

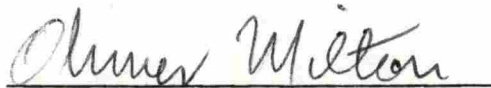
To the Graduate Council:

I am submitting herewith a dissertation written by Alice Gordon entitled "The Methods of Professionals in Eliciting Remembering of a Crime Scene or Traffic Accident." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Psychology.

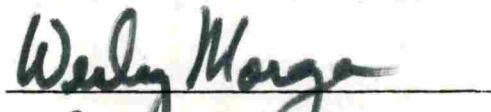


William S. Verplanck
Major Professor

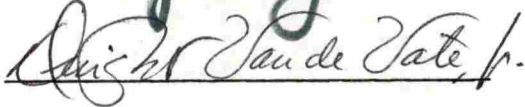
We have read this dissertation
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Oliver Milton

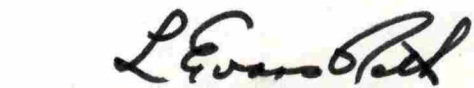


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THE METHODS OF PROFESSIONALS IN ELICITING REMEMBERING
OF A CRIME SCENE OR TRAFFIC ACCIDENT

A Dissertation
Presented for the
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Alice Gordon

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DEDICATED TO
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ABSTRACT

Eighteen professionals involved with investigation of traffic accidents or crime scenes (traffic investigators, detectives, insurance investigators, lawyers, judges, and newspaper reporters) were interviewed concerning their methods of obtaining recall of an incident. A method of analysis including reliability measures was devised, for the statements from these open-ended interviews. From the taxonomy an outline of important factors in recall was obtained. These indicated the importance of setting operations and the behavior set or mood of the respondent, especially prior to direct probing. The importance of effective probing was indicated. Finally, the emphasis of a psychology of eyewitness testimony in the courtroom presentation of a case, rather than in the initial investigations, is questioned. These findings differ in emphasis from research in the psychology of eyewitness testimony. The emphasis is on the situation of recall rather than internal mechanical correlates. The results were found to fit the interbehavioral framework. This framework is presented as an alternative descriptive scheme to information processing and associationist theoretical approaches.

TABLE OF CONTENTS

CHAPTER	PAGE
INTRODUCTION	1
I. CHANGES IN THE STUDY OF REMEMBERING	5
Historical Perspective—Prior to Ebbinghaus	5
Historical Perspective—Ebbinghaus to the Present	8
Theoretical Perspectives—Linking the Past and Present	12
Overview—The Use of an Historically Evolved vs an Observationally Derived Theory	16
The Impact of Historically Evolved Theory on Research	18
The Impact of Historically Evolved Theory—Framework for Results	35
Observationally Derived Theory—Research Orientation	38
Observationally Derived Theory	40
The Present Study	44
II. RECALL OF AN INCIDENT	47
Naturalistic Exploratory Studies	47
Exploratory Study 1—The Importance of Cues for Recall	48
Exploratory Study 2—Progressive Changes in Recall of an Incident	49
Exploratory Study 3—The Use of Probability in Recall Implications for Explicit Suggestion by Others, and Explicit Suggestion by Choice of Words	51
Exploratory Study 4—Consistency in the Reproduction of an Incident	55
The Implications of our Studies for Recall	56
The Interview as a Means of Examining Recall	57
Interview Techniques and Basic Principles of Recall	60
Textbooks on Interrogation; Setting Factors, Behavior Set, Probes, and Probability	61
Determining the Behavior Set	61
Probe Operations	62
Using the Probability Principle of Recall	64
This Study—Recall of an Incident in the Investigative Interview	66
Summary of the Present Research Plan	66
III. THE PROBE OPERATIONS AND THIS STUDY—METHODS AND RESULTS	68
Subjects	68
Selection	68
Recruitment	68

CHAPTER	PAGE
Cooperation	70
Procedure	71
The Interview	71
Data Analysis	73
Results	73
Respondent Behavior as Described by Investigators	77
Investigator Techniques	77
Differences Among Professions	78
Probe Operations and our Results	79
Discussion	79
In Sum	82
Summary of Chapter III	83
IV. CONTRIBUTIONS TO THE CLARIFICATION OF THE PSYCHOLOGY OF EYEWITNESS TESTIMONY—DISCUSSION	85
A Reinterpretation of the Negative Aspects of Memory	86
A Reinterpretation of Loss of Detail in Remembering	87
Time and Loss of Detail	88
Inaccuracy in Judgements of Relations and Loss of Detail. Probability in Recall Loss of Detail—Positive Interpretation of Suggestion	89
A Reemphasis on the Behavior Sets, Setting Factors and Probes for Recall	91
Behavior Set of the Respondent	94
Setting Factors as Manipulated by the Investigator	95
Probes	100
The Proper Role of the Psychologist as an Expert Witness in the Courtroom	105
Summary	109
REFERENCES	119
APPENDIXES	121
APPENDIX A	126
APPENDIX B	127
APPENDIX C	128
APPENDIX D	141
VITA	155
	157

INTRODUCTION

This dissertation is about the methods professional investigators of accidents and crime scenes use when they probe to obtain an accurate reconstruction for legal purposes of an event. The methods employed are simple; the purpose descriptive. The rationale for this approach is summed up in this statement on the nature of psychological research:

It's about time more of us started on the straight-forward job of developing a descriptive methodology. The job of recognizing that observing and reporting upon the functioning of an individual, of individuals in a group, of groups, and of social method, constitute research and yield scientific data and statements. No "experimental design." No "independent variables." No not even any "controls" in any conventional sense. If an experiment at all, then a simple-minded one, with minimal assumptions, statistical or otherwise.

Solely, the serious, accurate, unbiased ("objective") description and classification of observations, and the report thereof (Verplanck, 1970).

Open-ended interviews provided an opportunity for those whose professional responsibility included interrogative interviewing to describe what they do and see. A method for analysis of these data reliably into usable categories was devised. The content of the statements of the professionals were compared to the statements of researchers involved with the psychology of eyewitness testimony. Our purpose was to find out as much as we could about factors affecting recall of an incident. The approach views recall in the interbehavioral framework, as one case of social behavior; observable reciprocal relationships between stimuli and responses.

The study was planned and carried out in the following manner: Open-ended interviews were conducted with insurance investigators, traffic patrolmen, detectives, lawyers, judges, and newspaper reporters. These professionals were chosen because they customarily deal with persons previously involved in a defined and limited event such as a legal infraction or accident. In this study, we picked out professionals who would be involved in an investigation of traffic accidents and of crimes, and whose roles are basically prescribed by law. These were all persons who in the course of their job are called upon to reconstruct through interviews with eyewitnesses, an incident. They must obtain a description of the sequence of events, and in so far as possible allocate responsibility. The planning of the interview assured that certain topics were covered, and that the subjects were encouraged to talk freely about their methods and experiences in interviewing, in particular their methods for arriving at reconstruction of the incident.

To obtain analysable data, the first step was the interview plan; the selection of topics to be discussed. Second, the professionals to be interviewed had to be selected. Interviews then were scheduled and carried out with consenting persons. The third step was the development of a rigorous method of analysis based on reliability of observations of statements made by investigators.

The findings of this study were consistent with the concept of setting factors, stated by Kantor (1946) "the immediate circumstances defining which particular sf-rf operate at the moment." In addition, they were found to be consistent with the concepts of setting operation,

which involve manipulation of these factors; behavior set, which is the mood created by the setting operation determining the functional stimulus and the functional response to the individuals involved; and probe operations, the manipulation of the behavior set followed by probes for a particular response. The task of these professionals is to set up and to probe for a reconstruction of the original stimulus event; to conduct probe operations.

From this study the following facts about probe operations were supported:

1. "However carefully, however thoroughly, the behavior of an individual has been studied when one setting event or operation has occurred, the psychologist will fail to predict the behavior of the individual when she/he is in 'another mood,' or in another place that controls a behavior set" (Verplanck, 1980). Although setting the mood or behavior set was part of the activities of all the investigators, it is ignored in the experimental literature on remembering. The methods of the investigators in achieving this behavior set varied with the behavior set desired, and the methods by which they are authorized and limited by law and custom to achieve such a set.
2. The investigators had to arrange the probes in the setting of recall so as to maximize recall through cuing the respondent, or to enable the respondent to cue himself. Validation is sought through independent sources of confirmation.

3. Finally, it can be argued that the psychology of "memory" has no place in the courtroom, where persuasion is primary, although it is relevant to the investigation prior to the judicial procedures of the courtroom and the setting of initial recall. Further, that the knowledge of applied investigators can offer many insights for an applied psychology of "memory."

A conceptual framework and methodological analysis for dealing with remembering as behavior was developed in this dissertation. The data came from the observations of professional investigators on their methods of producing recall in the setting of an investigative interview. The interviews were carried out in the Knoxville, Tennessee, area between May and August, 1979.

CHAPTER I

CHANGES IN THE STUDY OF REMEMBERING

I. HISTORICAL PERSPECTIVE—PRIOR TO EBBINGHAUS

The Psychology of Memory evolved from the philosophical thought of "The Age of Reason" (Durant and Durant, 1961). Modern research explicitly on remembering began with Bacon, Descartes, Hobbes, Locke, Berkeley and Hume. Each of these philosophers made a substantial contribution to contemporary conceptions of memory, information processing, and therefore to the psychology of eyewitness testimony, the topic of this dissertation.

The theoretical issue of primary importance to the seventeenth and eighteenth century philosophers was epistemological. Bacon and Descartes replaced Scholasticism with experimental investigative viewpoints by formalizing induction and deduction as methods for the development of what we term "scientific knowledge." The inductive approach maintained knowledge to be the result of association through experience, hence the concept of the tabula-rasa. The Cartesian deductive approach accepted a theological "soul" as distinct from a "mechanical" body, and with this the idea that knowledge of certain truths is innate within the soul. By implication, knowledge about knowing comes from God, and as such is not subject to the same examination as physical matter.

The Empiricists reacted against the nativistic predetermination of mental life. They attempted to show the mind and body were not different in kind, and relied on mechanistic explanation for a plausible alternative account of "conscious experience." Hobbes introduced the machine metaphor for description of the mind; Locke, experience and association as the source of all knowledge; Berkeley, an internal model of reality as opposed to the physical world; and Hume the use of simple laws of association to explain the transformation of sensation into thought.

The new scientific age of Newton had as its earmark a revolutionary change in the nature of philosophical explanation. Newton successfully described the forces acting on moving bodies, and showed how they predicted, explained much of what had been axiomatic. The Empiricists assumed the same aspirations for explaining the movement of sensations through the mind, as they become complex perceptions and then thought.

As summed up by Watson (1963):

Hume argued (in his Enquiry Concerning Human Understanding) that we can do more than merely describe the operations of mental life; we can find the principles upon which these operations are based. Astronomers, he goes on to say, have patiently studied the motion, order, and magnitude of the stars until finally a "philosopher" (Newton) arose who could determine the laws and forces by which they are directed. Can we not, given equal capacity and caution, do the same with mental life? He answered in the affirmative because he thought that he had found the law which corresponds to the law of association of ideas. Association of ideas is the universal principle of human nature.

In the nineteenth century the contributions of the Empiricists served as the foundation for the Associationist investigation of memory. The Associationists were concerned with the manner in which principles

of association could account for the combination of sensations into complex thought. A common language had developed between those speaking to explain the transformation of sensation to thought. Some shared assumptions were: information is stored in a trace; that the laws of association could work in an automatic fashion. Prior to the separation of psychology from philosophy as a distinct discipline, Mill attempted to explain the building block relation of complex thought to simple perception; Hartley attempted to explain the physiological basis of memory in terms of isomorphism between behavior and neurology. This more specific explanation of memory was encouraged by advances in biology. Muller between 1834 and 1840; Bell and Magendie between 1811 and 1822, linked perception and neurophysiology.

By the beginning of the twentieth century psychology had emerged as a distinct discipline from philosophy. The basic commitment of most psychologists was to demonstrate generalization by matching prediction with observation. In a retrospective statement this was made explicit:

At first sight the formal characteristics of scientific theory look very much like those of philosophical speculation and even of ordinary argumentation from which philosophical speculation can scarcely be distinguished. At their best, both scientific theory and philosophical speculation set out from explicit postulates; both have definitions of critical terms; both have interlocking theorems derived by meticulous logic. . . . Where then, lies the great difference and superiority of the scientific procedure? . . . The difference is that in philosophical speculation there is no possibility of comparing a theorem with the results of direct observation (Hull, 1932).

Psychological thought was an extension of philosophical; the methods differed. The assumptions of Associationism were retained. With these, Ebbinghaus headed into the laboratory to examine the nature of memory.

