really is. He that has eyes to see and ears to hear may convince himself that no mortal can keep a secret. If his lips are silent, he chatters with his finger-tips; betrayal oozes out of him at every pore. And thus the task of making conscious the most hidden recesses of the mind is one which it is quite possible to accomplish."

The case known as "Little Hans" was written by Freud (1909) about a boy whose father was his therapist, and, as such also wrote the clinical notes.

There are several well known symptomatic acts described such as little Hans
hitting his father's hand and then kissing it (p. 42), biting his father's hand
as identification (p. 52), biting father's hand as assent (p. 125), and the
symbolic play with the rubber doll Grete (p. 84)

The case history of the "Rat Man", which was also published in 1909,
has numerous symptomatic acts congruent with his obsessional neurotic
processes which illustrate his ambivalence and indecision

The case of the "Wolf Man", published in 1918, has examples of symptomatic acts, many occurring during the transference.

Symptomatic acts are mentioned in a number of the theoretical papers with a summary in the essay THE UNCONSCIOUS (1915, p. 179) of which Freud himself was proud. In discussing the "return of the repressed" he postulates direct expression of affect in "secretory or motor discharge resulting in an (internal) alteration of the subject's own body without reference to the external world; motility, in actions designed to effect changes in the external world". (p. 178) Freud also postulates indirect expression of affect through "a substitutive idea in the system Cs". (p. 179) Thus, three routes are open depending upon circumstances. ,The appearance of symptomatic acts in the transference involves numerous mechanisms of defense (sublimation, denial, projection, introjection, repression, reaction formation, undoing,
isolation, regression; blocking, postponement, displacement of affects;
affect equivalents ("Schreber's somatic 'basic language' (Freud, 1911) consists of affects reduced to body sensations" (Fenichel, 1945, p. 163); reaction formations against affects, et al, and defenses against guilt feelings. (Fenichel, 1945). Obviously our hidden memories and deeply buried feelings can seek and find an infinite variety of external manifestations through this maze of potential transformations, particularly if we recall the quantitative and qualitative variations. Fortunately, we can recognize many of the more common patterns, but we will undoubtedly learn to recognize
a myriad new forms (gestalts) as we learn how to look and see at both smaller units, which occur within seconds or minutes, and those larger ones which require hours, days and months to unfold. It is one of the rewards of the close grained natural history methods of observation that the clinician as well as the experimentalist learns to "see" events with much greater understanding. We will now cite examples from a few of Freud's pupils who can help us with insights. The writings of Ferenczi and Reich are required reading for the clinician in this area, even though the interpretations of the latter may differ widely from those authors from another culture.
II. Ferenczi and Groddeck

Ferenczi, while not devoting himself systematically to an analysis
of body motion, had many insights into such activity worth noting. In

1911, for example he wrote:
"Another neurotic symptom, which may be observed much more frequently, is exaggerated calm and grave precision in the carrying out of every action, of every movement, shown also in the whole attitude and in the dread of all hurry and haste. It is usually accompanied with pronounced antipathy against those people who "let themselves go" easily, who are immoderate, hasty, lively, unthinking and frivolous. One might here speak of a phobia of movement. This symptom is a reaction-formation against a strong, but suppressed, motor tendency to aggression." (Ferenczi, S., 1950, p. 148-149) Published in the Zentralle F. Psychoanalyze, Jahrg. I, 1911.

Another concept which is useful in therapeutic interpretation is
that in which the analyst senses the equivalence between words, even those
with a minimal lexical message, and some motor activity.
"These interjections that issue in vehement anger, which are often softened down to jokes also, do not all belong, as Kleinpaul rightly insists, to conceptual speech; they do not serve the needs of conscious communication, but repres ent reactions to a stimulus which are nearly related to gestures. It is none the less remarkable, however, that a violent affect is only with considerable difficulty saved from discharging itself along a motor path and is turned into an oath; the affect involuntarily makes use of the obscene words that are best suited to the purpose from the strength of their affect and their motor force." (ibid., pp. 151-152.)

The logical extension of this concept to many types of motor activity

Ferenczi then goes on to discuss a query which was prominent in
our considerations as we examined our interview materials, namely, what types of
vocal and body motion activity included, in context, indices of regressive
behavior.
"An important support for my supposition that obs cene words remain 'infantile' as the result of inhibited development, and on this account have an abnormal and regressive character, would be the ethnographic confirmation. Unfortunately I have not sufficient experience on this point. What I know of the life of the lower classes, and especially of the gypsies, seems to indicate that among uncultivated people obscene words are perhaps more markedly invested with pleasure, and do not differ so essentially from the rest of the vocabulary, as compared with the state of affairs among the cultivated." (ibid., p. 153)

That psychotic posturing is clinically intelligible is well known,
but Ferenczi cites two cases which illustrate early insights: (l) his case ,
of the man who lifted his leg in order to think and (2) the following:
"A paraphrenic who had an uncommonly keen capacity for self-observation spontaneously explained to me that with all his curious catatonic postures and movements he was seeking to defend himself from erotic sensations in the various parts of the body concerned. The extreme bowing forwards of the body that he kept up for minutes at a time served, for instance, 'to break the erection of the intestine.'" (Ferenczi, 1916, 1950, p. 295)

Another analyst, Geory Groddeck, in THE BOOK OF THE IT (1923
and 1950) gives a number of hints about the value of body motions as indices
to unconscious activities. All of us learn in early life, in art studies, and
in analysis, that we are trained not to see much that is obvious in people
around us. This simple fact is forcibly and repeatedly demonstrated when
one views a two or three minute scene between two or three people for the
twentieth or even for the fiftieth time. Suddenly new observations, associations
and insights are available and we are able to see a commonplace interview or
exchange with a fresh eye. Here is Groddeck's comment:
"And then it has sometimes happened on my walks that I
have seen a peasant standing behind his plough, indulging himself in solitude and without shame; this also one can see with country wenches, if one has not been made blind and kept blind by the prohibition enforced in childhood. Under certain conditions such a prohibition operates for years, perhaps for a whole lifetime, and it is sometimes amusing to note everything that men miss seeing because Mama forbade it. But you need not go first to peasants: your own memories will tell you enough. Or does masturbation loose its shamefulness because it is the beloved, the husband, who plays in those charming places? It is quite unnecessary to consider the thousand possibilities of hidden guiltless masturbation, of riding, swinging, dancing, retaining the stools; caresses whose deepest intention is masturbation, are also fairly common!" (ibid., p. 50)

Later, he explains the symbolism of the wedding ring, and possible

\footnotetext{
significances in its manipulation.
}
"This parallel between ring and female, finger and male organ, is no casual invention, but is imposed by the It, and anyone can prove this at any time both for himself and for others if he watches how people play with a ring on the finger. Under the influence of certain emotions, easy to guess but as a rule not fully conscious, this game begins; up and down the ring is pulled, now twisted, now turned. The course of the conversation, the hearing or the utterance of particular words, a glance at a picture, at people or at objects, any and every possible sense impression may give rise to activities which at the same time expose to us the secret story of the soul, and also prove beyond doubt that the man does not know what he is doing, that something unknown compels him to reveal himself in symbols, and this symbolism does not arise from conscious thought, but from the unrecognized activity of the It. For who, consciously, under the eyes of another, would perform movements which betray sexual excitation, or which open to public view the secret, ever-hidden act of masturbation? And yet even those to whom the meaning of the symbol is clear go on playing with the ring; they cannot help but do it. Symbols are not invented, they are there, and belong to the inalienable estate of man; indeed, one might say that all conscious thought and action are the unavoidable consequence of unconscious symbolization, that mankind is animated by the symbol." (ibid., p. 58)

III W. Reich

Another major psychoanalytic contribution to the understanding of
body motion is the first edition of Wilhelm Reich's (1933) well-known book

CHARACTER ANALYSIS. The third edition, now currently available, has
additions in Part III which are about "orgone biophysics" and have nothing
to do with psychoanalysis. Reich made clear that analysis of individual
character traits, both good and bad, was an inadequate therapeutic process
and theoretically indefensible. He showed the way to therapeutic techniques which focussed on characteristic modes of defense against analytic insight
and unconscious material. It improved analytic results because it enabled
the therapist to avoid long obsessional periods of free-association without
affect and mobilized these affects constructively. Reich's descriptions
of the more typical character-formations contain a wealth of material about
their speech and body motions.
"Our investigation of the differentiation of character types
proceeds from two facts: First, no matter what the form of
the character, its basic function is an armoring against the
stimuli of the outer world and against the repressed inner
impulses. Second, the external form of this armoring has its impulses. Second, the external form of this armoring has
specific historical determination." (Reich, 1949, p. 184)

It is obvious that Reich, as we gather from his introduction to the
first edition (1933), clearly understands the importance of socio-economic
and other group influences on character formation. These relations are
discussed at greater length in the earlier chapters 1-3.

A few concrete examples will help clarify Reich's approach:
"The hysterical character--as complicated as the corresponding symptoms and reactions may be--represents the simplest type of character armoring. Its most outstanding characteristic is an obvious sexual behavior, in combination with a specific kind of bodily agility with a definitely sexual nuance....In women, the hysterical character types are evidenced by disguised or undisguised coquetry in gait, gaze evidenced by disguised or undisguised coquetry in gait, gaze
and speech. In men, there is, in addition, softness and overand speech. In men, there is, in addition, softness and over-
politeness, feminine facial expression and feminine behavior. politeness, feminine facial expression and feminine behavior
In the hysterical character, facial expression and gait are In the hysterical character, facial expression and gait are
never hard and heavy as in the compulsive character, or selfnever hard and heavy as in the compulsive character, or self-
confident and arrogant as in the phallic-narcissistic character. In the typical case, the movements are soft, more or less rolling, and sexually provocative. The total impression is one
of easy excitability, in contrast, for example, to the self control of the compulsive character. While coquetry paired with apprehensiveness as well as bodily agility are immediately evident, the other specific hysterical character traits are hidden."

He now discusses inconstancy, suggestibility, and disappointment
reactions, easy compliance and its quick replacement by depreciation and
groundless disparagement, and vivid imagination.
"Just as the hysterical character is strongly expressed in bodily behavior, so it tends to represent psychic conflicts in somatic symptoms."

This leads us to the nature of the character armor:
"The armor is much less solidified, much more labile than in the compulsive character." (ibid., pp. 189-191)

It is apparent from the brief description that a kinesicist could
find numerous identifiable units of behavior in a film of individuals whose character corresponded to that here described. Here then is the oppor-
tunity to improve analytic observation and to focus subsequent application
of already developed therapeutic techniques. It is even possible that with
improved observation and more precise supervision the therapy of character
disorders will achieve considerably greater success than it has enjoyed to
date.

In discussing the compulsive character, Reich delineates the
classical defenses of pedantic concern for orderliness, ruminative thinking,
thriftiness, tendency to collect things, reactions of sympathy and guilt
feelings, indecision, doubt and distrust, restraint and control in outward
appearance, and affect block. These well-known concepts are then related
to the body armor.
"It is noteworthy that at first no genital impulses are liberated but only aggressive impulses. The superficial layer of the armor, then, consists of aggressive energy....The affect-block is one great spasm of the ego which makes use of somatic spastic conditions. All muscles of the body, but particularly those of the pelvis and pelvic floor, of the shoulders and the face, are in a state of chronic hypertonia. Hence the "hard", somewhat masklike physiognomy of compulsive characters, and their physical awkwardness." (ibid., p. 198)

Reich's work on the clinical interpretation of body motion has been
amplified by his pupil Lowen (1958), in PHYSICAL DYNAMICS OF CHARACTER

STRUCTURE: BODILY FORM AND MOVEMENT IN ANALYTIC THERAPY.

IV P. Schilder, H. Head, S.E. Jelliffe, O. Fenichel and their colleagues.

Paul Schilder, in six published volumes and in numerous papers
centering about the concept of the body image, has given us many hints of
his interest in interpreting vocal and body motion behavior. The following
summary by his wife, Dr. Lauretta Bender (1934, p. 1000 to 1029), states concisely his basic views.

Somatic diseases that distort the body structure cause an insult to the physical personality which the subject finds difficult to accept. The pathologic process results in a discrepancy between the body structure and the body image constitutionally and socially acceptable to the patients. This study attempts to show how the psychosis which may arise in such persons is due largely to this discrepancy and represents, in part, a specific psychopathology related to disturbances in the body image, postural model or body schema

The concept of the postural model was first introduced by Henry Head (1920, p. 669). To him, however, it meant merely the integrated concept of the body posture in gait and station, which is constantly changing as the gait and station change, through the peripheral sensations that arise from the moving or static body. 'Man perpetually builds up a model of himself which constantly changes. Every new posture or movement is recorded in this plastic schema, and the activity of the cortex brings every fresh group of sensations evoked by altered posture into relation with it.' Schilder (1950) has developed a much more comprehensive concept from his earlier work on the Korperschema (1932), built on the 'mechanisms of the central nervous system which are of importance for the building up on the special image everybody has about himself.' This study is based on physiology, neuropathology and psychology, including Schilder's psychoanalytic experiences. He has incorporated this material into a psychologic doctrine with far-going implications. The essentials of the doctrine re that there is a plastic concept of the body image which is built rom all sensory and psychic experiences and is in constant inted gration in the central nervous system into a com ept Gestalt which sees 'life and personality astalt variously modified and dish may become variously modified and distorted by lesions in the central nervous ystem or by pathologic conditions in the psychic levels of that personality."

The general bibliography to the present volume lists separate articles

\footnotetext{
in the psychoanalytic literature such as Karl Abraham (1927, pp. 235-243) on loco-
}
motor anxiety, Ferenczi (1950, pp. 142-174) on tics and on the relation of
thinking to muscle innervation, J. Flescher (1948) on neurotic disorders
of sensibility and body schema, E. Gostynski (1951) on a clinical contribution to the analysis of gestures, P. Greenacre (1953) on certain relationships between fetishism and faulty development of the body image, E. Kris (1940) on laughter as an expressive behavior and contributions to the analysis of expressive behavior, K. Landauer (1926) on restlessness in children, B. Mittelmann (1958) on motility in infants, children and adults and on motor patterns and genital behavior, W.C.M. Scott (1948) on some embryological, neurological, psychiatric and psychoanalytic implications of the body scheme,
D. Tallaferro (1952) on observations on the simultaneity of emotion-muscle processes. The books by T. Braatøy (1954) and S.S. Feldman (1959) contain much excellent material for clinicians. Obviously there is more than a little interest on the part of psychoanalysts in (non-lexical) vocal and body motion behavior.

Several other psychoanalysts likewise deserve mare than passing mention,
because of the importance of their contributions in the general area of our interest. Smith Ely Jelliffe, who has a good claim to the title of being one
of the earliest and most influential of the founders of psychosomatic medicine, wrote over 200 articles (see especially Jelliffe, 1939, and the review
by Brosin, 1952), many of which have to do with muscular and visceral
activity in relation to emotional behavior.

Otto Fenichel (1954) in his studies of character disorders has made a number of observations about such behavior as coughing (pp. 237-242), neurotic acting-out (pp. 296-304), so-called psychosomatic phenomena (pp. 305-323), acting on the stage and in movies (pp. 349-361). He also reviews the ground familiar to readers of the journal, PSYCHOSOMATIC MEDICINE, regarding (1) conversion reactions; (2) affect equivalents. such as some "cardiac neuroses" (which may also be conversion hysterias) which are anxiety equivalents: sexual excitement may be replaced by other sensations in intestinal, respiratory and circulatory apparatus (p. 309); (3) disturbed chemistry of the unsatisfied person: here concepts of positive and negative symptoms, "actual neurosis," "unconscious affects" such as "latent rate" or "latent anxiety" are discussed and may be of interest because these states so characterized may betray themselves by detectable behavior (p. 311); (4) physicaph results (
and L.J. Saul regarding habitual clearing of the throat eventually resulting
in a pharyngitis, or sleeping with an open mouth without organic cause,
or other psychological patterns which predispose the person to catching cold.

Fenichel also elaborates on the muscular disorders (pp. 313-314).

V Felix Deutsch

Felix Deutsch, one of the leaders in the field of better and more
complete recording of a patients behavior, may rightfully be called the father
of "psychoanalytic posturology." Deutsch (1955) states that Freud encouraged
him to study the psychosomatic area, and that he (Deutsch) considers

Ferenczi, Groddeck and Jelliffe to be the early psychoanalytic pioneers in
this area. It is worth stressing that, since all behavior, external and internal,
is an indissoluble whole, the findings of workers in the so-called psycho-
somatic diseases (arthritis, asthma, colitis, diabetes, hypertension, peptic
ulcer, and the like) will also contain data on peculiar vocal and body motion
activity associated with these conditions which may be identifiable and useful
for investigative purposes (see Birdwhistell, Chapter 00, pp. 00 of this book.)

\section*{In 1949, Deutsch states that}
"The study of motor behavior can contribute a great deal to the understanding of the personality from the psychosomatic point of view. For the past five years, I have been occupied with posturology, i.e., the study of the unconscious motivations of postural behavior as it can be observed during the psychoanalytic sessions....At the time of my last presentation, my observations were based on the analysis of 17 persons. In the following two years, 11 more cases could be added."
"The psychoanalytic procedure, which stirs up large quantities of psychic energy, is continually accompanied by correlated but invisible physiological adaptations and responses. The physiologist Adrian (1946) very impressively presented these correlations some years ago to the British Psychoanalytic Society. In estimating postural reactions, or motor behavior, during analysis, it must always be kept in mind that whatever happens in one part of the body is reflected in the whole body and is integrated into the functioning of the whole organism." (Deutsch, 1952, p. 196)

Deutsch has described his method of recording postures and body
motions in his posturograms in two early publications. (Deutsch 1947, 1949)
"Briefly, the method consists of recording daily during each analytic hour all postures as they occurred, and of arranging them in a 'posturogram' covering the entire duration of each analysis. Thirty-two patients, who had been analyzed from one to four years have been studied and thousands of postures have been recorded. The term 'posture' denotes the relative positions of the patient's head, trunk and limbs on the couch "and the topographic relationship of these parts of the body to each other. In the past two years observations have been extended to the position of the hands, fingers, and the feet, with particular reference to the total configurative postural pattern.
"The head may be turned to the left or to the right, or lie in a fronto-occipital position from which it may be frequently lifted and dropped. The trunk may be turned to one side or the other or remain supine. The hands may be cupped, the right over the left hand or vice versa; they may be held extended with palms down, not touching each other; they may be clasped together, the fingers interlaced. The thumbs may be hidden in the first, one thumb may be cupped over the other, or it may touch the other only with the distal phalanx." (Deutsch, 1952, pp. 197-198).

The advances in technique made by \(F\). Deutsch in more recent years before his death are to be found in his essay "Some Principles of Correlating Verbal and Nonverbal Communication". (1966, p. 166-188)

It will be apparent that the methods developed by my colleagues in the present study differ in several important respects: (1) much more minute changes in body motion can be described and recorded; (2) much more precise description of the body motion and vocal activity is possible; (3) much smaller units of behavior are subjected to microscopic examination and thereby, in effect, the individual elements of that unit of behavior are magnified; (4) the relative timing between the various kinds of vocal and body motion activity is now precisely determined. These attributes of micro-recording provide us with a much more refined and complete albeit more complex record, a record whose close inspection may make possible a more accurate diagnosis and a more secure prognosis at every stage of the treatment.

The clinician who wishes further to explore the potentiality of more reliable interpretations based on more precise data on vocal and body motion activity will find certain more recent publications of value. Spitz (1957) points
out the paucity of specific studies in this area. He cites the articles on the ontogenesis of verbal and non-verbal communication by Hug-Hellmuth (1919), Spielrien (1922), Kulovesi (1939), Sugar (1941), Christoffel (1951), and Greenson (1954), as the only ones which have come to his attention on this subject. Other studies bearing on these problems are to be found in Kris and Speir (1944), Kasanin (1944), Schilder (1950), Rapaport (1951, pp. 689-730), Meerloo (1952), Mittelmann (1958), and Loewenstein (1956).