II. HISTORICAL PERSPECTIVE—EBINGHAUS TO THE PRESENT

Psychologists did not find it as easy to explore complex thought as to elucidate "sensations." Introspectionists assumed that breaking down complex thought to its elementary sensations could explain the transformation of perception into thought. Complex thought like sensation was thought to be based on the perception of individual elements. These elements combine into a meaningful experience. Prediction and description of the transformation of sensation into perception could not be extended to "complex thought."

Ebbinghaus provided one methodology for studying the transformation of simple elements into complexes capable of maintaining their integrity through time. Ebbinghaus worked with "nonsense syllables," strings of consonants-vowels-consonants, in unfamiliar combination. He then studied forgetting adhering to the Associationist tradition of things-stuck-to-other-things. He explored the fate of the "trace" (things) after they are acquired and stored. Complying with Wundt's standards of scientific investigation, the conditions under which learning occurred were systematically varied. A curve of retention of consistent shape was obtained in which there is an initial rapid drop in retention over time, followed by deceleration. This masterful, elegant, "scientific" work was taken as a model and both stimulated and limited later work by other psychologists on acontextual material: serial association; backward and forward linkage; retroactive inhibition; mediated association.

By including paired associate learning, Mary Caulkins further developed this methodology for studying complex thought. This involved exposing the subject to two stimulus items at a time and testing the ability of presentation of one of the items to stimulate recall of the other associate. These methodologies for exploring forgetting and association characterized psychological investigation thereafter. By 1910 psychologists were investigating primacy and recency, differences in recognition and reproduction, differences in preparatory set, reaction times for old and new associates, as well as comparative learning through different modalities.

Before 1950 definitive laws of learning based on association which could explain mental life (as first explicitly stated by Hume), were sought (that mental life was replaced by "behavior" for some did not alter the concept of what was to be sought). Since these laws should describe orderly events and yield smooth curves, meaning was controlled by eliminating meaning with orderly associating. Historical and contextual relevance constituted irrelevant complications of simple basic principles. Eventually, researchers came to understand that all stimulus items show a certain "meaningfulness." They sought to quantify the meaningfulness of stimulus items in order that they may be controlled and accounted for. Glazer (1928) counted the number of subjects who listed a particular associate to a term. Noble (1952) counted the number of associates given to a term, in a 60-second period. Other researchers explored the factors affecting meaningfulness (Thorndike and Lorge, 1944), such as pronounceability, familiarity and frequency of use.

By the 1950's the laws of learning generated by using simple acontextual stimuli were recognized to be inadequate for explaining more "complex thought." The individual aspects of learning and memory, historical and contextual, were recognized as central to memory, and different than the simple laws of association. Underwood (1963) recognized the distinction between a nominal stimulus recognized as such by the experimenter, and a stimulus which is functional to the subject. Mediation became distinct from the study of rote learning (Jenkins, 1974).

In response to this need for a new framework for theoretical research, some new findings from "perception," involving the discrimination of stimuli were borrowed. Cherry (1953) found that humans pick out a certain conversation in a room filled with similar conversations in a way that machines cannot simulate. He explored some of the factors in attending and not attending conversation. Sperling (1960) found that humans can scan very rapidly through group pictures for the person they are seeking. Miller (1956) found that humans can recall and can also discriminate successfully between 7 ± 2 alternatives simultaneously and that this holds true for tastes, tones, hues and other sensations.

These findings came at a time when startling comprehensive new theories, defining new systematic ways of thinking, and even new sciences were developing. The practical requirements of communicating electronically with or without wires, had produced information theory. Computers were designed to do some of the things that people do—but

both more rapidly, and more accurately. Once computers were designed to do these satisfactorily, it seemed to follow that people must do things as computers do.

Information processing theory based on the resemblances between these perceptual behaviors and the manner in which a computer handles information, became the new model for theoretical research. The analogy of computer to person provided a framework for understanding memory as a sequence of "information processing." In one of the earliest descriptions of its kind, Broadbent (1958) drew a model for selective attention in which information is filtered in a short-term store and then goes to a limited capacity store, where it is used to make an immediate response or compared to information already in store. Norman (1969) described the basic model elaborated on by other researchers, in which information enters a primary memory where it is lost or rehearsed, after which if it is rehearsed it goes to long-term memory where it is stored. Information, the bit, the flip-flop, is the immutable that is stored and preserved, the "things." The ideas that were attached together in association were become the things; the bits, that are strung together in linear sequence zipped through electronic circuitry, to be preserved as 1's and 0's, states of material, that "encode" what happened to the individual. For the past 15 years this model has been accepted as the means by which memory can be "explained" theoretically.

Within this theoretical framework, researchers on mediation turned to a philosophy of Contextualism, a perspective that is the direct forerunner of the applied research of eyewitness testimony which is the

subject of this dissertation. To Jenkins (1974) it became apparent beginning in the 50's that meaningfulness was a critical, not extraneous variable in explaining memory. Subjects recalled words on lists in clusters when tested using free recall. He found subjects retained more when instructed to attend to "meaning" rather than to form. Subjects retained information better when given a context for the material (e.g., on a desert island). Subjects confused new sentences with old, when the new varied in ways trivial to the meaning of the sentence.

Jenkins concluded:

What is remembered in a given situation depends on the physical and psychological context in which the event was experienced, the knowledge and skills that the subject brings to the context, the situation in which we ask for evidence of remembering, and the relation of what the subject remembers to what the experimenter demands.

While interpreting their results in terms of encoding, and storage processes, Contextualists advocate research which is relevant to the problems of real life: legal; decision making; problem solving. The aspiration is to achieve relevance for both academic theory and applied work. The new psychology of eyewitness testimony has developed from the perspective of these researchers.

III. THEORETICAL PERSPECTIVES—LINKING THE PAST AND PRESENT

In advocating the Contextualist point of view, Jenkins (1974) lists the assumptions with which he had previously approached research. We shall see that these, incorporate the assumptions retained from Associationist philosophy when Associationist psychology headed into the laboratory and these are retained still in information processing.

1. Units. I believed that words were the fundamental units of language. To me this was natural and obvious.

The assumption that fundamental units exist has roots in the Empiricist philosophy stressing the forces acting on sensations as they travel through the mind. The Associationists retained this perspective, which became s-r psychology on the one hand, and CVC's and words for verbal learning, on the other.

2. Relations. I believed that there was one kind of relation between words, associative linkage. Words become linked to each other through use together or use in the same "frames."

Each philosopher recognized certain basic laws of association. Aristotle recognized habit through repetition; Hobbes contiguity and consequence; Locke, repetition and consequence. Berkely declared association of sensation a ruling principle of the human mind, and Hume tried to systematically list the "laws of association." The observation of association differs from the declaration that such laws could explain all behavior. This was the assumption of Hume, in his attempt to parallel physics and the laws of Newton.

3. Structures. I believed that mental structures (if there really were any) were assemblies of links, especially chains of the fundamental units in their fundamental relation. Hierarchies, like Hull's "habit family hierarchies," were simply lists of chains varying in strength, so that one was employed first, then another.

The last philosopher/psychologist Bain (the last researcher who did not employ actual gathering of data) in the late nineteenth century was concerned with why one response is chosen over another. He, like Hull relied on an explanation based on relative strengths of association. It must be recognized that this assumption is based on acceptance of our

first two propositions, that all conscious experience breaks down into fundamental units, and these are "learned" or made meaningful through association with other fundamental units.

4. Complex behaviors. I believed that complex behaviors, were built of simple subassemblies and that things got more complicated but not different "in kind." (This belief justified concern with simple units and relations and sanctioned experiments on such units in the faith that they would eventually add up to the complex behaviors of language.)

Hobbes, in the seventeenth century, in trying to stress that mental life could be the subject of empirical investigation, got caught up in explaining how ideas are built up from sensation. Locke, stressed that the mind was active and interpretive, but also believed that simple ideas combine to make more complex ones. In the nineteenth century, Mill tried to explain the combination of simple elements by a simple process (using the analogy of bricks in a wall) to explain all of 'mental life.' This was the result of using as a model for science the eighteenth and nineteenth century physics which described the forces acting on static unchanging elements, which ultimately produced complex interactions.

5. Mechanistic explanation. I believed that explanation ultimately rested on a description of the machinery that produced the behavior. I believed that a description of the machinery plus the history of the organism and its present circumstances inevitably predicted its behavior. There are two corollaries of this belief. First, I thought that the action of the machinery must necessarily be automatic. And, second, I could see that most of the interesting behaviors had to be explained by extensive reliance on learning and memory.

This perspective, use of a mechanical analogy, goes back to Hobbes. The basic premise of the Empiricists was that the mind, like the body,

could be explored in a mechanistic (which in the seventeenth and eighteenth century was the same as scientific) manner.

At least two further assumptions underlying modern research can be identified, which are not usually recognized explicitly. There is an assumption of isomorphism between the observations of psychological behavior and underlying physiological or physical processes. Slow reaction times are assumed to correspond to larger physical distances or more complex processes within the brain. Sequences in observable remembering are assumed to correspond to physical entities within the brain. This assumption is an evolution of the mechanistic approach of Hobbes, and more immediately traceable to Hartley who, as a physician tried to explore possible physiological correlates for mental activity.

Implicit in these is the assumption or perhaps corollary that "memory" is a unitary process which can be explained in terms of the fate of a trace. What is called "memory" is assumed to be one, or perhaps three related processes, in all cases distinguished by their physiological substrates (the three being recognition, recall and redintegration). The model designed to account for all behavioral manifestations of memory is the outcome of the use of a mechanical analogy for explanation, and of the assumption of Berkeley of an internal model of reality when they are combined with the isomorphism of Hartley. Experimental research was oriented toward description of internal correlates of behaving, rather than environmental contingencies that enter into it.

IV. OVERVIEW--THE USE OF AN HISTORICALLY EVOLVED VS AN OBSERVATIONALLY DERIVED THEORY

The purpose of theory is to demonstrate parsimoniously patterns and trends amid the "confusion" in the data, which may mask the regularities. If theory is based on preliminary systematic observation, such will be the case. But the theoretical framework used by researchers in applied memory, information processing has retained the assumptions of Associationism, as such it is based on the reverse principle. Data are collected to fit the regularities predicted by theory, and where the two do not fit, the theory is amended; usually made more complex. Further investigation, based on historically evolved theory, becomes highly refined technically implemented debate, increasingly complex rather than simplified. In psychology, as illustrated by the questionable achievements of Hull (1952) and Chomsky (1968), theory becomes more complex than the data it is supposedly modeling. It obscures the distinction between describing from a particular point of view, and demonstrating a general pattern. As Kantor (1946) puts it:

It is a fact, then, that induction as the goal of science can be best served in psychology by taking account of actual occurrences rather than by constructing elaborations and extrapolations which appear so much more definite and manageable than the concrete operations of event factors. As statistical experts all know, mathematical and calculative manipulations only constitute handling of data after they have been observed and measured. Accordingly, scientific methods demand that phenomena determine the generalizations and not vice versa. The scientific investigator must determine by actual comparisons how closely averages and other calculated indices match observed events.

Researchers in applied memory, in using historically evolved information processing theory as their model, are matching their results

to theory, making the phenomena fit the generalization. Observed behaviors are either interpreted in terms of a closed series of circular and insulated hypotheses, or "invented" by occurring as part of theory-determined and theory-limited sequences of events.

The assumptions of historically evolved theory are maintained because they are hidden. According to Kvale (1976):

The modern memory-psychologists often deny that they have any philosophical basis in their experimental research. In this paper it will be shown that these psychologists bring their metaphysics in through the back door by (1) tailoring the stimulus material to fit a metaphysical philosophy, (2) by indoctrinating a metaphysical way of thinking in their subjects, (3) by manipulating the experimental situation such that the subjects cannot avoid thinking metaphysically, and (4) by quantifying the data such that they are forced into the world of metaphysics.

When research is designed based on unproven assumptions about the nature of the phenomena under consideration, the unproven assumptions remain untested but direct and limit the further course of research. The result has been a negative view of memory which contradicts common sense. "Inaccuracies" in remembering an event are seen as a series of errors in the hypothetical pseudobiological system, rather than as the observable interactions of the individual in particular social/environmental context, demonstrating contingencies having a particular psychological function that can be understood by reference to antecedent interactions.

This negative perspective is exemplified in this statement of Lezak (1973), in which eyewitness testimony is viewed as "information," an objective property of the real world, which has operations performed upon it by a faulty malfunctioning "mind."

The route a stimulus pattern takes from receptor into brain and storage units and then out again in words, gestures, or pictures at a later date is so fraught with perils that the real wonder is that we ever perceive accurately or remember, anything at all.

Surely this interpretation of remembering is lacking—if not preposterous. As we function in everyday life the "inaccuracy" of memory seems to be less important (not to say inconspicuous) than its adaptive adequacy. Kantor, in the quotation previously cited, states that science must be based on actual occurrences of behavior, and theory must be inductively generated from these. The properties of storage units, receptors, and the route of stimulus patterns, and such others is based on historically evolved assumptions allowing for inferred structures in application to remembering, as illustrated by Lezak's statement, confirm Kantor's argument.