In addition to Freud's case histories, papers in technique, and his THE PSYCHOPATHOLOGY OF EVERYDAY LIFE, together with the important work of Ferenczi, Groddeck, Reich, Schilder, and F. Deutsch already referred to, the most interesting "text" on clinical interpretation of linguistic-kinesic phenomena may well be Braatøy's (1954) FUNDAMENTALS OF PSYCHOANALYTIC TECHNIQUE. Without in any way implying that psychoanalytic technique can be acquired by reading, the articles and books here referred to represent an extensive corpus of clinical observations which will accelerate the progress of a student of human behavior. Braatøy points out that the reclining position on the couch minimizes body movement during therapy, and also diminishes the
amount of visual information available to the therapist. For various reasons, auditory information and "content" dominate the nature of the informational exchange. Without detracting from the undoubted value of "listening with the third ear" (Reik, 1954), Braatøy points out that although it is taken for granted that all clinical work uses the vocal and boyd-motion elements and the physiological components of messages as well as the strictly lexical items, the psychoanalytic literature in this area has been sparce. He gives numerous concrete examples of the substantial therapeutic value of properly interpreting the muscular and visceral activity of a patient during treatment. He amplifies, without contradicting classic psychoanalytic technique the desirability of
"connecting the classic psychoanalytic--mostly verbal--tradition with direct
clinical observations and neurophysiological insights." (ibid., p. 154)

Another excellent book describing 121 common mannerisms of speech
and 46 gestures and other non-lexical behavior is MANNERISMS OF SPEECH AND

GESTURES IN EVERYDAY LIFE by Feldman (1959). Grotjahn's (1957) BEYOND

LAUGHTER will also repay close study by advanced students for his analysis of
numerous subtle character patterns and human interactions.

\section*{One final area which may be of increasing future interest to}
psychoanalysts and to those using the linguistic-kinesic approach described
in this book is that of so-called thought-transference or telepathy. Psycho-
analysts who have studied this phenomenon in the therapeutic transference
situation believe that, whether or not telepathy is a viable explanation,
there are here genuine problems which have not generally been recognized, and on whose solution new knowledge of non-lexical vocal and body motion behavior
may have an important bearing. In recent years many psychotherapists have
touched on these problems: Ehrenwald (1954), Eisenbud (1946),

Gillespie (in Devereux, 1953, pp. 373-382), Hollos (1933), Meerloo (1949),

Pederson-Krag (1947), Rubin (in Devereux, 1953, pp. 383-387), and Servadio
(1956). Servadio (1956), in a paper read at the International Psychoanalytic

Congress in Geneva in 1955, writes:
"Paraphrasing Freud (1933, Lecture 33), who wrote that 'a great deal of activity may be needed to reach a passive goal', we must say that plenty of regressive means may be used towards the attainment of progressive results. In a foreign land, whose dictionary and grammar are unfamiliar to us, we may revert, in our forward drive towards communication, to the more primitive language of gestures and vocal sounds.
"Frustration leading to transference can be physical, emotional, or both. Its physical aspects are well known to analysts who can provoke regression and transference by asking the patient to abstain from this or that kind of motor discharge. Distance can have transference effects because it physically prevents communication and
because it mobilized primitive emotions (e.g., the anxiety of being abandoned). The frustrating attitude of the analyst provokes transference through reactivation of forgotten emotions and unconscious mental processes.
"From 1932, Freud contended that telepathy 'may be the original archaic method by which individuals understood one another, and which has been pushed into the background in the course of phylogenetic development by the better method of communication by means of signs apprehended by the sense organs.'" (Freud, 1933, Lecture 30)

Servadio goes on to explain more fully what conditions in the trans-
ference-countertransference situation are conducive to thought-transference.

If frustration on the other conditions is set up, as seems necessary, it is
logical to assume that there will be some kind of verbal or muscular behavior
which would betray the processes before the state of telepathic communication
was reached, and probably some significant indentifiable activity even during such
a state.

Clearly, the material which has been presented is not a presentation
of completed work, firmly established methods, or a thoroughly satisfactory
conceptual frame of reference. We believe Chapter I containing Bateson's
overview which combines linguistic, anthropologic, communication theory and psychoanalytic concepts to be a more useful working model than others known
to us. The barriers to quick publication, both personal and public, prevent
us from publishing additional material of considerable interest, but which should be published within a few years. We regret that we have not been
able to give more space to many authors cited, and that we were not able to
mention many others who are doing good work. If the reader will regard this
as a workbook which has no pretentions beyond reporting work in progress,
he will not be disappointed. There is much reason to hope that progress in the linguistic-kinesic area will be accelerated during the next decade.
lckerman, N.W. Psychotherapy with the family group. Sci. Psychoanal., 4:150-157, 1960.(P)

Alexander, F. The dynamics of psychotherapy in the light of learning theory. Amer. J. Psychiat., 120:440-448, 1963.

Alexander, F. Unexplored areas in psychoanalytic theory and treatment. Behav. Sci., 3:293-316, 1958.

Allport, G.W., and Cantril, H. Judging personality from voice. J. Soc. Psychol., 5:37-55, 1934.

\section*{Ames, L.B. Early individual differences in visual and motor behavior patterns:}

A comparative study of two normal infants by the method of cinemanalysis.
J. Genet. Psychol., 65:219-226, 1944.

Artiss, K. L. The Symptom as Communication in Schizophrenia. New York, Grune \& Stratton, 1959

Auerbach, A.H. An application of Strupp's method of content analysis to psychotherapy. Psychiatry, 26:137-148, 1963.

Auld, F., and Murray, E.J. Content-analysis studies of psychotherapy. Psychol. Bull., 52:377-395, 1955.

Ax, A. F., and Greenblatt, M. Autonomic responses and emotions: Further discussion.

In Expression of the Emotions in Man. Edited by P.H. Knapp. New York, International Universities Press, 1963, p. 197-205.

Balkányi, C. On verbalization. Int. J. Psychoanal., 45:64-74, 1964.

Balken, E.R. Psychological researches in schizophrenic language and thought.
J. Psychol., 16:153-176, 1943. (P)
\(\checkmark\) Barbara, D.A. The value of non-verbal communication in personality understanding.
J. Nerv. Ment. Dis., \(123: 286-291,1956\).

Barker, R.G. (Ed.) The Stream of Behavior: Explorations of its Structure \& Content. New York, Appleton-Century-Crofts, 1963. (P)
- Bastian, J. Primate signaling systems and human languages. In Primate Behavior:

Field Studies of Monkeys and Apes. Edited by I. DeVore. New York,

Holt, Rinehart and Winston, 1965, p. 585-606.

Bateson, G., and Mead, M. Balinese Character: A Photographic Analysis.
New York, The New York Academy of Sciences, 1942.

Bateson, G. Cultural problems posed by a study of schizophrenic process.

In Schizophrenia: 'An Intcgrated Approach. Edited by A. Auerback. Ncw York, Ronald Press, 1959, p. 125-146.

Bateson, G. Language and psychotherapy--Frieda Fromm-Reichmann's last project.

\section*{Psychiatry, 21:96-100, 1958.}

Bateson, G. Minimal requirements for a theory of schizophrenia. Arch. Gen. Psychiat., \(2: 477-491,1960\).

Bateson, G., et al. A note on the double bind--1962. Family Process, 2:154-161, 1963

Bateson, G. A social scientist views the emotions. In Expression of the Emotions in Man.

Edited by P.H. Knapp. New York, International Universities Press, 1963, p. 230-236.

Bateson, G., and Jackson, D.D. Some varieties of pathogenic organization. Res. Publ

Assoc. Res. Nerv. Ment. Dis., \(42: 270-290,1964\).

Bateson, G. A theory of play and fantasy. Psychiat. Res. Rep. Amer. Psychiat. Assoc., 2:39-51, 1955.

Bateson, G., et al. Toward a theory of schizophrenia. Behav. Sci., 1:251-264, 1956.

Beck, L.F. A review of sixteen-millimeter films in psychology and allied sciences.
Psychol. Bull., \(35: 127-169,1938\)

Beck, L.F. A second review of 16 -millimeter films in psychology and allied scienccs. Psychol. Bull., 39:28-67, 1942

Behymer, A. F., et al. Mental health films in group psychotherapy. Psychiatry, 20:27-38, 1957.

Benton, A.L., Hartman, C.H., and Sarason, I. G. Some relations between speech behavior and anxiety level. J. Abnorm. Soc. Psychol., 51:295-297, 1955. (P)

Berger, M.M. Nonverbal communications in group psychotherapy. Int. J. Group Psychother., \(8: 161-178,1958\).
\(V_{\text {Bergman, P. An experiment in filmed psychotherapy. In Methods of Research in }}\) Psychotherapy. Edited by L.A. Gottschalk and A. H. Auerbach. New York, Appleton-Century-Crofts, 1966, p. 35-49.

Berne, E. Concerning the nature of communication. Psychiat. Quart., 27:185-198, 1953 Bierer, J., and Strom-Olsen, R. The recording of psychotherapeutic sessions: Its value in teaching, research, and treatment. Lancet, 1:957-958, 1948.

Bion, W.R. Language and the schizophrenic. In New Directions in Psycho-analysis. Edited by M. Klein, P. Heimann, and R.E. Money-Kyrle. New York, Basic Books, 1956, p. 220-239.

Birdwhistell, R.L. Communication without words. Draft of a manuscript prepared for
"I' Adventure Humaine. Eastern Pennsylvania Psychiatric Institute, Aug., 1964.

Birdwhistell, R.L. Draft of a chapter prepared for Conceptual Bases and Applications
of the Communicational Sciences. The University of California, April, 1965.

Birdwhistell, R.L. Introduction to Kinesics: An Annotation System for Analysis of

Body Motion and Gesture. Louisville, Kentucky, University of Louisville, 1954.

Birdwhistell, R.L. Kinesic analysis in the investigation of the emotions. Address:

American Association for the Advancement of Science, Dec., 1960.

Birdwhistell, R.L. Critical movements in the psychiatric interview. Address: Galesburg State Research Hospital, Oct., 1962.

Black, J.W. Loudness of speaking: The effect of heard stimuli on spoken responses. J. Exp. Psychol., \(39: 311-315,1949\).
. Blauvelt, H., and McKenna, J. Capacity of the human newborn for mother-infant interaction. II. The temporal dimensions of a neonate response. Psychiat, Res, Rep, Amer.

Blauvelt, H., and McKenna, J. Mother-neonate interaction: Capacity of the human newborn for orientation. In Determinants of Infant Behaviour. Edited by B.M. Foss. London, Methuen, 1961, p. 3-35.

Blauvelt, H. Neonate-mother relationship in goat and man. In Group Processes: Transactions of the Second Conference. 1955. New York, Josiah Macy, Jr. Foundation, 1956, p. 94-140.

Bloch, B., and Trager, G.L. Outline of Linguistic Analysis. Baltimore, Waverly Press, 1942.

Boder, D. P. The adjective-verb-quotient: A contribution to the psychology of language. Psychol. Rec., 3:310-343, 1940.

Bonnard, A. Impediments of speech: a special psychosomatic instance. Int. J. Psychoanal., 44:151-162, 1963.

Bonner, M.R. Changes in the speech pattern under emotional tension. Amer. J. Psychol., 56:262-273, 1943. (P)

Boomer, D.S., and Dittmann, A.T. Hesitation pauses and juncture pauses in speech. Lang. Speech, 5:215-220, 1962.

Boomer, D.S. Speech disturbance and body movement in interviews. J. Nerv. Ment. Dis 136:263-266, 1963.

Boomer, D.S., and Goodrich, D.W. Speech disturbance and judged anxiety.
J. Consult. Psychol., 25:160-164, 1961.

Boomer, D.S., and Dittmann, A.T. Speech rate, filled pause, and body movement in interviews. J. Nerv. Ment. Dis., 139:324-327, 1964.

Bordin, E.S. Inside the therapeutic hour. In Research in Psychotherapy. Edited by
E. A. Rubinstein and M. B. Parloff. Washington, American Psychological

Association, 1959, p. 235-246. (P)

Bordin, E.S. Psychological Counseling. New York, Appleton-Century-Crofts, 1955. (P)

Boyd, R.W., and DiMascio, A. Social behavior and autonomic physiology: A sociophysiologic
study. J. Nerv. Ment. Dis., \(120: 207-212,1954\).

Boyer, L. B. Sculpture and depression. Amer. J. Psychiat., 106:606-615, 1950. (P)

Brain, R. The neurology of language. Brain, 84:145-166, 1961.

Brenman, M., et al. Problems in clinical research: Round table, 1946. Amer. J.

Orthopsychiat. 17:196-240, 1947.

Brewer, W.D. Patterns of gesture among the Levantine Arabs. Amer. Anthrop.

53:232-237, 1951.

Broadbent, D.E. Perception and Communication. New York, Pergamon Press, 1958. (P)

Brody, E.B., Newman, R., and Redlich, F.C. Sound recording and the problem of evidence in psychiatry. Science, 113:379-380, 1951.

Brody, M.W. Neurotic manifestations of the voice. Psychoanal. Quart., 12:371-380, 1943. Brosin, H.W. Abstract of linguistic-kinesic analyses and psychiatry. Address: San Francisco Psychoanalytic Society. Oct., 1956.

Brosin, H.W. Contributions of psychoanalysis to the study of organic cerebral disorders.

In Dynamic Psychiatry. Edited by F. Alexander and H. Ross. Chicago, University of Chicago Press, 1952, p. 211-254.

Brosin. H.W. Contributions of psychoanalysis to the study of the psychoses. In Dynamic
Psychiatry. Edited by F. Alexander and H. Ross. Chicago, University of Chicago Press, 1952, p. 285-306.

Brosin, H.W. Current status of recording methods in psychiatry and clinical psychology.

Unpublished manuscript.

Brosin, H.W. Description of behavior by psychoanalysts. Unpublished manuscript.

Broṣin, H.W. Description of behavior by psychologists and others interested in linguistics,

Brosin, H.W. Description of behavior in psychiatry. Unpublished manuscript.

Brosin, H.W. Discussion of R.L. Birdwhistell's paper: Contribution of linguistic-kinesic studies to the understanding of schizophrenia. In Schizophrenia: An Integrated Approach. New York, Ronald Press, 1959, p. 118-123.

Brosin, H.W. Linguistic-kinesic analysis using film and tape in a clinical setting. Amer. J. Psychiat., suppl. 122:33-37, 1966.

Brosin, H.W. Notes on linguistics. Unpublished manuscript

Brosin, H.W. The primary processes and psychoses. Behav. Sci., 2:62-67, 1957. Brosin, H.W. Some general problems in the utilization of this new approach.

Unpublished manuscript.

Brosin, H.W. Studies in human communication in clinical settings using sound film and
tape. Wisconsin Med. J., 63:503-506, 1964.

Brown, J.R., and Simonson, J. Organic voice tremor: A tremor of phonation.

Neurology, 13:520-525, 1963. (P)

Brown, R.W. Linguistic determinism and the part of speech. J. Abnorm. Soc. Psychol., 55:1-5, 1957.

Brown, R.W., Black, A.H., and Horowitz, A.E. Phonetic symbolism in natura languages. J. Abnorm. Soc. Psychol., 50:388-393, 1955.

Bullowa, M., Jones, L.G., and Bever, T.G. The development from vocal to verbal behavior in children. Monogr. Soc. Res. Child Develop., 29:101-107, 1964.

Buxbaum, E. The role of a second language in the formation of ego and superego. Psychoanal. Quart., 18:279-289, 1949.

Calhoun, J.B. The Ecology and Sociology of the Norway Rat. Bethesda, Maryland, U.S. Department of Health, Education, and Welfare, Public Health Service, 1963.

Carmichael, H.T. Sound film recording of psychoanalytic therapy: A therapist's experiences and reactions. J. Iowa Med. Soc., 46:590-595, 1956.

Carpenter, E.S., and McLuhan, M. (Eds.) Explorations in Communication: An Anthology. Boston, Beacon Press, 1960.

Carroll, J.B. Process and content in psycholinguistics. In Current Trends in the Description and Analysis of Behavior. Pittsburgh, University of Pittsburgh Press, 1958, p. 175-200.

Casagrande, J.B. The Southwest project in comparative psycholinguistics: A progress report. Items, \(10: 41-45,1956\).

Cassotta, L., Feldstein, S., and Jaffe, J. AVTA: A device for automatic vocal
transaction analysis. J. Exp. Anal. Behav., 7:99-104, 1964.

Chapple, E.D., and Lindemann, E. Clinical implications of measurements of interaction rates in psychiatric interviews. Appl. Anthrop., 1:1-11, 1942.

Chapple, E.D. The interaction chronograph: Its evolution and present application. Personnel, 25:295-307, 1949.

Chapple, E.D. The Interaction Chronograph Manual. Norton, Connecticut, E.D.

Chapple Company, 1956.

Chapple, E.D., et al. Interaction chronograph method for analysis of differences between schizophrenics and controls. Arch. Gen. Psychiat., \(3: 160-167,1960\).

Chapple, E.D. Measuring human relations: An introduction to the study of the interaction of individuals. Genet. Psychol. Monogr. , 22:3-147, 1940.

Chapple, E.D. Personality differences as described by invariant properties of individuals in action. Proc. Nat. Acad. Sci. USA, 26:10-16, 1940.

Chase, S. The language of nods. Saturday Review, March 2, 1957, p. 17-18.

Chassan, J.B. On probability theory and psychoanalytic research. Psychiatry, 19:55-61, 1956.

Cherry, C. On Human Communication: A Review, a Survey, and a Criticism. Cambridge
Technology Press of Massachusetts Institute of Technology, 1957.

Cherry, E.C., Halle, M., and Jakobson, R. Toward the logical description of languages in their phonemic aspect. Language, \(29: 34-46,1953\).
'Chomsky, N. Logical syntax and semantics: Their linguistic relevance. Language, 31:36-45, 1955.

Chomsky, N. Syntactic Structures. New York, Humanities Press, 1957.

Christie, L., et al. Communication and learning in task-oriented groups. Technical

\section*{Report 231, Research Lab. Electronics, MIT, Cambridge, 1952.}

Cofer, C.N. An experimental analysis of the role of context in verbal behavior.
Trans. N.Y. Acad. Sci., 22:341-347, 1960.

Cohen, M. B., et al. An intensive study of twelve cases of manic-depressive psychosis.

Psychiatry, 17:103-137, 1954.

Cohen, S.I., Silverman, A.J., and Burch, N.R. A technique for the assessment of affect
change. J. Nerv. Ment. Dis., 124:352-360, 1956.

Condon, W.S., and Ogston, W.D. Sound film analysis of normal and pathological behavior patterns. J. Nerv. Ment. Dis., \(143: 338-347,1966\).

Corbin, E.I. Muscle action as nonverbal and preverbal communication. Psychoanal. Quart.,
31:351-363, 1962.

Cornelison, F.S. Samples of psychopathology from studies of self-image experience.

Dis. Nerv. Syst., suppl. 24:133-135, 1963.

Covner, B.J. Studies in phonographic recordings of verbal material: I. The use of phonographic recordings in counseling practice and research. J. Consult. Psychol., 6:105-113, 1942.

Covner, B.J. Studies in phonographic recordings of verbal material: II. A device for transcribing phonographic recordings of verbal material. J. Consult. Psychol., 6:140-151, 1942.

Critchley, M. Kinesics: Gestural and mimic language: An aspect of non-verbal communication. In Problems of Dynamic Neurology: An International Volume: Studies on the Higher Functions of the Human Nervous System. Edited by L. Halpern. Jerusalem, Department of Nervous Diseases of the Rothschild Hadassah University Hospital and the Hebrew University Hadassah Medical School, 1963, p. 181-200.

Critchley, M. The Language of Gesture. London, Arnold, 1939.

Darwin, C.R. The Expression of the Emotions in Man and Animals. Chicago, University of Chicago Press, 1965.

Davis, F.H., and Malmo, R.B. Electromyographic recording during interview. Amer. J. Psychiat., 107:908-916, 1951.

Davis, J.F., et al. Electromyographic reaction to strong auditory stimulation in
psychiatric patients. Canad. J. Psychol., 8:177-186, 1954. (P)

Davitz, J.R., and Davitz, L.J. The communication of feelings by content-free speech.
J. Commun., 9:6-13, 1959 .

Deutsch, F. Analysis of postural behavior. Psychoanal. Quart., 16:195-213, 1947.

Deutsch, F. Analytic posturology. Psychoanal. Quart., 21:196-214, 1952.

Deutsch, F. Analytic posturology and synesthesiology: Some important theoretical and clinical aspects. Psychoanal. Rev., 50:40-67, 1963.

Deutsch, F. Analytic synesthesiology: Analytic interpretation of intersensory perception.
Int. J. Psychoanal., 35:293-301, 1954.

Deutsch, F. Correlations of verbal and nonverbal communication in interviews elicited
by the associative anamnesis. Psychosom. Med., 21:123-130, 1959.

Deutsch, F. Some principles of correlating verbal and non-verbal communication [including] A fragment of a sound filmed psychiatric interview demonstrating

Dr. Felix Deutsch's concepts. Number 1: Illustrating kinesic variables.

In Methods of Research in Psychotherapy. Edited by L. A. Gottschalk and
A. H. Auerbach. New York, Appleton-Century-Crofts, 1966, p. 166-184.

Dittes, J.E. Previous studies bearing on content analysis of psychotherapy. In Scoring Human Motives: A Manual. [Edited by] J. Dollard and F. Auld. New Haven, Yale University Press, 1959, p. 325-351.
\(\checkmark\)
Dittmann, A.T., Parloff, M.B., and Boomer, D.S. Facial and bodily expression:

A study of receptivity of emotional cues. Psychiatry, 28:239-244, 1965.