V. THE IMPACT OF HISTORICALLY EVOLVED THEORY ON RESEARCH

James Deese (1978) went into the field to explore naturally occurring speech, and found no application for the concepts of information processing. Distinctions between "short-" and "long-term" memory, seemed to be irrelevant to the process of speakers understanding one another. Pronouns referred to objects which had occurred much earlier in the conversation. The 7 ± 2 limited short-term memory, had no noticeable functional effect, no meaning, for the production or comprehension of speech by the members of the city council in discussion with one another. In our view and Deese's, basic theoretical constructions should not be esoteric or obscure in their application to the phenomena they purport to describe.

The orientation of research in eyewitness testimony, based as it is on the Associationist tradition, in its guise as information processing, is epistemologically restricted. Its orientation does not differ from that of the Empiricists. This is illustrated by the following quotation:

How is knowledge represented in memory? This is one of the most important but one of the toughest questions facing psychology today. Competing theorists are currently waging something of an intellectual battle in this area, and as yet there are no clear answers . . . Some theorists have argued that the information we gain from our environment is represented as a complex network of propositions . . . Other theorists have argued that there are types of memory representations that are specific to vision, hearing, and the other senses . . . A more general reason that scientists have as yet been unable to disentangle the issue is that they cannot directly observe the mind. Because it is not possible to have direct access to a witness's "true" experience, scientists usually make decisions about what is going on in the mind by examining how a person behaves—what he says and what actions he takes. The external indicators are then used to make inferences about the mind and how it functions. As more and more is learned about brain functions, less and less will need to be inferred (Loftus, 1979). ✓

This summary statement of the theoretical orientation of applied research demonstrates the number of historically evolved assumptions still underlying research in memory. The fundamental unit now is knowledge. Structures are hypothesized as ways in which these knowledge units can be easily found. Complex behaviors are the result of decisions and strategies. When the function of the brain is completely understood, then all important questions will have been answered (the perspective of nineteenth century science). Isomorphism of behavior and internal structures of mind or brain is assumed. The unitary nature of memory is assumed in that there is a "true" experience, itself static and unchanging which passes through the "mind" and is changed by flawed mechanical process.

Researchers working from the historically evolved approach emphasize those behaviors that elucidate the mechanical workings of memory. As Loftus acknowledged above, these mechanical processes are inferences from external indicators. However, there are logical reasons why mechanical workings cannot be inferred from external indicators.

One may choose a descriptive scheme in which physiological responses are the focus of interest. One can describe a scheme in which psychological responses are the focus. Either is valid depending on the purpose of the investigation. One cannot confuse the two. Inferences from behavioral observations are not data on physical structures. A single final outcome as seen in behavior can be arrived at by many mechanisms and there is seldom basis for choice. As stated by A. C. Purton (1978):

If one wants an explanation of the person's (animal's) movements then normally the explanation will have to be given in terms of neurophysiology, input to the nervous system, feedback, etc. If one wants an explanation of a person's (or perhaps animal's) actions then normally the explanation will make reference to his beliefs, his general view of the world, his wants, intentions, plans, etc. [This is not to say that a neurophysiological account cannot be given of the movements embodying the person's actions, although that view has sometimes been held (Taylor 1964; Malcolm 1968; Taylor 1970)]; the point is rather than even if we had a full physiological account of movement we would still lack any psychological account of the action.

The assumption of isomorphism between behavior and physiological structures of processing or storage is difficult to justify. Two entirely different descriptive schemes are involved. The exploration of memory clearly belongs for psychologists in that descriptive language which makes reference to beliefs, intentions, world views and plans, and

relates to events extending over time. Physiological feedback systems, explanations through isomorphisms to a series of nerve endings, contractions, etc., are the area of biologists. They are part of a different language developed to describe other events, and limited to other time-spheres. Psychologists are concerned with the prediction and perhaps control of the behavior or actions of the individual (the "organism"). As such, explanation will be phrased in terms of observable behaviors, well-defined behaviors in a defined setting, and the functional parts of behavior in that setting ("responses" and "stimuli").

A second logical problem for the assumption that mechanical explanations can be derived from psychological observation, is apparent. Even absolutely complete and "correct" physiological description entirely misses the point of such psychological behaviors as homesickness and confabulation. However complete and correct the statements on internal processing of information they do not describe any important aspect of psychological behavior. They are merely further "adjunct" descriptions that add not at all to our ability to predict and control how homesick Johnny will be at camp. A phenomenon of "memory" cannot be explored meaningfully as this covers an enormous range of behaviors.

The theoretical framework of information processing which contains many assumptions about the inferred structure of memory will very likely have no utility for behavior outside the laboratory, as Deese (1978) believes. These inferences have no validity beyond the assumed isomorphism. But these inferences have been the focus of research, rather than the psychological aspects of memory. As Malcolm (1977) restated

and extended the ideas of Wittgenstein "The presence of an interior representation whether mental or physical, is irrelevant to the concept of understanding." It is irrelevant to all psychological description.

Let us review in outline some of these phenomena (some remembering behaviors—commonly called "memory") the lack of unity should be apparent:

I. Searching for an Answer

1. Don't think about it, sometimes the answer will come to you.
2. Retrace steps. Where were you? Perhaps you'd better go back there.
3. Think about general associates, to the answer you seek.
4. After years of looking for the solution, it comes to you out of the blue.
5. Systematically searching lists of faces, places, ideas that might lead you to recall.
6. There is emotional upset when one fails to recall an item one is seeking to recall.
7. In searching for an item, there is a feeling of "getting warm, getting cold" as we search for it.

II. Cues Bring Back Recall

1. You see a picture, recall where you saw it before, then recall the title.
2. The sight of a student brings back where he sits alphabetically and then his name.

III. Summation of Recall

Walking the same way to school for ten years, but recalling about ten thoughts from the whole time.

IV. Manipulation of Cues for Recall

1. Using calendars and memo books to remember.
2. The use of clocks to remember.
3. Tied finger knots and scarf knots to remember.
4. Cues in one's usual environment that remind.

V. Memorial Acts

Deciding to do something, waiting till it can be done, completing the act.

VI. Easily Recalled Detail

1. Traumas are frequently recalled in reminiscing.
2. Facts of interest, sports, details of classwork are frequently recalled and easily retained.

VII. Forgetting to do Something

1. Preoccupation causes missed appointment or reminders are ignored.
2. Out of range of reminders, appointment is missed.
3. Grief or depression causes a withdrawal from stimuli.

VIII. Learning Skills

1. Learning a skill till it becomes automatic.
2. Losing an intellectual skill, i.e., to read swahili.
3. Losing a motor skill, i.e., driving a stick shift.

IX. Choosing the Wrong Answer

1. Habit leads to the wrong associates in trying to remember.
2. Similarity between the wrong associate and that which you seek leads to the inability to recall the item.

X. Inability to Forget

1. Torturous memories haunt you of trauma or guilt.
2. Tossing and turning over the day's events.
3. Artificially forgetting by mentally burning or tossing out.

XI. Easy Associations

1. Recalling the most usual habitual associate to a topic.
2. Recalling the most recent associate to a topic.
3. Recalling the most unusual associate to the topic in terms of your experience.

XII. Homesickness—Grief Over Lost Environments

1. Pinning for a home knowing that you will soon return.
2. Longing for a home gone forever but with no pinning but frequent joyful remembering in which one lives in the past.
3. Grief over the death of a friend.

XIII. Cues Chaining Associates—Chaining Responses

1. Déjà vu.
2. Familiar cue from another setting brings back recall of the original setting in great detail.

3. Passively remembering chains of associates to fill time. One memory cues the next.
4. Actively remembering, instructed recall, searching for an item, remembering in court.
5. Reacting to past situations in such detail that they hinder ongoing behaviors.
6. An inability to project appropriate responses.
7. Cues of home bringing on fainting fits at school.
8. Forgetting of hysterical behavior at a funeral.
9. Avoiding the memory of grandmother who died of neglect.

XIV. Motivated Changing of Recall

1. Incorrectly recalling your sister at a wedding she had been left out of and deceived.
2. Remembering a lie as though it were the truth.

XV. Emotions and Recovery of Recall

1. Recalling before and after a trauma, only recalling the trauma after concentrating on less disturbing associates.
2. Recalling painful memories many years later without the emotional reaction.

XVI. Subjective Sense of Time and Recall

1. Interesting experiences are short in passing and long in retrospect.
2. Boring periods are long in passing, short in retrospect.

3. Time seems to grow shorter with age.
4. Time seems to grow shorter with increases in body temperature.
5. Experienced time shortens if you are so occupied as to be unaware of objective time.
6. Life flashing before one's eyes.
7. Slow motion of a traumatic experience.
8. Increased emotional sensations, time and space perceptions in recalling a trauma.

XVII. Motivated Addition and Confabulation

1. Seeing persons with a terrible sore, recall your own experience with the same kind of sore.
2. Seeing persons with a terrible sore and falsely imagine that you had the same experience years before.

XVIII. Objective Reference of Memories

1. When I was two-years old, I lived in—if that was 1956, I must have been . . .
2. Mayan time, Stonehenge, clocks, cultural time.

XIX. Actively Trying to Recall Incidents

1. Thinking back, filling in details.
2. Active attempt to reconstruct memories.
3. Improved recall of old for early years due to active attempt to reconstruct.
4. The past recalled indirectly by going to a period of earlier recall and letting earlier memories come by association.

XX. Childhood Memories

1. Early memories are often egotistical.
2. Recall of childhood attachment to inanimate objects, pebbles, flowers, a hat.

XXI. Mood Affects Recall

1. Being in a place you don't like causes fond remembrances of a place you did not like at the time.
2. Depressed mood, gloomy selection of past memories, and gloomy interpretation. Cheerful mood, optimistic selection and interpretation.

XXII. Probability in Reconstructing Recall

1. Trial and error reconstruction—I must have been there at this time, I must have done that.
2. Perhaps I have made a mistake. Perhaps I came back and moved it myself "unthinkingly." Perhaps I left it there yesterday and not today.
3. From what you say, I must have put it there.
4. His account is not too different from mine, he is probably correct.
5. I don't recall how these cigarettes got in my pocket. I must have bought them.
6. I distinctly recall his car was brown, but it has not been repainted.

XXIII. Comparing the Past to the Present

1. A man can take something that happened before, combine it with something that happened yesterday, and solve a problem with which he is confronted today.

2. Past memories serve as a comparison with the present, i.e., the old vacation resort seemed so much grander in childhood than any today.

3. That's easy it is just like doing calculus which I can do.

XXIV. Forgetting Over Time

I don't know if I can recall, it's been years since anything has reminded me of it.

XXV. Remembering an Incident-Inconsistencies

1. Vivid memory of being thrown from a horse as a child, finding that nothing of the sort ever happened to us.

2. Incorrectly recalling the year or our age in reminiscing.

3. Recalling the figures and action but not the setting.

4. Settings not contiguous in space or time combine in memory.

5. Remembering an event in the wrong location.

XXVI. What is an Account of an Incident—a "Memory"

1. Contextual details given in remembering vary from culture to culture.

2. In a new culture remembered acts with a new meaning are likely to be noticed.

3. In a new culture new acts with a familiar function are likely to be noticed.

XXVII. Distraction

1. Losing a train of thought by being distracted by new events and associates.

2. Speech errors from changing plan in midspeech.

3. Leaving the house without a tie or jacket.

4. Wondering how many spoonfuls of coffee you've dumped into the pot.

5. Looking up to see the time then looking down without noticing the time.

6. Reaching into the cabinet then forgetting what you were looking for.

XXVIII. Inability to Recall Completely

1. Knowing a person's face but not his name.

2. Failing to be able to recall the events of a day in which "nothing" happened.

3. Recalling only three digits of a phone number that you felt you would always recall no matter the years.

4. Time selective amnesia.

5. Event amnesia.

6. Total amnesia.

7. Partial amnesia.

8. I do not recall the accident itself.

9. I can't speak!

10. Did I really do that?

XXIX. Inability to Tell You are Remembering

A composer finishes writing a song, and hears it on the radio. He realizes he was remembering not composing.

XXX. Responding out of Context

1. The phone rings, you yell "come in" to the receiver.
2. Standing in front of someone else's house and taking out your key.

XXXI. State Dependent Learning

1. Memories of behavior under the influence of a drug may not "seem real."
2. Recall best under the influence of the same drug you learned under.

XXXII. Verbal Description and Recall

1. Verbal description helps organize and classify material.
2. Visual description preserves order.

XXXIII. Interpretation vs Recall

1. People fill in the gaps in their memories with what should have occurred without realizing it.
2. Subjects looking at an ambiguous figure don't discriminate the object from their interpretation. The mnemonist of Luria S did not discriminate what he saw from what he wanted to see at times.

XXXIV. Mnemonics—Arranging Cues for Better Memorization

1. Ridiculous images are recalled more easily.
2. Oversized items are recalled more easily.

3. Actions which are violent are recalled more easily.
4. Items in ridiculous combination, substituting for parts of each other are recalled more easily.
5. Learning the meaning of Latin words, pear shaped for pyriform, almond shaped for amygdala, make the words in Latin easier to recall.
6. The more associates you have to an item, the easier it is retained.
7. The easier a thing is to understand, the easier it is to recall.
8. Better recall results from relying on meaning than recognition of features or contiguity in time and space.
9. The sorts of material retained will vary from cultures to cultures depending on what is important to a people, and from person to person depending on their individual histories.
10. The ability to memorize increases with age in children.
11. Memorizing is repeating, the absence of stimuli, demonstration.
12. Training increases recall. Mnemonics—purposively arranged associations.
13. Peg system—every good boy deserves fudge, or linked to words associated with numbers.
14. Link system—one direction reminds you of the next in the sequence, one item on the list reminds you of the next.

15. Chain system-pencil-lead-heavy-light-bulb.

16. Geographical system—mentally placing the items you wish to remember along a familiar street or in your home where you can mentally walk through and pick the items out in a sequence.

17. Linking all items together in a sequence within a story you make up.

18. Memorizing a few key words in sequence to retain a speech. Memorizing the whole, the incidentals fall in place.

XXXV. Recalling a Narrative Passage

1. In recalling a narrative passage, the forgotten elements are the rhythm style; and precise mode of construction; superfluous detail; construction of arguments; title and proper names.

2. In order to help the story "make sense" subjects introduce outside material; change the emphasis of the story; drop peculiar elements or change them to familiar ones, recall those details which fit in with the personal history of the subject; give the story a broad context, i.e., this is not British; the story becomes shortened, more concrete and more to the point.

3. The grand setting and the frame of the story are retained.

4. After the first reproduction of a story, the other versions are consistent with one another.

XXXVI. Making the Material Make Sense

1. More words can be recalled in sentences than in isolation. More letters can be recalled in words than in isolation.

2. Sentences are recognized and paraphrased based on meaning, stories are paraphrased in order to make more sense.

3. Multiple events are recalled together, i.e., 1776, or last week.

4. Material retained has a relation to other material, and an associate that stimulates recall.

5. Is there some interpretation under which this could make sense with respect to what I already know? Learning history determines what will be learned.

6. Accuracy of recall, the rare exception not the rule.

XXXVII. Handling Ambiguity

1. Ambiguity handled by analogy in figure recognition.

2. Sets would occur in the interpretation of ambiguous figures.

XXXVIII. The Whole vs the Sum of the Parts

1. A picture is reacted to as a whole before the parts are examined.

2. Faces are reacted to in terms of the character they portray more than the features.

3. Complexity is a factor of familiarity.

XXXIX. Absentmindedness

1. Changing pants and forgetting to take the keys out.
2. Get up late for class and forget keys.
3. Forgetting to tell our parents something when they call from home.
4. Going to eat with ID rather than mealcard.
5. Showing up at the wrong time for an appointment.

Memory as it is being explored by researchers in the psychology of eyewitness testimony despite the apparent variation in behavior, is still investigated and understood as a unitary sequenced flow of information from "storage" where it has been resting inviolate.

As stated by Loftus (1979):

What we pay attention to and what is stored initially will depend upon our particular background, our prior knowledge and experience, our prior biases and expectations. During the time between the event and our later recollection of it, we may be exposed to new, related information which will also affect later recall. Finally at the time we try to remember the event, we do not spew out a completely veridical account; rather our recollection will be based upon information from the original perception, knowledge we have acquired prior to the witnessed event, and information presented or inferences drawn after the event. All of these become integrated into what we are used to calling a "memory."

Historically evolved theoretical assumptions lead to mechanical explications of memory. These are the Empiricists' "alternative" to the concept of innate ideas. They imply a mind that like the body, is the subject of scientific exploration. "Scientific" is construed as based on mechanical/physical physics. But the further logical consequence that memory can be examined or explained in terms of neutral structures inferred from behavior cannot be supported. This evolved

theory (rather than observationally derived alternatives) has oriented research in memory toward what Kantor (1938) refers to as "nonsense, neither psychology nor biology."

The study of memory is best identified as considered by Bartlett (1932) as an area of social psychology. Sir Frederick Bartlett is the exception to the Associationist assumptions. (Although he was knighted by the Queen, American research has been left in the dark, reinterpreting his work in an Associationist framework.) The particular behaviors and conditions which are to be investigated must be carefully specified and in detail. (Any scientific work demands such specification.) This specification, we assert should come from observations of setting factors, functional stimuli and functional responses.

VI. THE IMPACT OF HISTORICALLY EVOLVED THEORY—FRAMEWORK FOR RESULTS

Information processing is based on the "bit" of information which combines into the "chunk." This can easily be seen as the transformation of sensation to perception, and as Associationists hope into complex thought. Theoretical results are interpreted in terms of the fate of a bit or trace of information. This trace is acted on by forces, rehearsal, storage, decaying. It undergoes encoding in inferred structures, sensory memory, primary memory, secondary memory. The roots of this in Associationist tradition, forces at work on a sensation through a sequence of simple steps transforming these to complex thought, are apparent. Complex behaviors are interpreted to be the result of unconscious strategies to attend to significant detail or to

react in certain ways. The computer analogy was an easy metaphor for a theory already based on the machine model with aspirations toward Newtonian physics. People are like computers primarily because computers are designed to act like people. The metaphor will extend itself and become even more tempting, as computer scientists build into computers more and more human behaviors. Even as this is written, computers can listen, understand and answer by voice somewhat better than can children.

The metaphors, as Kantor would put it, impose themselves on data rather than ^{emerge} ~~energize~~ from them. All interpretation of observation is turned toward computerized pseudobiology rather than outward toward behavioral interactions and this limits their ability to predict. For example, Bousfield (1953) found that people given a list of words to recall will tend to recall them in category clusters. A possible descriptive interpretation of this is that humans have a tendency to make "as much sense" of such lists as possible, and making sense means "arrange" a useful and predictive generalization. Yarmey (1979) interprets this to be a basic principle of the physical manner in which information is stored within the brain. Different items of the list are coded and stored differently. This sort of interpretation is useless for generalization, useful only as metaphorical description. Paivio (1963) found that people can remember twice as many words if they are nouns qualified by adjectives than as nouns alone. He interpreted this to mean that nouns physically serve as pegs upon which information is hung, again a metaphorical description. These findings should have lead to an examination of adjectives in speaking and writing. It should have opened a study, not closed it by quick theoretical explanation.

Researchers have not hesitated to add more inferred structures to parallel behavior, as needed. Paivio (1969) speculated on the existence of separate verbal and visual memory stores to account for differential reaction times for stimuli perceived through different modalities. Collins and Quillian (1972) suggested that since remembering information cannot be accounted for mechanically in the same manner as rules for using information, etc., these are stored physically in separate memories which have different rules for retrieval—two kinds of "files" with two kinds of access to them. Computer hardware and software designed to solve specific and often minor, but troubling, problems are freely drawn upon to "explain" human behaving. This is a characterature^{sp} of theorizing in the physical sciences.

The mechanistic metaphor is taken literally by researchers in memory, and is used to generate satisfying explanations of behavior which are often naive and presumptive. Common sense has lost to theoretical explanation. Yet the essential question which was the focus of the Empiricist debate is not solved, but passed over, as if it had been adequately handled.

Ultimately the mechanistic modeling approach renders any experimental investigation outside of the laboratory seemingly impossible, as the variety of interrelationships of behavioral events defies simple isomorphic explanation. The simple mapping onto a set of internal events that mimic computers is inadequate. Models become not merely cumbersome, but unworkable as they try to account for more and more instances of behavior. In interpretation of experimental results, the

inferred structures obscure more than enlighten. They get in the way of the observer who sees and hears his inferences rather than the events. Their metaphorical terms show no predictive capability for events outside the laboratory, however, excellently they "explain them away."

VII. OBSERVATIONALLY DERIVED THEORY— RESEARCH ORIENTATION

In Kantor (1946) whose views we reflect, proposed an alternative twentieth century model of the physical sciences:

Interbehavioral psychology we believe, is in full accordance with the present reorientation of science. This reorientation increasingly insists upon specificity of observation and interpretation, and emphasizes the place of the observer in an investigation. These newer scientific trends are well illustrated by (1) relativity theory . . . (2) quantum mechanics . . . (3) the indeterminacy principle . . . (4) the Kant-Bridgeman discrimination against meaningless questions . . . (5) freedom from conventional bias.

We look at the relations between objects as relative to the situation under investigation; and we ask questions that can be answered by experimental and naturalistic observation; and that these be considered from a nonbiased, nontheoretically bound framework. From Kantor's own observations, emerged basic concepts of the "reactional biography" the historic evolution of the individual's behavior.

Klaus Reigel (1978) also sees events in historical relation one to one another. He opposes the present emphasis on static stages of development which are arbitrarily and artificially imposed by theorisis. He advocates the study of changes over time in an historical perspective, the use of what he calls the dialectic in psychology, rather than "a series of vertical time slices."

Reigel and Kantor both emphasize that all our actions and experiences interact; that progressive and incessant change is the rule that what we remember affects our future and present interactions. Both agree that what happens in the present affects what we will recall of the past and how we will interpret the past, as well as what we will do in the future. As stated by Steinar Kvale (1974);

It is suggested that not only the meaning but also the form of the past, as remembered, may be under continual change. Such a conception of memory in a stream is in line with philosophical critiques of the empiricist atomization of consciousness. Thus, Husserl (1964, p. 77) concluded from a phenomenological elaboration of James' stream of consciousness, that through an a priori necessary retroaction, "Memory is in constant flux because conscious life is in constant flux." >

These psychologists are advocating the study of memory as a developmental, an historical set of behaviors. Research on remembering must consider many possible interrelations of stimuli and responses under specific sets of conditions. In these times the current theoretical framework for research must be rejected. A reorientation will require an emphasis on observation of what humans actually do. Leont'ev (1978) states this in the following quote:

Until modern psychology bases its studies on the postulate that psychological functions change under the influence of human sociocultural experience, and until it begins to study the laws governing these changes, their role, and their significance~in other words, so long as it remains at the level of studying psychological functions as bounded, immutable structures susceptible only of quantitative change it will not be able to discover empirically the truly specific laws of human behavior.

The mechanistic models of memory as a unitary happening; as an atomistic happening; as a stage process; have gotten more complex, not

simpler. They have succeeded in explaining fewer and fewer of the commonplace phenomena of memory, even as they become more and more "powerful" in accounting for the artifactual behaviors of the laboratory. To paraphrase Bronfenbrenner (1977) characterizing developmental psychology; psychology is the science of strange behavior under strange conditions.

The position we take and follow is a return to the concept of unbiased observation espoused by Bacon and Kantor as the primary method for a science of psychology. We place, with Bronfenbrenner (1977):

. . . an emphasis on naturalistic observation, but with the stipulation that it be unguided by an hypothesis formulated in advance and uncontaminated by structured experimental designs imposed prior to data collection.

VIII. OBSERVATIONALLY DERIVED THEORY

Human behaviors must be seen and described not merely as interactions of stimuli and responses, but also in terms of functions stimuli and responses determined by historical and setting factors as well as the medium of interaction (see Appendix D). A complete analysis is one in which one can answer the question one has set and then fulfills the purpose one has proposed. Analysis of behavior in terms of psychological investigation demands a careful definition of the problem under consideration.

Behavior can be referred to without the postulation of hypothetical structures. The observed interactions of the individual, functional stimuli and functional responses and the relevant setting factors serve as a framework for research. Such an approach will demystify without

oversimplifying the psychology of human behavior, maximizing observational description, minimizing inappropriate generalizations. Psychology is necessarily a science of specifics, this viewpoint is termed, interbehaviorism, an empirical system for describing the acquisition of behavior and omitting the hypothetical baggage of the Empiricist-Associationist-Information Processing tradition.

To summarize interbehaviorism, Kantor (1928) and his views on personality from a psychological point of view must be presented.

Psychological structure is entirely interbehavioral. So that what we call personality or mentality is nothing more than an immense number of specific ways of acting performed by a particular organism in interrelation with stimulus objects which have taken on their function in their interbehavioral history. Psychological structure, then constitutes the summation of a given individual's reaction systems as his personality equipment. When we have occasion to stress the place of the organism in this history, we refer to its reactional biography.

What the individual will do—his responses are determined by his reactional biography which has defined his characteristic way of interacting with stimuli and setting factors (see Appendix D). Memory responses involve using one's past experiences in appropriately responding in present events. Modification of these ways of interacting with stimulus objects is essentially what we refer to when we are referring to "memory." What we remember are ways in which we have interacted with stimulus objects, including the consequences of particular responses. When investigating these past experiences, present stimuli must be employed—probes, or prompts, which functions as cues in "reminding" the subject, "getting him to recall." These in turn

serve to modify our future responses, and/or future responses modify what we remember the outcome of our old responses to be.