Dittmann, A.T., et al. Information yield from motional picture. IKON, 17:79-81, 1964.

Dittmann, A.T. Kinesic research and therapeutic processes: Further discussion.
In Expression of the Emotions in Man. Edited by P.H. Knapp. New York,

International Universities Press, 1963, p. 140-147.

Dittmann, A.T., and Wynne, L.C. Linguistic techniques and the analysis of emotionality
in interviews. J. Abnorm. Soc. Psychol., 63:201-204, 1961.

Dittmann, A.T. The relationship between body movements and moods in interviews.
Unpublished manuscript, \(8 \ell\). Extended report of data published in J. Consult.

Psychol., 26:480, 1962.

Dittmann, A.T., Stein, S.N., and Shakow, D. Sound motion picture facilities for research in communication. In Methods of Research in Psychotherapy. Edited by L.A. Gottschalk and A.H. Auerbach. New York, Appleton-Century-Crofts, 1966, p. 25-33.

Dunlap, K. A project for investigating the facial signs of personality. Amer. J. Psychol., 39:158-161, 1927.

Dunlap, K. The role of eye-muscles and mouth-muscles in the expression of emotions. Genet. Psychol. Monogr., 2:196-233, 1927.

Efron, D. Gesture and Environment. New York, King's Crown Press, 1941.

Eisenberg, P. Expressive movements related to feeling of dominance. Arch. Psychol., N.Y., 30:5-72, 1937.

Eisenberg, P., and Zalowitz, E. Judging expressive movement: III. Judgments of dominance-feeling from phonograph records of voice. J. Appl. Psychol., 22:620-631, 1938.

Ekman, P. Body position, facial expression, and verbal bchavior during intervicws
J. Abnorm. Soc. Psychol., \(68: 295-301,1964\).

Ekman, P. Communication through nonverbal behavior: A source of information about an interpersonal relationship. In Affect, Cognition, and Personality: Empirical Studics. Edited by S.S. Tomkìns and C.E. Izard. New York, Springer Publishing Company, 1965, p. 390-442.

Ekman, P. A methodological discussion of nonverbal behavior. J. Psychol., 43:141-149, 1957.

Eldred, S.H., and Price, D. B. A linguistic evaluation of feeling states in psychotherapy.

Psychiatry, 21:115-121, 1958.

Eldred, S.H., et al. A procedure for the systematic analysis of psychotherapeutic
intcrviews. Psychiatry, 17:337-345, 1954

Engel, C.E., and Hansell, P. Use and abuse of the film in recording the behaviour and rcactions of the newborn infant. Cereb. Palsy Bull., 3:472-480, 1961.

Engen, T., Levy, N., and Schlosberg, H. A new series of facial expressions. Amer. Psychol., 12 :264-266, 1957.

Estes, S.G. Judging personality from expressive behavior. J. Abnorm. Soc. Psychol., \(33: 217-236,1938\)

Fairbanks, G., and Guttman, N. Effccts of delayed auditory fccdback upon articulation.

\section*{J. Spcech Res., 1:12-22, 1958.}

Fairbanks, G., and Pronovost, W. Pitch of voice and expression of cmotion. Speech Monogr., 6:87-104, 1939

Fairbanks, G., and Pronovost, W, Vocal pitch during simulated emotion. Sciencc, 88:382-383, 1938.

Fairbanks, H., and Hoaglin, L.W. An experimental study of the durational characteristics of the voice during the expression of emotion. Specch Monogr., 8:85-90, 1941.

Feldman, S.S. Mannerisms of speech: A contribution to the working through process. Yearbook of Psychoanalysis, 5:61-71, 1949.

\section*{Feldman, S.S. Mannerisms of Speech and Gestures in Everyday Life. New York,}

International Universities Press, 1959

Feldstein, S., and Jaffe, J. A note about speech disturbances and vocabulary diversity J. Commun., 12:166-170, 1962

Feldstein, S., and Jaffe, J. The relationship of speech disruption to the experience of anger. J. Consult. Psychol., 26:505-509, 1962.

Feldstein, S., and Jaffe, J. The vocabulary diversity of schizophrenics and normals.
J. Speech Hearing Res. , 5:76-78, 1962 .(a) (P)

Fields, S.J. Discrimination of facial expression and its relation to personal adjustment,
abstracted, Amer. Psychol., 5:309, 1950.

Fink, M., Jaffe, J., and Kahn, R.L. Drug induced changes in interview patterns:

Linguistic and neurophysiologic indices. In The Dynamics of Psychiatric Drug
Therapy. Edited by G.J. Sarwer-Foner. Springfield, Illinois, Thomas, 1960, p. 29-44.

Frank, L.K. Tactile communication. Genet. Psychol. Monogr., 56:209-255, 1957.

Freed, H. On various uses of the recorded interview in psychotherapy. Psychiat. Quart., 22:685-695, 1948.

Freed, H. Various uses of the recorded interview in psychotherapy. Arch. Ncurol. Psychiat., 62:868-870, 1949.
"Frijda, N. H. Facial expression and situational cues.
J. Abnorm. Soc. Psychol.,
- \(57: 149-154,1958\).

Frijda, N.H. The understanding of facial expression of emotion. Acta Psychol.

9 :294-362, 1953.

Fromm-Rcichmann, F. Clinical significance of intuitive processes of the psychoanalyst.
J. Amer. Psychoanal. Assoc., 3:82-88, 1955.

Geertsma, R.H., and Stoller, R.J. The objective assessment of clinical judgment in
psychiatry. Arch. Gen. Psychiat., 2:278-285, 1960.

Goffman, E. The Presentation of Self in Everyday Life. Edinburgh, University of

Edinburgh, Social Sciences Research Centre, 1956.

Goldfarb, W., and Braunstein, P. Reactions to delayed auditory feedback in schizophrenic children. In Psychopathology of Communication. Edited by P.H. Hoch and J. Zubin

New York, Grune \& Stratton, 1958, p. 49-93.

Goldfarb, W., Braunstein, P., and Lorgc, I. A study of speech patterns in a group of
schizophrenic children. Amer. J. Orthopsychiat., 26:544-555, 1956.
\({ }^{\prime}\) Goldman-Eisler, F. The measurement of time sequences in conversational behavior.
Brit. J. Psychol., 42:355-362, 1951.

Goldman-Eisler, F. On the variability of the speed of talking and its relation to the length
of utterances in conversations. Brit. J. Psychol. , 45:94-107, 1954.

Goldman-Eisler, F. The predictability of words in context and the length of pauses in speech. J. Commun., 11:95-99, 1961.

Goldman-Eisler, F. The significance of changes in the rate of articulation. Lang. Speech, 4:171-174, 1961 (c).

Goldman-Eisler, F. Speech analysis and mental processes. Lang. Speech, 1:59-75, 1958 (a).

Goldman-Eisler, F. Speech-breathing activity--a measure of tension and affect during
interviews. Brit. J. Psychol., 46:53-63, 1955.

Goldman-Eisler, F. Speech-breathing activity and content in psychiatric interviews.
Brit. J. Med. Psychol., \(29: 35-48\), 1956 (a).

Goldman-Eisler, F. Speech production and the predictability of words in context.

Quart. J. Exp. Psychol., 10:96-106, 1958.

Goldman-Eisler, F. A study of individual differences and of interaction in the behaviour
of some aspects of language in interviews. J. Ment. Sci., \(100: 177-197,1954\).

Gostynski, E. A clinical contribution to the analysis of gestures. Int. J. Psychoanal., 32:310-318, 1951.

\section*{Gottschalk, L.A. (Ed.) Comparative Psycholinguistic Analysis of Two Psychotherapeutic}

Interviews. New York, International Universities Press, 1961.




Hoch, P.H., and Zubin, J. (Eds.) Psychopathology of Communication. New York, Grune \& Stratton, 1958.
\(\because\) D., and Geschwind, N. Quantitative studies of aphasic language. Res. Publ.
\(\therefore\) SSoc. Res, Nerv. Ment. Dis., 42:229-244, 1964.

Jackson, C.V. The influence of previous movement and posture on subsequent posture.

\footnotetext{
Quart. J. Exp. Psychol., 6:72-78, 1954. (P)
}

Hall, E.T., and Trager, G.L. The Analysis of Culture. Washington, American

Council of Learned Societies, 1J53.

Hall, E.T. The Hidden Dimension. Garden City, New York, Doubleday: 1966.

Hall, E.T. The Silent Language. Garden City, New York, Doubleday, 1959.

Hamilton, R.V. A psycholinguistic analysis of some interpretive processes of three basic personality types. J. Soc. Psychol., 46:153-177, 1957. (P)

Hartson, L.D. Contrasting approaches to the analysis of skilled movements. © J. Gen. Psychol., 20:263-293, 1939. (P)

Henry, J. The linguistic expression of emotion. Amer. Anthrop., 38:250-256, 1936. (P)

Hoch, P.H., and Zubin, J. (Eds.) Psychopathology of Communication. New York

Grune \& Stratton, 1958.

Howes, D., and Geschwind, N. Quantitative studies of aphasic language. Res. Publ. Assoc. Res. Nerv. Ment. Dis., 42:229-244, 1964.

Jackson, C.V. The influence of previous movement and posture on subsequent posture.

Jackson, D.D., Riskin, J., and Satir, V. A method of analysis of a family interview.

\section*{Arch. Gen. Psychiat., 5:321-339, 1961.}

Jaffe, J. Dyadic analysis of two psychotherapeutic interviews. In Comparative Psycholinguistic Analysis of Two Psychotherapeutic Interviews. Edited by L.A. Gottschalk. New York, International Universities Press, 1961,
p. 73-90.

Jaffe, J. Formal language patterns as defensive operations. In Psychological and Psychiatric Aspects of Speech and Hearing. Edited by D.A. Barbara. Springfield, Illinois, Thomas, 1960, p. 138-151.

Jaffe, J. Language of the dyad: A method of interaction analysis in psychiatric interviews. Psychiatry, 21:249-258, 1958.

Jaffe, J. An objective study of communication in psychiatric interviews. J. Hillside Hosp., 6:207-215, 1957.

Kamm, B.A. The problem of a "scientific evaluation" of psychoanalysis. Samiksa, 13:24-28, 1959.