The interbehavioral approach, then, explores "memory" in an observational framework. Specified responses are modified in order to respond to multiple contingencies. Such responses are being constantly modified and reorganized as the person adapts to new circumstances. As stated by Kantor (1926):

In memory conduct is directly and very definitely based upon the psychological principles of modifiability. In the performance of memory actions, the individual must, by modifying his previous conduct be able to perform new types of actions to meet new circumstances. When a person projects a future response he is modifying in a sense some older or some present conduct by making it operate under new stimuli and new behavior circumstances. Furthermore, this newly continued mode of action must persist for a given period until the recollective phase of the activity transpires. For the most part, of course, this modifiability of action refers to the rearrangement and reorganization of responses with different stimuli objects and conditions.

Superficially this seems close to the position of "Contextualists." But that approach to research on remembering suggests no utilizeable method for sorting the multiplicity of effects found in an area of study which all responses are conceived necessarily as the result of many historical variables. "Contextualists" recognize that there are no simple explanations, but they offer no positive alternative approach. Interbehaviorism recognizes both historical and circumstantial context. It also proposed positive and constructive ways to approach and frame research.

Within the interbehavioral framework, memory can be explored in terms of setting operations and probes (see Appendix D). According to

Kantor (1926) behavior can be seen in terms of behavior segments, which are functionally defined. Within a behavior segment the setting factors, which determining the stimulus which will be effective in eliciting a response and which response. Verplanck (1980) has analyzed these factors further: Setting operations are those things which determine the behavior set of the individuals, which will determine what is attended and how one responds. As described by Kantor memory behaviors all involve relationships between stimuli and responses, a delay in the performance of the actions from the point at which the response determination was made, performance of the act. Setting operations as a means of exploring memory behaviorally can be described in terms of probe operations in a behavior segment. An individual is in a particular set prior to original exposure to a stimulus. The exposure is followed by a period of time until being exposed to a probe while in a particular behavior set. The person responds in a manner which indicates what the functional stimulus and response are to him in that situation. In the experimental setting the response is followed by a veridicality check in which retention, etc., is tested against the original stimulus. This interbehavioral framework, although not a consideration in the design of this dissertation was found to match the results quite well, and indeed to be a good descriptive scheme for all research in and out of the laboratory for behaviors of memory. A framework for viewing memory behaviors in terms of observables and environmental contingencies is provided.

In this chapter, we have traced the history and criticized the present views and acts of eyewitness testimony from a viewpoint; we

have stated alternatives. The present study is an application of this alternative point of view.

IX. THE PRESENT STUDY

The psychology of eyewitness testimony has lately developed as a bridge between the academic and applied study of remembering. Yarmey (1979) writes:

Witnesses may distort their memory at the time of their original observations of an incident, or distortions may occur later at the time of the trial, or both.

The psychology of eyewitness testimony is based on the proposition that psychologists have a contribution to make to the legal profession: they can point out where and, of course, "why" these distortions can occur.

This dissertation is also concerned with an applied psychology of remembering. However, the perspectives of this study are distinct from the approaches of most of the new psychologists of eyewitness testimony in several ways. The general theoretical perspective of researchers in eyewitness testimony is illustrated in this typical quote from Loftus (1979):✓

Any thorough analysis of the memory process must account for events during each of the three stages. One of the most critical problems in research on human memory is to account for the person's inability to retrieve information accurately. Events at any one or several of the stages can be the cause of this retrieval failure. The information may simply not have been perceived in the first place—a failure at the acquisition stage. The information might be accurately perceived, but then is forgotten or interfered with during the retention stage. And finally, information may have been accurately perceived in the first place but may become inaccessible during questioning—a failure at the retrieval stage. It is usually a difficult task to determine which stage is the source of failure.

The emphasis is on isolated internal changes in recall, breaks in wires, missing pages, illegible entries—rather than environmental contingencies of recall. And this leads to an evasion of the study of how and when we recall the primary adaptive function of remembering. This results in a simplistic view of memory as a unitary flow and storage of "information," such as expressed by Lezak (1973):

~~In view of the perceptual difficulties they must surmount,
it is truly a wonder that people ever get anything right.~~

"Failures" of accuracy are the rule in behaving. We would do better to explain the existence of libraries, museums; computers and records of all kinds, by showing that they function in a way in which human does not. Human memory has evolved to recall trends, patterns, outcomes and detail relevant to these. It is the strategies of interacting as reflected by the reactional biography. Relevant only to some outcome, purpose, theme, is detail retained. Memory is not a series of deficits in processing static information, failure to retrieve; perceive; access.

In this dissertation we specify that we are dealing with the methods used by professionals in leading witnesses~~X~~ to recall; that is eliciting eyewitness testimony. We are seeking what they have observed in their witnesses' behavior. We are concerned with remembering of a legal infraction, a traffic accident, or crime scene. Further we are dealing with this topic from the perspective of those who are eliciting recall of the incident for some purpose at a later date by a professional. This is the implicit perspective of the researcher Loftus (1979) and Yarmey (1979) in their books on the psychology of eyewitness testimony. Our study differs radically from theirs in that they seek to

inform the professionals on the findings of laboratory psychology on "memory," and to "explain" how people remember. We approach the professionals who have spent many years devising and revising techniques of questioning and checking veridicality of eyewitness to determine what they could tell psychologists about recall. We follow an interbehavioral rather than information processing approach in gathering and eventually in interpreting the findings.

CHAPTER II

RECALL OF AN INCIDENT

I. NATURALISTIC EXPLORATORY STUDIES

Over the past three years the author has done a series of exploratory studies involving a variety of instances of remembering. These studies were done from a naturalistic perspective, guided by neither associationist nor information processing theories. The latter have been the basis for much laboratory research, but our intention was to observe and describe behaviors without preconceived expectations. The information obtained was different and in most ways more complete than that which could be pieced together from the literature whether in primary or secondary sources describing recall.

Four such exploratory studies will be described. In the first the author noted all the instances of remembering which she experienced during the day. In the second another student wrote his experience in working on a thesaurus at the time of this introduction to the task, and then again of the same time period at a later date. In the third a number of subjects were asked to recall what they had done on a random date chosen from the preceding few months. In the last study subjects were asked to talk about their lives, and the anecdotes related were transcribed, and analyzed. These were compared to a second recitation of the same incident produced at a later date.

Exploratory Study 1--The Importance of Cues for Recall

Kantor (1926) as well as James (1890) noted how we arrange cues in our environment so as to make it impossible for us to forget our planned activities. Clocks, calendars, the arrangement of things on our desk, even our usual routines of activities are cues to behaviors. Much of our emotional reactions are evoked by these stimuli. For this reason we take a vacation to "get away from it all."

In an exploratory study, the author carried a notebook all through the day, instances of remembering that occurred during the day were noted. The notebook quickly demonstrated that most observed instances of remembering were stimulated by a reminder in the temporally immediate environment, or occurred as a member of a chain of rememberings temporally or topically ordered from objects or events in the environment, that is, by stimuli.

It follows that a critical aspect of remembering research is the situation, the behavior setting and the time in which recall occurs. In the situation of recall, the behavior segment in which recall occurs, the behavior set or mood of the respondent as well as probe cues must be considered. In psychological research, the situation is the laboratory with its invented stimuli, and the latter are too often also the probes, prompts or cues. In the psychology of eyewitness testimony (Loftus, 1979; Yarmey, 1979), the situation of recall has been neglected as they investigate "bias" and "suggestion." The results of our study show a far greater emphasis must be placed on cues for recall,

the naturally occurring or experimental probes which tap the past. This statement of Woocher (1977) is illustrative:

As the discussion of the psychological finding in the previous part of this Note demonstrates, suggestive procedures used to facilitate identification of the accused are only a minor cause of the unreliability of eyewitness testimony. Problems of perception and memory often play a far greater role in producing an inaccurate identification.

This statement suggests that the situation of recall is far less important than "errors" in recall, caused by faulty internal wiring or processing of the incident. No suggestion that the setting of recall can be used to facilitate recall arises; this reflects the orientation of most of the researchers in eyewitness testimony.

Exploratory Study 2—Progressive Changes in Recall of an Incident

In this exploratory study the nature of what is recalled of an experience was investigated. A research assistant was asked to write his experience at the time he began a quarter of work on a psychological thesaurus. He did this immediately upon his introduction to the task. His report was taken up at the end of the quarter. He was asked to write about his experience during that period again. The first account was a series of factual notes in temporal order. It was detailed, specific and had an "objective" quality. There was very little of the person's feelings and impressions. The second account was a continual stream of adjectives about "feelings" (of confusion) and impressions of the task. It was shorter, and contained few objective specific statements. What he remembered differed in quantity and quality from what he wrote before.

These changes suggest that what we "remember" as having occurred are inferences drawn on the basis of what happened during the intervening time, as well as from the immediate situation in which he wrote his recall (he had not been told that he would be asked later to recall). At the time of the experience one may not be able to recognize confusion or state if one is confused, whether the state is permanent or temporary, etc. We may experience only "retroactively"—at the time of recall. The successive moments of experience are filled with details. What is recalled is neatly divided into episodes, chapters, scenes—the ends of which could not be expressed as the events took place. What is recalled are complete incidents derived from the eventual results; they are not "reexperiences." What is recalled is not all what was, or "should have been" recalled. Details and trends recalled are those relevant to the outcome. Details not relevant may or may not be forgotten: they are not cued.

The results are similar to those found by Bartlett (1932) in his highly regarded study using the "Method of Repeated Reproduction" in testing for recall of a narrative passage. He found that passages were recalled in a shortened version which emphasized the behavior set of the characters in the stories, and the final outcome, more strongly than the original account read, a finding close to our own. This study was also observational with self-recording of behavior, and social; described without resort to mechanistic theory. It is not surprising that our results should be similar.

The psychologists who research eyewitness testimony have not yet recognized that what is recalled is a summary, occurring without plan or

request by subject or investigator. That is, the summary may or may not be "inaccurate." This may be an irrelevant question. Loftus (1979) ✓ statement misses this point:

During the time between an event and a witness's recollection of an event—a period often called the "retention interval"—the bits and pieces of information that were acquired through perception do not passively reside in memory waiting to be pulled out like fish from water. Rather, they are subject to numerous influences. External information provided from the outside can intrude into the witness's memory, as can his own thoughts, and both can cause dramatic changes in the recall recollection.

To current researchers in the psychology of eyewitness testimony, recall of an incident is treated in the same manner as a CVC syllable.

Exploratory Study 3—the Use of Probability in Recall:
Implications for Explicit Suggestion by Others, and
Explicit Suggestion by Choice of Words

In this study the author investigated how subjects remember what they did on a particular, randomly chosen date. Subjects were asked to remember what they had done on three dates selected from within the last few months. If this date was not related to an unusual—an infrequent occurrence in the person's life (e.g., birthday, licensing exam, etc.), the subjects seemed to recall by a process of probability assessments based on cues with respect to events of immediate significance. "It was a Thursday and I have no class on Thursday, so I must have spent the day in my room studying for a test on Friday—oh yes, now I recall it; this is what I did." Subjects occasionally were unable to recall at all what they did. In these cases often the subject often did not seem to try to recall, with any enthusiasm.

Subjects used events which they were sure of, to provide cues as to what probably occurred, a method that had presumably produced cues that stimulated recall in the past. Such use of probabilistically predictable events may be expected to produce inaccurate recall, the inaccuracies stemming from the relative probabilities of the veridical and of the "usually-the-case." Relations of frequency of occurrence—to probability also works to change and to determine what is recalled and to make one's recollection fit in with other records of events. Brian Smith (1966) noted that one can leave the house in the morning for work. If someone asks the person at what time they left the house, the person could say 8:30. But if a neighbor says that this is incorrect, he was watching the clock when he saw the person leave and it was 9:00, the person in question is not likely to quibble and will change what he recalls in accordance, as it seems probable to him that this is right. This will be recognized as an "adaptive" behavior. It precludes any outcomes from not "telling the truth." The effectiveness of suggestion in controlling recall can be understood as a special case of remembering, using cues based on probability, and functioning in an avoidance contingency. Suggestion is producing "bias," toward incorrect recall. It is a special case of probabilistic remembering in social situations which usually renders remembering more accurate.

When a person has not closely attended to detail he is not likely to reconstruct a series of events veridically. Many instances of inaccurate recall may be probabilistically derived from the present—literally, not metaphysically deduced. "Let's see, it was Thursday, so

I must have gone to class." The statements of others are accepted as establishing how likely one set of possibilities are relative rather than another. Suggestion will be effective if the details are of a relatively trivial nature. Bransford and Franks (1971) found that people will believe with a relatively high degree of confidence that they recognize sentences which they have never heard before, if these statements are similar in sense to those heard before, and introduce no new concepts. Loftus (1979) did a series of experiments in which she showed subjects a movie of a car accident. She found she could get subjects to recall (or say they recalled) items that were not in the film, if the items mentioned were plausible.