Kanzer, M. Verbal and nonverbal aspects of free association. Psychoanal. Quart., 30:327-350, 1961. (P)

Kasanin, J. Language and Thought in Schizophrenia. Berkeley [etc.] University of California Press, 1944.

Kasl, S.V., and Mahl, G.F. The relationship of disturbances and hesitations in spontaneous speech to anxiety. J. Personality Soc. Psychol., 1:425-433, 1965.

Kasl, S.V., and Mahl, G.F. A simple device for obtaining certain verbal activity measures during interviews. J. Abnorm. Soc. Psychol., 53:388-390, 1956. (P)

Keller, H. Story of My Life. New York, Doubleday, 1954.

Kerdman, L., and Peek, J.E. Modes of communication in the psychotherapeutic process. Amer. J. Psychother., 11:599-617, 1957. (P)

Khan, M.M.R. Silence as communication. Bull. Menninger Clin., 27:300-313, 1963. (P)

Kimball, S.T. Communication modalities as a function of social relationships. Trans.

\section*{N.Y. Acad. Sci., 25:459-468, 1963. (P)}

Knapp, P.H. (Ed.) Expression of the Emotions in Man. New York, International Universities Press, 1963.

Kramer, E. Judgment of personal characteristics and emotions from nonverbal properties of speech. Psychol. Bull., 60:408-420, 1963. (P)

Kraus, W.M. The constant relation between postures of motile and rigid states. Arch.
Neurol. Psychiat., 15:597-606, 1926.

Krim, A. A study in non-verbal communications: Expressive movements during interviews. Smith Coll. Stud. Soc. Work, 24:41-80, 1953. (P)

Krout, M.H. Autistic gesturcs: An experimental study in symbolic movement. Psychol. Monogr., 46: No. 208, 1935. (P)

Krout, M.H. The social and psychological significance of gestures: A differential analysis. J. Genet. Psychol., 47:385-412, 1935.

Krout, M.H. Symbolic gestures in the clinical study of personality. Ill. State Acad. Sci., 24:519-523, 1931.

Kubie, L.S. Communications between sane and insane: Hypnosis. In Transactions of the Eighth Conference on Cybernetics. Edited by H. von Foerstcr. New York, Josiah Macy, Jr. Foundation, 1951, p. 92-133.

Kubie, L.S. Research into the process of supervision in psychoanalysis. Psychoanal. Quart., 27:226-236, 1958.

\author{
LaBarre, W. The cultural basis of emotions and gestures. \\ J. Personality,
}

Lamb, R., and Mahl, G.F. Manifest reactions of patients and interviewers to the use of sound recording in the psychiatric interview. Amer. J. Psychiat., 112:731-737, 1956. (P)

Lashley, K.S. The problem of serial order in behavior. In Cerebral Mechanisms in

Behavior: The Hixon Symposium. Edited by L.A. Jeffress. New York, Wiley, 1951, p. 112-146. (P)

Lasswell, H.D. Verbal references and physiological changes during the psychoanalytic interview: A preliminary communication. Psychoanal. Rev., 22:10-24, 1935. (P)

Leary, T.F., and Gill, M. The dimensions and a measure of the process of psychotherapy: A system for the analysis of the content of clinical evaluations and patient-therapist verbalizations. In Research in Psychotherapy. Edited by E.A. Rubinstein and M.B. Parloff. Washington, American Psychological Association, 1959, p. 62-95.

Leary, T.F. Interpersonal Diagnosis of Personality, New York, Ronald Press, 1957.

Leary, T.F. The theory and measurement methodology of interpersonal communication.

Leighton, A.H., and Lidz, T. The talking pictures in psychiatric teaching and research.

Amer. J. Psychiat., 98:740-744, 1942.

Lennard, H.L., and Bernstein, A. The Anatomy of Psychotherapy: Systems of Communication and Expectation. New York, Columbia University Press, 1960, p. 33-67. (P)
"Lenneberg, E.H. New Directions in the Study of Language. Cambridge, Massachusetts, M.I.T. Press, 1964.

Levonian, E. Perceptual thre shold of discrete movement in motion pictures. J. Soc. Motion Pict. TV Engineers, 71:278-281, 1962. (P)

Lhamon, W.T. Time and rhythm in psychosomatic relationships. In Current Problems in Psychiatric Diagnosis. Edited by P.H. Hoch and J. Zubin. New York, Grune \& Stratton, 1953, p. 244-255. (P)

Lifer, S. Annotation of Movement: Kentography. Moscow, Art Publishing House,
1940. (Russian)

Lindzey, G.E., Prince, B., and Wright, H.K. A study of facial asymmetry. J. Personality, 21:68-84, 1952. (P)

\footnotetext{
Lorenz, M. Expressive behavior and language patterns. Psychiatry, 18:353-366, 1955.
}

Lorenz, M. Expressive form in schizophrenic language. Arch. Neurol. Psychiat., 78:643-652, 1957.

Lórenz, M. Language as expressive behavior. Arch. Neurol. Psychiat., 70:277-285, 1953.

Lorenz, M. Language as index to perceptual modes. J. Project. Techn., 23:440-452, 1959.

Lórenz, M., and Cobb, S. Language behavior in manic patients. Arch. Neurol. Psychiat., 67:763-770, 1952.

Lorenz, M. Language behavior in manic patients: A qualitative study. Arch. Neurol. Psychiat., 69:14-26, 1953.

Lorenz, M. Language concepts as related to psychiatry. Quart. Rev. Psychiat. Neurol., 7:123-138, 1952.

Lorrenz, M., and Cobb, S. Language patterns in psychotic and psychoneurotic subjects. Arch. Neurol. Psychiat., 72:665-673, 1954.

Lorenz, M. Problems posed by schizophrenic language. Arch. Gen. Psychiat. 4:603-610, 1961.

Lowen, A. Physical Dynamics of Character Structure: Bodily Form and Movement in Analytic Therapy. New York, Grune \& Stratton, 1958.

Luria, A.R. The Role of Speech in the Regulation of Normal and Abnormal Bchaviour. New York, Pergamon Press, 1961.

Lynip, A.W. The use of magnetic devices in the collection and analysis of the preverbal utterances of an infant. Genet. Psychol. Monogr., 44:221-262, 1951. (P)

Lynn, J.G., and Lynn, D.R. Smile and hand dominance in relation to basic modes of adaptation. J. Abnorm. Soc. Psychol., 38:250-276, 1943. (P)

McQuown, N.A. Analysis of the cultural content of language materials. In Language
in Culture. Edited by H. Hoijer. Chicago, University of Chicago Press, 1954, p. 20-31.
\(\stackrel{\text { McQuown, N.A. Linguistic transcription and specification of psychiatric interview }}{\text { M }}\) materials. Psychiatry, 20:79-86; 1957.

Maginnis, M. Gesture and status. Group Psychother., 11:105-109, 1958. (P)

Mahl, G.F. Disturbances and silences in the patient's speech in psychotherapy. J. Abnorm. Soc. Psychol., 53:1-15, 1956.

Mahl, G.F., Dollard, J., and Redlich, F.C. Facilities for the sound recording and observation of interviews. Science, 120:235-239, 1954.

Mahľ, G.F. The lexical and linguistic levels in the expression of the emotions. In
Expression of the Emotions in Mian. Edited by P.H. Knapp. New York,

International Universities Press, 1963, p. 77-105.

Mahi, G.F. Measures of two expressive aspects of a patient's speech in two psychotherapeutic interviews. In Comparative Psycholinguistic Analysis of Two Psychotherapeutic Interviews. Edited by L.A. Gottschalk. New York, International Universities Press, 1961, p. 91-114.

Mahl, G.F. Measuring the patient's anxiety during interviews from "expressive" aspects of his speech. Trans. N. Y. Acad. Sci., 21:249-257, 1959.

Mahl, G.F. Normal disturbances in spontaneous speech: General quantitative aspects. Unpublished manuscript, 19 leaves.

Mahi, G.F. On the use of "ah" in spontaneous speech: Quantitative, developmental, characterological, situational, and linguistic aspects, abstracted, Amer. Psychol., 13:349, 1958.

Mahǐ, G.F. Speech disturbances and emotional verbal content in initial interviews. Address: Eastern Psychological Association, New York, 1957.

Malmo, R.B., Boag, T.J., and Smith, A.A. Physiological study of personal interaction. Psychosom. Med., 19:105-119, 1957. (P)

Marañon, G. The psychology of gesture. J. Nerv. Ment. Dis., 112:469-497, 1950. (P)

Marler, P. Communication in monkeys and apes. In Primate Behavior: Field Studies of Monkeys and Apes. Edited by I. DeVore. New York, Holt, Rinehart and Winston, 1965, p. 544-584.

Moore, F.J., Chernell, E., and West, M.J. Television as a therapeutic tool. Arch.
Gen. Psychiat., 12:217-220, 1965. (P)

Morris, G.O. and Wynne, L.C. Schizophrenic offspring and parental styles of communication. Psychiatry, 28:19-44, 1965.

Mowrer, O.H. Changes in verbal behavior during psychotherapy. In Psychotherapy: Theory and Research. Edited by O.H. Mowrer. New York, Ronald Press, 1953, p. 463-545.

Murray, E.J. A case study in a behavioral analysis of psychotherapy. J. Abnorm. Soc. Psychol., 49:305-310, 1954.

Murray, E.J. A. content-analysis method for studying psychotherapy. Psychol. Monogr., 70, No. 13, 1956.

Murray, E.J. Direct analysis from the viewpoint of learning theory. J. Consult. Psychol., 26:226-231, 1962.

Newman, S.S., and Mather, V.G. Analysis of spoken language of patients with affective disorders. Amer. J. Psychiat., 94:913-942, 1938

Newman, S.S. Behavior patterns in linguistic structure: A case study. In Language, Culture and Personality: Essays in Memory of Edward Sapir. Edited by
L. Spier, A.I. Hallowell, and S.S. Newman. Menasha, Wisconsin, "Sapir

Memorial Publication Fund, 1941, p. 94-106.

Newman, S.S. Personal symbolism in language patterns. Psychiatry, 2:177-184, 1939. (P)

Nielsen, G.S. Studies in Self Confrontation: Viewing a Sound Motion Picture of Self and
Another Person in a Stressful Dyadic Interaction. Copenhagen, Munksgaard, 1962.

Nunnally, J.C., and Flaugher, R.L. Psychological implications of word usage. Science

140:775-781, 1963.

Osgood, C.E., and Heyer, A.W., Jr. Objective studies in meaning. II. The validity of posed facial expressions as gestural signs in interpersonal communication. Amer. Psychol., 5:298, 1950.

Osgood, C.E., and Sebeok, T.A. (Eds.) Psycholinguistics: A survey of theory and research problems. J. Abnorm. Soc. Psychol., Suppl. 49, 1954.

Osgood, C.E., and Sebeok, T.A. (Eds.) Psycholinglistics: A Survey of Theory and
Research Problems. Bloomington, Indiana University Prcss, 1965.

Parker, B. My Language is Me: Psychotherapy with a Disturbed Adolescent. New York, Basic Books, 1962.

Parks, J.R. A committee report on schizophrenic language. Behav. Sci., 6:79-83, 1961. (P)

Parloff, M.B., Goldstein, N., and Iflund, B. Communication of values and therapeutic change. Arch. Gen. Psychiat., \(2: 300-304,1960\). (P)

Parloff, M.B. Some factors affecting the quality of therapeutic relationships. J. Abnorm. Soc. Psychol., 52:5-10, 1956. (P)
\({ }^{\prime}\) Pike, K.L. Language in relation to a unified theory of the structure of human behavior. Amer. Anthrop., 59:189-192, 1957.

Pike, K.L. Language in Relation to a Unified Theory of the Structure of Human Behavior. Glendale, California, Summer Institute of Linguistics, 1954-1960. 3 vols.

Pilkington, T.L. A note on a film experiment in recording mental defectives. Amer. J.

Ment. Defic., 66:733-735, 1962.

Pittenger, R.E., and Smith, H.L. A basis for some contributions of linguistics to
psychiatry. Psychiatry, 20:61-78, 1957.

Pittenger, R.E., Hockett, C.F., and Danehy, J.J. The First Five Minutes: A Sample
of Microscopic Interview Analysis. Ithaca, New York, P. Martineau, 1960.

Pittenger, R.E. Linguistic analysis of tone of voice in communication of affect. Psychiat.

Res. Rep. Amer. Psychiat. Assoc., 8:41-54, 1957

Pollack, M., and Krieger, H.P. Oculomotor and postural patterns in schizophrenic children. Arch. Neurol. Psychiat., 79:720-726, 1958.

Redlich, F.C., Dollard, J., and Newman, R. High fidelity recording of psychotherapeutic interviews. Amer. J. Psychiat., 107:42-48, 1950.

Reiser, M.F., Reeves, R.B., and Armington, J. Effect of variations in laboratory procedure and experimenter upon the ballistocardiogram, blood pressure, and heart rate in healthy young men. Psychosom. Med., 17:185+199, 1955.

Renncker, R.E. Microscopic analysis of sound tape: A method of studying preconscious communication in the therapeutic process. Psychiatry; 23:347-355, 1960.

Renncker, R.E. The nature of data in the supcrvisory process: Methodology and data

Renncker, R.E. Non-verbai (motor) communication in psycho-therapy. Read beforc
the American Psychiatric Association, May, 1960.

Renneker, R.E. The quantity of information in initial intervicws and psychotherapy hours.

Unpublished manuscript, 1961.

Renneker, R.E. The use of the sound recorder in psychoanalytic therapy: I. The
therapist. Read before the American Psychoanalytic Association, May, 1960

Renneker, R.E. The use of the sound recorder in psychoanalytic therapy: II. The
patient. Read before the American Psychoanalytic Association, May, 1961

Riess, B.F. Communication in psychotherapy. Amer. J. Psychother., 11:774-789, 1957. (P)

Rogers, C.R. The use of electrically recorded interviews in improving psychotherapeutic techniques. Amer. J. Orthopsychiat., 12:429-434, 1942.

Ruesch, J., and Prestwood, A.R. Anxiety: Its initiation, communication and interpersonal management. Arch. Neurol. Psychiat., 62:527-550, 1949.

Ruesch, J., and Bateson, G. Communication: The Social Matrix of Psychiatry. New York, Horton, 1951.
analysis. Unpublished manuscript, 1961.

Rucseh, J. Disturbed Communication: The Clinical Assessment of Normal and Path-
ological Communicative Bchavior. Ncw York, Norton, 1957.

Ruesch, J., and Kees, W. Nonverbal Communication: Notes on the Visual Perception
of Human Relations. Berkeley, University of California Press, 1956.

Ruesch, J. Nonverbal language and therapy. Psychiatry, 18:323-330, 1955.

Ruesch, J. Psychotherapy with schizophrenics. In Schizophrenia: An Intcgratcd
Approach. Edited by A. Auerback. New York, Ronald Press, 1959, p. 199-216.

Ruesch, J., and Bateson, G. Structure and process in social relations. Psychiatry,

12:105-124, 1949.

Ruesch, J. The therapeutic process. IV. The therapeutic process from the point of
view of communication theory! Amer. J. Orthopsychiat., 22:690-700, 1952.

Sainsbury, P. Gestural movement during psychiatric interview. Psychosom. Mcd., 17:458-469, 1955

Sainsbury, P. The measurement and description of spontaneous mownents bcfore and
after lcucotomy. J. Ment. Sci., 100:732-741, 1954.

Sainsbury, P. A method of measuring spontaneous movements by time-sampling motion

Sainsbury, P., and Gibson, J.G. Symptoms of anxicty and tension and aeeompanying
physiological changes in muscular system.
J. Neurol. Neurosurg. Psychiat., 17:216-224. 1954.

Saitz, R.L., and Ccrvenka, E.J. Columbian and North Ameriean Gcstures, pn Experimental Study. Centro Columbo Americano, Bogota, Columbia.

Salzinger, K., and Pisoni, S. Reinforcement of affect responses of schizophrenics during the clinical interview. J. Abnorm. Soc. Psychol., 57:84-90, 1958. (P)

Sanford, F.H. Speech and personality. Psychol. Bull., 39:811-845, 1942. (a) (P)

Sapir, E. Communication. In Selected Writings of Edward Sapir in Language, Culture, and Personality. Edited by D.G. Mandelbaum. Berkeley [etc.] University of California Press, 1949, p. 104-109. (P)

Sapir, E. The contribution of psychiatry to an understanding of behavior in society. Amer. J. Sociol., 42:862-870, 1937. (P)

Sapir, E. Speech as a personality trait. Amer. J. Sociol., 32:892-905, 1927. (P)

Saporta, S. (Ed.) Psycholinguistics: A Book of Rcadings. New York, Holt, Rinehart, and Winston, 1961.

\section*{都}

Saslow, G., Matarazzo, J.D., and Guze, S.B. The stability of interaction chronograph
patterns in psychiatric interviews. J. Consult. Psychol., 19:417-430, 1955. (P)

Saslow, G., Goodrich, D.W., and Stein, M. Study of therapist behavior in diagnostic
interviews by means of the interaction chronograph. J. Clin. Psychol.,

12:133-139, 1956. (P)

Saslow, G., and Matarazzo, J.D. A technique for studying changes in interview
behavior. In Research in Psychotherapy. Edited by E.A. Rubinstein and M.B.

Parloff. Washington, American Psychological Association, 1959, vol. 1,
p. 125-159, 221-234 (discussion)

Saslow, G., et al. Test-retest stability of interaction patterns during interviews conducted one week apart. J. Abnorm. Soc. Psychol., 54:295-302, 1957. (P) Schachtel, E.G. Projection and its relation to character attitudes and creativity in the
kine sthetic responses. Psychiatry, 13:69-100, 1950. (P)

Scheflen, A.E. Aims and methods in psychotherapy. In Psychosomatic Mcdicine: The

First Hahnemann Symposium. Editcd by J.H. Nodine and J.H. Moyer. Philadelphia, Lea \& Febiger, 1962, p. 748-752.

Scheflen, A.E. The institutionalized, the institution-prone and the institution.
Psychiat. Quart., \(39: 203-219,1965\).

Scheflen, A.E. Natural history method in psychotherapy: Communicational rescarch.

In Methods of Research in Psychotherapy. Edited by L.A. Gottschalk and A.H. Aucrbach. New York, Appleton-Century-Crofts, 1966, p. 263-291.

Scheflen, A.E. On the nature of human communication. Unpublished manuscript, 1964, 35 leaves.

Scheflen, A.E. A Psychotherapy of Schizophrenia: Direct Analysis. Springfield,

Illinois, Thomas, 1961.

Scheflen, A.E. Quasi-courtship behavior in psychotherapy. Psychiatry, 28:245-257, 1965

Scheflen, A.E. Research in psychothcrapy. Curr. Psychiat. Ther., 3:33-46, 1963.

Scheflen, A.E., ct al. Research in Psychotherapy: The Whitaker-Malone Mcthod.

\begin{abstract}
To be published.
\end{abstract}

Scheflen, A.E. The significance of posture in communication systems. Psychiatry, 27:316-331, 1964.

Scheflen, A.E. Communication and regulation in psychotherapy. Psychiatry, 26:126-136, 1963.

Scheflen, A.E., et al. Strategy and Structure in Psvchotherapy: Three Rescarch Studies
of Whitaker and Malonc's Multiple Therapy. Ansylvania Monograph Press,
to be published.

Scheflen, A.E. Stream and Structure of Communicational Behavior: Context Analysis
of a Psychotherapy Session. Philadelphia, Eastern Pennsylvania Psychiatric Institute, 1965.

Scheflen, A.E. What is psychotherapy? Curr. Psychiat. Ther., to be published.

Schlosberg, H. The description of facial expressions in terms of two dimensions.
J. Exp. Fa, \(\mathrm{A}: 229-237\), 1952. (P)


29:497-

Schranm, W.L \(\therefore\). . .

Speech, :

Schulze, G., Mahl, G............. E.J. Speech disturbances and content analysis
dateries as indices of underlying emotional states of patients in psychotherapy,
abstracted, Amer. Psychol., 15:405, 1960.

Scolt, W.C.M. A finger-licking finger-flicking habit. J. Amer. Psychoanal. Assoc.

11:832-834, 1963. (P)

Searles, H.F. Schizophrenic communication. Psychoanal. Rev., 48:3-50, 1961. (P)

Sebcok, T.A. Coding in the evolution of signalling behavior. Behav. Sci., 7:430-442,
1962. (P)

Shalkow, D. The recorded psychoanalytic interview as an objective approach
to research in psychoanalysis. Psychoanal. Quart., 29:82-97, 1960.
Shamnon, C.E. The Mathenatical Theory of Communication. Urbana, University of Illinois Press, 1949.