As one might expect, those aspects of remembering an incident that are particularly prone to suggestion, are estimates of relations. Loftus (1979) found that by using various adjectives (smashed vs collided), she could alter the subjects' estimation of the speed of the collision shown on the film. Harris (1973) cited in Loftus (1979) found that by asking how tall a basketball player was, estimates on the average 10 inches taller were obtained than by asking how short he was, and by asking how long a movie was got estimates 30 minutes longer than asking how short. Details a subject is not "sure" about, and estimates implicitly or explicitly alluding to an abstract relationship, of a relative nature, height, distance, speed, can be affected by suggestions, that is, by the statements of others giving complete and consistent information, or by the choice of particular words in probes. There is no evidence that subjects recognize that they are giving information which they in fact do not themselves recall.

If we do not know that George is 5'11" tall, we are nevertheless likely to be able to say that he is taller than Charles but shorter than Hank. Absolute judgements cannot be assessed with reference to an objective standard. It is for this reason that in questioning witnesses, objective points of reference (relative still but with a defined reference—e.g., is it as far as the end of your living room), are offered. These enable the subject to assess his own immediate and absolute judgement. Given an objective reference point the testimony of witnesses is accurate enough to be considered reliable by professionals. To the writer's knowledge no studies have been done which test the accuracy of estimates, made both before and after a reference standard is suggested.

In the literature on eyewitness testimony these changes in recall are viewed only as a falsifying effect on "true" stored bits of information which need to be controlled so that information accurately stored can be retrieved. Rather, probabilistic recall results in yielding recall more likely to be consistent with the facts and more reasonable to the individual remembering. That we do not misrepresent the view of consistency as a negative influence in recall as seen in current research is reflected in this quote from Yarmey (1979):

Another example of distortion is "assimilation" which is alteration of memory to fit expectations . . . Although Bartlett and others thought that memory distortions took place during the attempt to reconstruct the story, it is impossible to determine whether these results are attributable to labeling during the inspection period or to distortions introduced at the time of reproduction, or both.

It seems not to occur to Yarmey that there is a further alternative, neither. This quote could be entirely restated in terms of the probe operations of our interbehavioral approach. It would lose its negative orientation and the final alternative would emerge: or that occurs at moment of the probe, and not before, and is determined by that probe. The veridicality of what is recalled can be affected by the behavior set at the time of exposure to the initial stimulus, the environmental contingencies between the exposure to the initial stimulus and recall, or the behavior set and setting factors in the situation of recall when probe operations are being conducted. Such recasting leaves open avenues for exploring noninferentially the variables that determine what is recalled.

Exploratory Study 4--Consistency in the Reproduction of an Incident

In a final exploratory study done by the author, subjects were recorded as they talked about themselves in open-ended interviews. In the course of the discussion, they could occasionally tell an anecdote. In the few cases where such a recording was obtained at a later date, there were enough consistencies in detail of anecdote and style to suggest that at any time the person tells the story, he is doing so more by recollection of how he told the story the last time, than by again recalling, "going back to," the incident itself.

Again this finding is consistent with those of Bartlett (1932) who found that the versions of the narratives, while quite changed from the original, did not change radically over time from the first version told

by the subjects. He remembers what he said, not what he read. The remembering of an incident may not be universally subject to influence by others, as believed by researchers.

Kay (1955) found that subjects would persevere in mistakes in reproducing a narrative passage, even after hearing the original again. Mandler and Parker (1976) found that in repeating a story over and over again, the account became more and more to the point, but not more accurate.

The Implications of our Studies for Recall

Our first study indicated that recall is very dependent on cueing. This has important implications for eyewitness testimony. A real contribution could be made by investigating the ways in which cueing can be used to stimulate recall. Objects, and other "reminders" are needed. The second study indicates that changes in recall are appropriately characterizable as summations of trends and details with respect to what seems important about the incident. Other details may not be forgotten, but they are not cued in recall. For them to be recalled other probes are needed. The third study indicates that under many circumstances people will recall in accordance with that which seems in view of present circumstances probably true. That is, they will deduce what they should recall, and then accept it as recalled. Most of the time this is socially adaptive; in cases where it is not, "suggestion" and "bias," will then be effective. The final recalled version of a story will to a degree be internally consistent over time, even if it is not accurate in detail. This recall will be very

resistent to influence by others. Overall recall is most often a more accurate than current researchers in the psychology of eyewitness testimony depict it. Accurate remembering, whether probabilistic or not, is adaptive for behaving of the organism with the contingencies of the world, and most especially the avoidance contingencies.

II. THE INTERVIEW AS A MEANS OF EXAMINING RECALL

The topic of this dissertation is the methods of professional interviewers in eliciting remembering of a legal infraction or traffic accident, as described by themselves. There are two reasons why that this will be a significant methodological contribution to research on "memory" as the term is used by those in the psychology of eyewitness testimony. First, the topic covers the same class of events recall of an incident involving the legal system (discussed but not explicitly defined in the psychology of eyewitness testimony). Yarmey (1979) covers aspects of eyewitness testimony from the initial stimulus incident, through probe operations and veridicality checks. This study interviews professional investigators, reporters, police, insurance investigators, detectives, lawyers and judges. The interviews are with members of the professions with which the researchers in the psychology of eyewitness testimony have concerned themselves. However, in this study we are doing a basic sort of observational work that perhaps better should have been done prior to the compiling of a text on eyewitness testimony. We explicitly defined the problem under consideration, and then systematically interviewed officials to uncover what they had learned about the techniques and problems of eliciting recall.

The second reason for choosing this approach is that the interview is a natural "laboratory" for the initial study of many kinds of human behavior, including recall. From the interbehavioral perspective, any remembering behavior must be seen in terms of setting factors, and operations as well as of the specific stimuli and responses—the questions and the answers referring to past events. This applies within the laboratory as well as in the real world where unfortunately setting factors (and hence their significance on behavior) have been reduced/controlled to minimal trivia which theorists can then neglect as they spin their tales.

There is initial contact with a social stimulus, member or not of the particular dominant behavior set of the subject, determining how that initial stimulus will be reacted to. The subject's mood; a short hand term for the dominant behavior set, will be in part determined by the events immediately antecedent to contact. Most often, the subject is apprehensive, a mood in which answers will be brief, and controlled by aversive contingencies. Such subjects cannot recall in this state; others refuse. Such are the characteristics of apprehensive people. At the time of recall particular setting factors will again determine the behavior set of the perceiver. The dominant behavior set will determine how the probe operations; the questions, the hints, the prompts of the investigator will be responded to. The probe operations are designed to elicit recall of the behaviors of the initial event. If the probes elicit recall, the recall is checked against the original stimulus for accuracy.

In the laboratory any memory experiment involves instructions, initial, ^{by time} then repeated exposure to stimulus materials, and then a probe for some indication of recall or recognition. Accuracy of response, or reaction time, or some other aspect of the behavior produced is compared with measures made on the initial stimulus.

In the course of interviewing, the same sequence of observable behaviors can be described. Prior to exposure to the critical incident setting factors have already produced one behavior set of the respondents, which is characteristically wiped out by the event itself. In the setting of recall the investigator tries to bring the setting factors under control by use of one setting operation, chosen to manipulate the behavior set of the respondent so as to maximize the effectiveness of probe operations. The incident as recalled can then be compared with independently established facts and other evidence for accuracy.

Our study involves the use by the investigator of specific techniques as independent variables, to control the dependent variable, independently verifiable recall of an incident. We are collecting the findings of 18 individuals who have been "experimenting," finding out by more or less systematic experience, the significant variables affecting recall of an incident for the length of their professional careers. Rather than the psychologists' theories and refined methods, they offer generalizations based on their own experiences.

Interviewer Techniques and Basic Principles of Recall

Professional investigators' perspective on their task of obtaining recall of an incident, is atheoretical. They deal with recall as social behavior. The literature on interrogative interviewing written for applied professionals, police, reporters, detectives, is unrelated to the psychology of memory. Their terms and the language in which they are embedded cannot easily be fitted into the information processing or the cognitive model. They easily translate into the interbehavioral framework. The present study can be seen as falling between the anecdotal and unsystematic recommendations of the writers, which are based on their experience, and the attenuated but precise systematic approach of the "scientific" practical researcher. This study will "measure"; it will count instances.

In summarizing texts on interrogation, it will be helpful to order the summary according to an interbehavioral view. Prior to the incident of concern, the respondent is in behavior set one, probably a neutral mood. This instantly changes with the incident, in this study an accident or crime, to upset or fearful. Time passes before the interview or probe operation. Prior to the interview, the antecedent behavior set will often be apprehension. In the setting of the interview the respondent shows this apprehensive mood. In response the investigator uses setting operations intended to create a mood of reassurance (drugs and hypnosis are sometimes used to enhance this set). If the behavior set becomes one of reassurance then the respondent should become talkative and cooperative. If the intended functional response

is not produced, the investigator can then try a second setting operation threatening. If the behavior set turns to fear and avoidance, as intended, the respondent may cooperate as he feels this is in his best interests. If the intended functional response is not produced again, the investigator could turn to harsh tactics, and physical persuasion (although none of our investigators engaged in these). This would be a third setting operation.

III. TEXTBOOKS ON INTERROGATION; SETTING FACTORS, BEHAVIOR SET, PROBES, AND PROBABILITY

Determining the Behavior Set

From the outset of an investigative interview, the interviewer must manipulate the behavior sets of the respondent so as to maximize the effectiveness of his probes. The cues in the immediate environment are extremely important in eliciting behavior (as we found in our exploratory study). For this reason applied manuals on interviewing discuss the importance of removing the respondent from his usual behavior setting. Interrogators remove persons under arrest from the prison environment and place them in a room with neutral colors, and without access to distraction, clocks, windows, etc. The interrogator is advised to dress in plain clothes rather than the uniform of a policeman. These suggestions (Royal and Stevens, 1976) are made with the underlying purpose of removing all cues which would remind the prisoner that cooperation will affect his prison sentence adversely, while emphasizing those cues which encourage a behavior set of "trust and confidence." The same principle is utilized by reporters when they ask people

questions "over coffee" rather than in their offices (Metzler, 1977).

Prompts and probes should be more effective if competing cues controlling incompatible behavior sets are removed.

In addition to removing cues for competing behavior-sets incompatible with the probe operation, interrogators must produce a behavior-set compatible with his purposes. One way in which this is done, is to use the behaviors of an interested friend in interacting with the respondent. These sorts of behavioral setting operations include the display of interested, attentive and supportive behaviors, by the interrogators, as well as by introduced "supportive" others. Behind a morass of technical jargon of social psychologists, there is the simple fact that people tend to "copy," "model," or "imitate" the behaviors (and hence the behavior-sets) of those who are with them. The intention is to elicit the behaviors of a person talking about his problem to a trusted friend (Inbau and Reid, 1967; Wicks and Josephs, 1972; Bristow, 1964; Metzler, 1977). As a Skinnerian might put it noncontingent social reinforcers are freely dispersed in this operation. Even in obviously antagonistic relationships, the respondent can be made to feel you are on his side (Reid and Inbau, 1967; Wicks and Josephs, 1972; Aubrey and Caputo, 1972). In sum, make him feel easy; he'll talk.

Probe Operations

The interrogators probes must produce maximal accurate recall. Optimally the respondent in a behavior set compatible with or unwittingly will slowly answer questions freely and honestly and in the absence of

adversive contingencies cue himself progressively in the direction of the desired recall. Interviewers often attempt to achieve this sort of behavior set by indirectly probing in a manner intended to reinforce continual conversation, and hence increasing the probability of self-cuing. This is very similar to the manner of our subjects in the exploratory study in which random dates were recalled through their probable relation to memorable events.

Reporters ask questions called "ice breakers" which are easy to answer, in order to get the respondent talking a lot on a comfortable topic (Metzler, 1977). Police interrogators are advised to arrange questions from general to specific, easy to hard, knowns to unknowns (Royal and Stevens, 1976), with interest, note taking, etc. These applied manuals state that a person who is doing the talking rather than answering questions will be less defensive and more candid. When he finally talks about the topic of interest it will be in greater detail, than a direct probe question could achieve (Bristow, 1964; Metzler, 1977).

Nevertheless, interrogators must also directly probe for recall. The use of a stimulus cue for probing has been recognized by all authors. In interrogating Royal and Stevens (1976) advise the use of facts about the weather, politics, and specific events that occurred coincidentally to the incident under investigation to jog the mind of a witness about events of a particular period. Wicks and Josephs (1972) suggest giving familiar information to the respondent in the hope that it will cause him to think of related facts that have not been discussed. Metzler

(1977) advises reporters to come to the interview with cues from the era in question, or personal cues from the respondent's life. In addition he suggests telling anecdotes of a relevant nature from one's own life, to elicit similar information from the respondent: modeling again. In this manner investigators reinstate the setting and possibly the behavior set, or mood, of the subject at the time of the incident for which recall is desired. The most effective and accurate combination of probes for recall is believed to be the free narrative, followed by specific probes by the investigator (Clifford and Bull, 1976; Metzler, 1977).