Shurley, J.T. Profound cxperimental sensory isolation. Amer. J. Psychiat., 117:539-545, 1960. (P)

Skinncr, B.F. The distribution of associated words. Psychol. Rec., 1:71-76, 1937. (P) Skinner, B. F. Verbal behavior, New York, Appleton-Century-Crofts, 1957. Sklansky, M. A., Isaacs, K.S., and Haggard, E.A. A method for the study of verbal interaction and levels of meaning in psychotherapy. In American Psychiatric Association Scientific Papers and Discussions: Edited by
J.S. Gottlieb and G. Tourney. Washington, American Psychiatric Association, 1960, p. 133-148.

Spier, L., Hallowell, A.I., and Newman, S.S. (Eds.) Language, Culture, and

Personality: Essays in Memory of Edward Sapir. Menasha, Wisconsin, Sapir Memorial Publication Fund, 1941, p. 57. (P)

Starkweather, J.A. The eommunieation-value of content-free speeeh. Amer. J. Psyehol., 69:121-123, 1956. (a) (P)

Starkweather, J.A. Content-free speceh as a souree of information about the speaker. J. Abnorm. Soc. Psychol., 52:394-402, 1956. (P)

Starkwe ather, J.A. Measurement of voeal behavior. Progress Report, 1962. (P)
Starkweather, J.A. Voeal behaviour: The duration of speech units. Lang. Speeeh, 2:146-153, 1959. (P)

Starkweather, J.A. Vocal eommunieation of personality and human feelings. J. Commun., 11:63-72, 1961. (P)

Stein, D.R. Alcoholism, eommunieation distortions, and soeial structure: The communieations patterns of a selected group of aleoholies. Unpublished manuseript, 1961.

Stern, K., Boulanger, J. B., and Gleghorn, S. The semantics of "organ language": A eomparative study of English, Freneh, and German. Amer. J. Psyehiat., 106:851-860, 1950. (P)

Sternberg, R.S., Chapman, J., and Shakow, D. Psychotherapy research and the problem of intrusions on privacy. Psychiatry, 21:195-203, 1958. (P) Stoller, R.J., and Geertsma, R.H. The eonsisteney of psyehiatrists' elinieal judgments. J. Nerv. Ment. Dis., 137:58-66, 1963. (P)

Straus, E.W. Rhcoscopie studies of expression: Methodology of approach.
Amcr. J. Psychiat., 108:439-443, 1951. (R)

Strupp, H. H. An analysis of therapist aetivity in two psyehotherapcutic intervicws

In Comparative Psyeholinguistic Analysis of Two Psyehotherapcutic Intcrviews. Edited by L.A. Gottschalk. New York, International Universities Press, 1961, p. 61-72.

Strupp, H. H., and Jenkins, J.W. The development of six sound motion pietures simulating psychotherapeutie situations.

Strupp, H.H., and Wallaeh, M.S. A further study of psyehiatrists' responses in quasi-therapy situations. Behav. Sei., \(10: 113-134,1965\).

Strupp, H.H. A multidimensional analysis of teehnique in brief psyehotherapy. Psyehiatry, 20:387-397, 1957.

Strupp, H. H. A multidimensional comparison of therapist activity in analytic and client-eentered therapy. J. Consult. Psychol., 21:301-308, 1957.

Strupn, H.H. The performanee of psyehiatrists and psyehologists in a therapeutic interview. J. Clin. Psychol., 14:219-226, 1958.

Strupp, H.H. The performance of psyehoanaly tie and elient-centered therapists
in an initial interview. J. Consult. Psyehol., 22:265-274, 1958.

Strupp, H. H. The psychotherapist's eontribution to the treatment process. Bchav. Sci. 3:34-67, 1958

Strupp, H. H. Psychotherapists in Action: Explorations of the Therapist's Contribution to the Treatment Process. New York, Grune \& Stratton, 1960.

Strupp, H. H. , and Williams, J.V. Some determinants of clinical evaluations of
different psychiatrists. Arch. Gen. Psychiat., 2:434-440, 1960.

Symposium: Communication and affects. Psychiat. Res. Rcp. Amer. Psychiat. Assoc., 8:41-87, 1957.

Taylor, J.E., Pottash, R.R., and Hcad, D. Body language in the treatment of the psychotic. Progress in Psychotherapy, 4:227-231, 1959. (P)

Trager, G.L. Language and psychotherapy. In Methods of Rescarch in Psychotherapy Edited by L.A. Gottschalk and A.H. Auerbach. New York, Appleton-CenturyCrofts, 1966, p. 70-84

Trager, G.L., and Smith, H.L. An Outlinc of English Structure. Washington, American Council of Learned Societies, 1956.

Trager, G.L. Paralanguage: A first approximation. Studies in Linguistics 13:1-12, 1958.

Trager, G. L. The theory of accentual systems. In Language, Culture and Personality. Edited by L. Spier, A.I. Hallowell and S.S. Newman. Menasha, Wisconsin Sapir Memorial Publication Fund, 1941, p. 131-145.

Video tape utilized to analyze reaction of young children. Roche Report: Frontiers of Hospital Psychiatry. \(1(4): 2,1964\).

Vinackc, W.E. Judgment of facial cxpression by Japanese, Chincse, and Caucasians in Hawaii. Amer. Psychol., 4:255, 1949. (P)

Walz, G.R., and Johnston, J.A. Counselors look at themselves on video tape.
J. Counsel. Psychol., 10:232-236, 1963. (P)

Washburn, R.W. A study of the smiling and laughing of infants in the first year of life. Genct. Psychol. Monogx., 6:397-537, 1929. (P)

Watzlawick, P. An Anthology of Human Communication.- Palo Alto, California,

Science and Behavior Books, 1964.

Weintraub, W., and Aronson, H. The application of verbal behavior analysis to
the study of psychological defense mcchanisms: Methodology and preliminary report. J. Nerv. Ment. Dis., 134:169-181, 1962 .

Weiss, P. The social character of gestures. Phil. Rev., N.Y., 52:182-186, 1943. (P)
Wcrner, H. (Ed.) On Expressive Language: Papcrs Presented at the Clark University

Confcrence on Expressive Language Behavior. Worcester, Massachusetts,

Clark University Press, 1955.

Whitakcr, C.A. Communication in bricf psychotherapy with the non-psychotic patient.

Dis. Ncrv. Syst., \(18: 67-72,1957\).
Whitaker, C.A., et al. Experiential psychothcrapy: Evaluation of relatedness.
J. Exist. Psychiat., \(3: 247-254,1963\).

Whitaker, C.A., et al. First stage techniques in the experimental psychothcrapy of chronic schizophrenic patients. Curr. Psychiat. Ther., 2:147-158, 1962. (P)

Whitaker, C.A. Preverbal aspects of psychotherapy with schizophrenic patients. Arch. Neurol. Psychiat., 67:834-837, 1952.

Whitchorn, J.C., and Zipf, G.K. Schizophrenic languagc. Arch. Neurol. Psychiat., 49:831-851, 1943. (P)

Will, O.A., and Cohen, R.A. A report of a recorded intervicw in the coursc of psychotherapy. Psychiatry, 16:263-282, 1953.

Wilmer, H.A. The use of sound recordings in group therapy. Int. J. Soc. Psychiat., 3:102-109, 1957.

Winick, C., and Holt, H. Eye and face movements as nonverbal communication in group psychotherapy. J. Hillside Hosp., 11:67-79, 1962.

Winick, C., and Holt, H. Seating position as nonverbal communication in group analysis. Psychiatry, 24:171-182, 1961.

Wolff. C.A. Psychology of Gesturc. London, Methuen, 1945.
Wolff, P.H. The natural history of a family. In Determinants of Infant Behaviour. Edited by B. M. Foss. New York, Wiley, 1963, vol. 2, p. 139-167.

Wolff, P.H. Observations on newborn infants. Psychosom. Med., 21 :110-118, 1959.

Wolff, P.H. Observations on the early development of smiling. In Determinants
of Infant Behaviour. Edited by B.M. Foss. New York, Wiley, 1963, vol. 2, p. 113-138.

Wynnc, L. C., and Singer, M.T. Thought disorder and family relations of schizophrenics. II. A classification of forms of thinking. Arch. Gen. Psychiat., 9:199-206, 1963.

Zeligs, M.A. Acting in: A contribution to the meaning of some postural attitudes observed during analysis. J. Amer. Psychoanal. Assoc., 5:685-706, 1957.

Zipf, G.K. The meaning-ficquency relationship of words. J. Gen. Psychol., 33:251-256, 1945. (P)

Zipf, G.K. The Psycho-biology of Language: An Introduction to Dynamic Philology. Cambridge, Massachusetts, M.I.T. Press, 1965. (P)

Zipf, G.K. The psychology of language. In Encyclopedia of Psychology. Edited by P.H. Harriman. New York, Philosophical Library, 1946, p. 332-341. (P)

Zucker, L. Psychological aspects of speech-mclody. J. Soc. Psychol., 23:73-128, 1946. (P)

\section*{END}

\title{
MICROFILM COLIECTION OF MANUSCRIPTS ON CUITURAL ANTHROPOLOGY
}

\author{
FOKMERLY: MICROFIIM COLLECTION OF MANUSCRIPTS ON AMERICAN INDIAN CULTURAL ANTHROPOLOGY AND \\ MICROFILM COLLECTIONS OF MANUSCRIPTS \\ ON THE MIDDLE AMERICAN CULTURAL ANTHROPOLOGY
}


Photographed by:
Department of Photoduplication - The Joseph Regenstein Library University of Chicago - Chicago, III. 6063\%```


[^0]:    1
    See Appendix 1.

[^1]:    1 See Darwin, $18:$.

[^2]:    1
    Sapir, 1927.
    2
    Our it゙alics.

[^3]:    1 Chapple, 19

[^4]:    ${ }^{1}$ For general orientation, the reader is referred to the standard textbooks and histories of psychiatry, and to a few among many special treatises as those of Zipf (1949), G. A. Miller (1951), Ruesch and Bateson (1951), Meerloo (1952), C. Morris (1955) Lamb and Mahl (1956), Ruesch and Kees (1956), Cherry (1957), Ruesch (1957), Hoch and Zubin (1958), Strupp and Luborsky (1962), Knapp (1963), Sebeok, Hays, Bateson (1964), Hymes (1964), Rioch and Weinstein (1964), Os good and Sebeok (1965), Gottschalk and Auerbach (1966), Smith, A. G., (1966), Berkowitz (1967), Hildum (1967), Shlien (1968). The annual reviews of anthropology (linguistics) psychology, psychiatry and psychoanalysis report current work.

[^5]:    $0 \pi$
    Chr aERO

[^6]:    - 