Using the Probability Principle of Recall

In the third exploratory study changing recall to be consistent with present contingencies was discussed. Interrogators and interviewers recognize this also. People may change what they remember because they wish to give recall consistent with a version of the events they have already heard or stated themselves. For this reason texts advise that a person should not be allowed to protest his innocence over and over again as this will make him less likely to change his account (Caputo and Aubrey, 1972; Inbau and Reid, 1967). People will, however, change their own accounts to be consistent with others (Inbau and Reid, 1967). They will change recall of their own observations to "go along" with the majority opinion (Royal and Stevens, 1976).

Investigators make use of probability in recall when they use suggestion to obtain more information, or to test veridicality. Asking what happened rather than if the witness saw the incident, asking if

certain things happened rather than if the individual was there, will tend to create a behavior set of assumed cooperation in the respondent (Clifford and Bull, 1976; Bristow, 1958). Reid and Inbau (1967) in a variation of the same technique, suggest asking questions in such a way as to imply you know the person committed the crime and you just want to know why.

Probability in recalling an incident is more general a principle than is recognized by researchers in eyewitness testimony, and should receive more experimental and descriptive emphasis. It is currently dealt with only as "suggestion." As described in manuals on interviewing, suggestion works best for those details which in reality are not remembered. That is, if it "works," the subject does not recall anything incompatible with the suggestion. If the subject refuses the suggestion, then at least one alternative has been eliminated, even though the subject recalls no other. Royal and Stevens (1976) state that persons are particularly susceptible to suggestion about details which they are not really sure about. Binet (1900) says that persons who are not sure of details but who are being pressed for answers are likely to answer in terms of what is "said to be," that is, suggestion. The effectiveness of suggestions is a manifestation of how people indeed recall; they recall dependent on their immediate environment. They are not falsifying information presumed to be stored in their memories.

The investigator must be cautious in the situation of recall when dealing with the subject who is not sure of detail which must be established for the investigation. Royal and Stevens (1976) suggest

asking questions that have no additional content, such as: Could you expand on that a bit? What do you mean? Could you be more specific? All investigative texts stress the technique of providing an objective point of reference for estimates of height, weight, time, etc.

IV. THIS STUDY—RECALL OF AN INCIDENT IN THE INVESTIGATIVE INTERVIEW

Clifford and Bull (1979) state "perception and memory are selective and interpretive and are at base social systems. They are carried out in a social setting." This is the perspective of the author and this dissertation. Remembering is behavior which can be described and experienced as social interaction, and therefore must be described in such terms before resort to inferential explanations of a mechanistic nature.

Summary of the Present Research Plan

The author interviewed investigators on their methods of obtaining recall of an incident. The data consisted of the subjects descriptions of what they do, and of the behavioral observation of respondents whom they are probing for recall of an incident, a crime, or accident. What the investigators listed as problems of recall and how the investigators deal with these problems, could elucidate the important setting factors in recall. Remembering accurate or not, is approached from a positive perspective as responding to the contingencies of one's environment, rather than a series of malfunctions in a machine. The study was inductive in goal and the data a list of statements of interactions of

investigators and respondents. „Such descriptive data should be the focus of psychological research at this point in our development as a science.

Psychology has, in a very real sense, never been a science in its own right—developing its own research methods and techniques from its own data. Late to develop as a science, it has borrowed uncritically the concepts of earlier, more fully-developed sciences, and their experimental and research methodologies. We have tried . . . to bypass the critical first-stage in the development of every science—the period of observation and description. . . . It's about time (at least 100 years late) to start doing what psychologists should have done in the first place. Finding out what and where and when, which people—living object—do, and 'think,' and 'feel' specific things (Verplanck, 1970).

In the present descriptive study, 18 professional investigators concerned with reconstructing the events of single incidents (all of which have legal implications) were interviewed. These persons were insurance investigators, detectives, traffic investigators, lawyers, judges, and reporters. They were asked to focus on the manner in which they reconstructed through the respondent the events of either a car accident or a crime scene.

From these self-observations and reports of the behavior of respondents, a list of behaviors was generated and this was classified independently by two persons for reliability. The resulting taxonomy drawn from the list showed certain generalizations about the nature of remembering of an incident, and the controlling variables in producing that remembering.

This study was designed not so much to obtain a list of techniques which are unique to each profession; the purpose was to abstract the more general trends which elucidate how people recall.

CHAPTER III

THE PROBE OPERATIONS AND THIS STUDY—

METHODS AND RESULTS

The primary purpose of this part of the study is to explore the techniques and observations of professional investigators of incidents such as car accidents or criminal offenses.

I. SUBJECTS

Selection

Members of each of six investigative professions, all concerned with reconstruction of the events at a crime scene or car accident were chosen for this study. The professionals were reporters, traffic investigators, detectives, lawyers, and judges. Three members of each profession were interviewed for this study, totalling 18 subjects. All the subjects were experienced, having a range of 3-30 years of experience on the job. A description of the subjects employed is presented in Table 1.

Recruitment

Each subject was recommended to the investigator by professionals in their respective areas, either on the basis of their demonstrated competence or on the basis of their predicted willingness to cooperate as ascertained by their coworkers. Half the subjects were obtained by contacting superiors (e.g., the editor of a newspaper) and

Table 1. Subjects, time and ambience of interview (statement frequencies in parenthesis are those relating to weighing evidence, presenting a case, dealing with lies, and other topics discussed in Chapter IV, but deemed not directly germane to recall in this context).

Profession	Number	Specialty	Code	Years in Field	Time	Date	Place	Number Statements
Reporters	3	City	R1	10	5:00	6/5/79	Resid.	10 (8)
		Features	R2	5	1:00	7/20/79	Conf. Rm	10 (13)
		City	R3	3	5:00	7/25/79	Resid.	9 (8)
Traffic Investigators	3	Traffic	T1	20	1:00	5/15/79	Office	10 (20)
		Traffic	T2	5	3:00	7/12/79	Conf. Rm.	8 (10)
		Patrol	T3	5	4:00	8/14/79	Conf. Rm.	10 (8)
Detectives	3	Military	D1	30	1:00	5/4/79	Office	17 (14)
		Criminal	D2	20	2:00	7/5/79	Conf. Rm.	19 (25)
		Narcotics	D3	10	1:00	8/16/79	Office	10 (12)
Insurance Investigators	3	Claims	C1	10	3:00	5/11/79	Office	15 (12)
		Claims	C2	15	4:00	6/15/79	Office	20 (11)
		Arson	C3	15	5:00	6/8/79	Conf. Rm.	16 (20)
Lawyers	3	Defense	L1	3	2:00	6/13/79	Office	12 (20)
		Plaintiff	L2	3	1:00	7/27/79	Office	13 (14)
		Tort	L3	20	6:00	6/21/79	Office	12 (16)
Judges	3	Traffic	J1	20	6:00	5/24/79	Resid.	3 (15)
		Parking	J2	20	3:00	8/20/79	Office	0 (9)
		Juvenile	J3	30	1:00	8/2/79	Resid.	7 (13)
								.21
								201
								.45
								.55

asking for names of persons they felt would be appropriate for participation in the study, and half were obtained by asking our subjects at the end of their interview if they knew of a coworker who would be appropriate for the study. Each individual was called by telephone and individually told that they had been suggested for the study; the name of the individual who recommended them was given. Each was asked if he or she would participate in a study of their methods of investigative interviewing. Of the 20 persons invited to participate, none refused, but one did not answer the initial call; another had been debilitated and could not participate.

Cooperation

The subjects were very cooperative. None expressed uneasiness at having been recommended for the study. Prior to the interview, each signed an Informed Consent statement, as it was approved by The University of Tennessee Human Subjects Committee (see Appendix A). This statement primarily assured them that nothing "harmful" or embarrassing would be asked and that a tape recording of the interview would be made which would be destroyed after analysis. Permission to tape record was given twice, once verbally in the initial telephone contact, and then by writing from the Informed Consent statement. The tape recorder, a Sony TC-140 model was turned on as the conversation passed from initial pleasantries into the subject matter. Before turning on the tape recorder, subjects were always specifically asked once again directly, if this was acceptable to them. None objected.

II. PROCEDURE

The Interview

The interviews were open-ended; they were carried on in a conversational manner with "leading" questions held minimal and introduced only if an answer had not emerged without explicit probe in the conversation. The interviewer followed a checklist of questions/topics arrayed in likely order. This procedure ensured that remarks and statements on each topic would be covered in the free flow of the interview before its termination. The checklist provided the interviewer with a bare outline; the subjects were free to carry on the conversation in any manner and to any extent on any topic as they were "comfortable" in discussing. The interviewer asked questions or guided the conversation only if the information requested in the outline had not appeared in the subjects' speech after approximately half an hour of discussion. Usually the information was brought up spontaneously in the course of the conversation.

The checklist contained the following questions:

1. Position, title and job?
2. How do you fit into the entire investigatory scheme?
3. What sort of information are you trying to obtain from the people you interview?
4. Describe your usual interview setting.
What are the standard questions you ask?
What are you looking for in the interview?
5. What are some unusual interviews you have had?

6. What are some problems you have run into in the course of your investigations?
Inaccurate remembering?
Lying?
Distinguishing the two?
Obtaining the information?
Acceptable proofs?
Nonacceptable proofs?
7. What sort of things do you have to consider in evaluating the statements of the respondent?
8. What sort of things do you notice in the interview?
9. How do you prompt an individual who seems to be having trouble remembering?

Throughout the interview, subjects were free to elaborate on any topic, and they did so. At the end of the interview, they were given the checklist and asked to comment on any points not covered, or on which those they wished to elaborate further. They were also asked if there were any significant matters pertaining to their job, or to investigative interviewing that we had not touched in the previous discussion. The interview was terminated and the tape recorder turned off when the investigator reached the point at which all topics had been covered, and the conversation was beginning to shift to irrelevant topics. The request for a review of the checklist for items not covered previously usually served as an opportunity for the subject to close the interview or continue as he or she pleased. Subjects were thanked for their cooperation after turning off the tape recorder.

The interviews were held during the day, usually in the afternoon. Each interview lasted as long as the investigator continued to talk; the range was from 45 minutes to a maximum of two hours. Twelve of the interviews were held at the subjects place of business; six of these in conference rooms, six in private offices. Two reporters and two judges were interviewed at their homes (see Table 1, page 69).

Data Analysis

The tape from each interview was transcribed verbatim. A sample transcript is presented in Appendix B. The 18 interviews produced 182 pages of single spaced text. A page of transcribed text represented approximately 5 minutes of discussion. However, this showed a great variation, according to the differing speaking rates of the subjects, and their prolixity. These transcripts were used as the protocols for all later analysis. The method of analysis of the information from these open-ended interviews into reliable categories is a research study in itself and is described in detail in Appendix C. The categories of statements are presented in Figure 1; the frequencies of the number of statements falling in each of the categories, in Tables 2 and 3.

Results

The categories developed were utilized in the analysis of the transcripts; the categories are shown in Figure 1. Each was reviewed, and a count of the number of instances of statements in each category was made. These are reported in Tables 2 and 3.

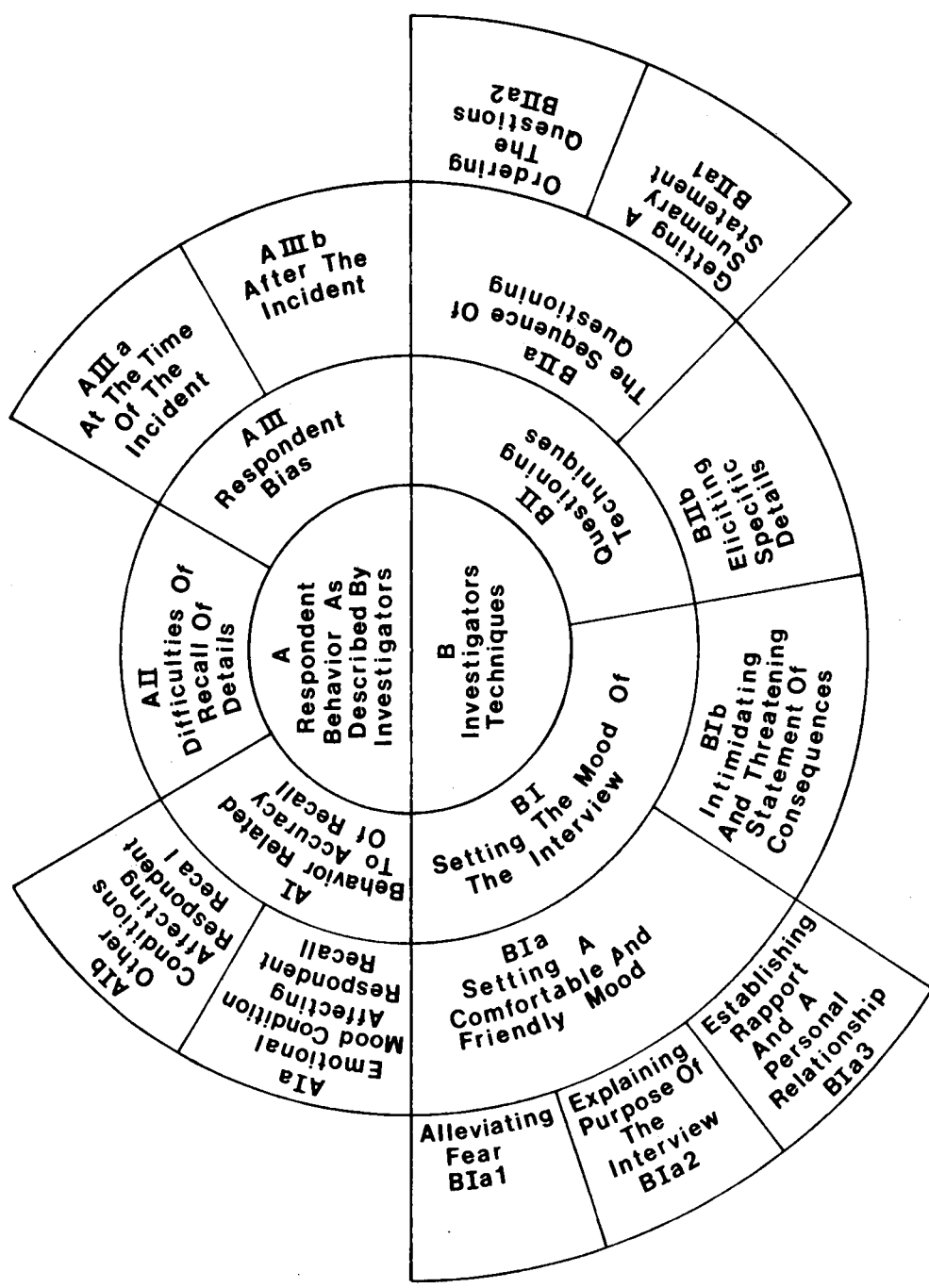


Figure 1 Taxonomy of Respondent Behaviors as Described by Investigators, and Investigator Techniques in Eliciting Remembering of an Incident.

Table 2. Respondent behavior as described by investigator. The number of subjects giving at least one statement in the category of a maximal three in each group and the number of statements (unrepeated) contributed by the group.

Category	Reporters			Traffic Investigators			Detectives			Insurance Investigators			Lawyers			Judges			Total
	Number Statements	Number Subjects	Number Statements	Number Subjects	Number Statements	Number Subjects	Number Statements	Number Subjects	Number Statements	Number Subjects	Number Statements	Number Subjects	Number Statements	Number Subjects	Number Statements	Number Subjects	Number Statements	Number Subjects	
Emotional and Mood Conditions Affecting Respondent Recall	2	2	2	2	3	3	2	6	3	7	3	3	6	3	3	0	1	23	12
Nonemotional Conditions Affecting Respondent Recall	0	0	3	3	3	3	2	1	6	3	3	3	3	1	0	0	0	14	8
Difficulties of Recall of Details	0	0	2	2	2	5	3	3	3	3	3	2	2	1	0	0	3	12	9
At the Time of the Incident	0	0	2	2	2	3	3	1	3	2	2	0	0	0	2	1	1	10	6
After the Incident	0	0	3	2	2	2	1	3	3	2	2	2	2	2	1	1	1	11	8
Behaviors Related to Accuracy of Recall	2	2	5	3	3	8	3	3	13	3	3	9	3	3	0	0	0	37	12
Respondent Bias	0	0	5	2	2	5	1	1	6	3	3	2	2	2	3	2	2	21	10
Total Respondent Behaviors	2	2	12	3	3	18	3	3	22	3	3	13	3	3	3	2	2	70	16

Table 3. Investigator techniques, frequency of statements. The number of subjects giving at least one statement in the category of a maximal three in each group, and the number of statements (unrepeated) contributed by the group.

Category	Reporters		Traffic Investigators		Detectives		Insurance Investigators		Lawyers		Judges		Total	
	Number Statements	Number Subjects	Number Statements	Number Subjects	Number Statements	Number Subjects	Number Statements	Number Subjects	Number Statements	Number Subjects	Number Statements	Number Subjects	Number Statements	Number Subjects
Alleviating Fear	2	2	2	2	4	2	5	2	0	0	0	0	13	8
Explain Purpose of the Interview	0	0	0	0	1	1	4	3	2	2	3	2	10	8
Establish Rapport and or Personal Relationship	5	3	1	1	1	2	6	2	6	2	0	0	23	10
Intimidating and Threatening Statement of Consequences	11	3	2	2	6	3	1	1	3	1	2	2	25	12
Getting a Summary Statement	1	2	2	2	1	1	4	3	6	3	0	0	14	11
Ordering the Questions	4	2	2	1	5	1	4	3	3	1	0	0	18	8
Eliciting Specific Details	4	3	7	3	6	2	5	2	4	3	2	1	28	14
The Sequence of Questioning	5	3	4	3	6	3	8	3	9	3	0	0	32	15
Setting a Comfortable and Friendly Mood	7	3	3	2	10	3	15	3	8	2	3	2	46	15
Questioning Technique	9	3	11	3	12	3	13	3	13	3	2	1	60	16
Setting the Mood of The Interviewed	18	3	5	2	16	3	16	3	11	2	5	2	71	15
Total Investigator Techniques	27	3	16	3	28	3	29	3	24	/	3	7	131	17

III. RESPONDENT BEHAVIOR AS DESCRIBED BY INVESTIGATORS

To compare the emphases placed by members of the different professions, a χ^2 analysis was done for each mutually exclusive category split. For example, in comparing the mutually exclusive categories of Bias at the Time of the Incident and Bias After the Incident, we wished to determine whether members of one profession relied on one category much more than did another, so demonstrating of differences between their professions in technique. None of the behaviors in Table 2 were significantly different in frequency of observation by any profession indicating that the different investigative professions interviewed report a common set of observed behaviors. Given the N of subjects, it is our view that the possibility of a Type II error is small. There may well indeed be differences between professionals in their stress, but if this is true, the differences are small, and not important or relevant relative to the subject matter of the research. Despite the differences in professions they were probing for reconstruction of the same sort of information.

Investigator Techniques

The same analysis done on Table 3, investigator techniques indicated that there were differences in the professions in the techniques they reported using. A significant overall χ^2 difference at the .001 level for the mutually exclusive categories of Setting a Comfortable and Friendly Mood, and Intimidating and Threatening Statement of Consequences was

found. An analysis of residuals was also done to find the groups responsible. The results of the analysis of residuals are reported in the following section.

Differences Among Professions

Reporters. Reporters mentioned Intimidating and Threatening of Consequences more than Setting a Friendly and Comfortable Mood ($p < .01$) using an analysis of residuals following our significant χ^2 . In addition they noted few statements of the class Respondent Behavior as Described by Investigators, Table 2. Five (5) of the seven (7) categories have no statements listed in them. Using a binomial test the number of zero cells differs from chance at better than the $p = .001$ level of significance.

Judges. Judges made only three references to Respondent Behavior as Described by Investigators, and listed only seven (7) statements of Investigator Techniques, as can be seen in Tables 2 and 3. The number of categories in which no statements were listed for judges was found to well above chance expectations, using a binomial test it was found to be significant at above the .001 level.

Insurance Investigators. Insurance Investigators listed more statements on Setting a Comfortable and Friendly Mood than on Intimidating and Threatening with Consequences. This was found to be significant (analysis of residuals) at the .01 level.

Lawyers, Detectives, Traffic Investigators. These three groups show no differences which reached significance with respect to the other groups, although there are indications of differences in their emphasis. Lawyers emphasize Establishing Rapport and a Personal Relationship; detectives emphasized Difficulty of Recall of Detail somewhat more than other groups; traffic investigators were concerned with Questioning Techniques, and were relatively unconcerned with Setting the Mood of the Interview. These results will be discussed in the next section.

Probe Operations and our Results

As is clear from Table 3, the task of the investigator is to determine a mood for the interview or behavior set and then to probe for recall. This sequence corresponds to the analysis of setting and probe operations discussed in the previous chapter. Since these show themselves as the two central tasks of the investigator, it is surprising that one of them, the setting operations—setting the mood of the subject for the interview has not been considered in the experimental literature where emphasis is placed on uniformity of instruction prior to exposure to the procedures in the laboratory. Almost 50 percent of the statements from both our taxonomies related to setting operations, the mood of the interview.

IV. DISCUSSION

The various professions differed somewhat in their list of statements according to their professional duties and authority as prescribed by custom and law. In the sequence of an investigation, the

reporter can come in at any point. He has no legal authority to force cooperation; he reports the greatest number of techniques for threatening "extracting" information under avoidance contingencies. The reporter must bluff the evasive respondent into cooperation. The reporters also report almost no observations of respondent behavior, except as it relates to detection of evasive answers, and how to handle them. Reporters by and large accept the statements as given them and behave as if under less pressure to reconstruct veridically the incident. They rely for information on other professions, who are expected to reconstruct veridically, information for legal purposes. As stated by reporter R1:

And you just have to depend on that, that is the most accurate since it is the official report. You don't want to get into the deal where you say it happened one way and the police report says it happened another.

Traffic investigators are the first officials on the scene. They are concerned with determining if a traffic law has been violated. The situation is well defined, the evidence before them. They are more concerned with asking their questions than in setting a particular mood to facilitate cooperation. Fact is, their respondents are likely still in the mood set by the incident, and not readily shifted from it.

Detectives made statements in all categories. They are required to find out exactly how a crime occurred in order to determine either the nature of the offense, the person to be charged, or both. Therefore, they are sensitive to all "inaccuracies" of recall, and question to elicit as many details of the incident as possible. They are equally

concerned with setting a mood so that the respondent or witness is likely to "cooperate" talk freely and truthfully as how to ask the questions.

Insurance claims investigators have the authority either to help the claim of the respondent, or to hinder its disposition. The emphasis of the insurance profession was on setting a friendly and comfortable mood. They did not need to bluff or threaten in order to achieve cooperation.

Lawyers have two tasks. Within the courtroom they are trying to carry the burden of proof. Outside the courtroom they are trying to find all the facts of a case, favorable or unfavorable to make the strongest argument for their interpretation of the facts. The first has to do with credibility and persuasion. The second has to do with recall.

The frequencies with which judges gave statements indicates that they are not really concerned with recall in the courtroom context. They are bound to hear the cases as they are described and interpreted by the opposing attorneys, and in American law, investigation by the judge is considered playing the role of an advocate. (There are, however, exceptions: Judge Sirica, for example.) No real unrehearsed remembering is occurring in the courtroom, cases are being made. The judge is in a position of total authority over the respondent and therefore the only real interaction he need have is to reassure the person that he will not give a prejudiced judgment, and occasionally to ask for clarification of a statement. He need not manipulate the person into cooperation, and he need not probe, as the lawyers are authorized to do this.

In Sum

The particular authority and responsibility of the investigator will determine the techniques he will use and those behaviors he will observe, and to which he attends. The ultimate results of these differences is that the behavior set chosen and worked for as one which will optimally improve recall performance, differs somewhat from profession to profession. These respondents can be made angry, fearful, relaxed, friendly, talkative, etc. The only mood uniformly regarded as incompatible with recall was "nervous" apprehension. The conceptual system that emphasizes setting factors and behavior sets provides a context in which these results can be generalized, and which makes sense of them. "Cognitive theorists" ignore them.

To achieve a particular behavior set, professionals can try removing or present cued environments or events that are likely to control conflicting behavior sets, i.e., sets of which "talking freely and honestly" is unlikely to be a member ("disturbing connotations"). They then use the interpersonal cues of close friends, attention, sympathy, etc., to facilitate a free stream of conversation. However, in other contexts the investigators will try to make the respondent feel trapped, intimidated or upset—afraid to fabricate, talking to avoid the dire outcomes that have been described to them.

The variation in the behavior sets and the variety of techniques for achieving them to facilitate recall indicate that the setting operations, the manipulation of behavior sets, cannot be done uniformly. They must be chosen and carried out with strict attention to the

personal characteristics and most recent behaviors of the subject. They must also have relevance to the probe operations to come and to the function of the interview as well as the historical factors involved.

Effective probe operations require the sequencing of specific probes: the questions framed in the direction of the information desired, and only then probing for specific detail. The procedure is analogous to that followed in shaping behavior: differential reinforcement progressively "closing in" on the planned responses. The professions varied in how structured their initial sequence had to be, police tightly proscribed, insurance proscribed, detectives, reporters and lawyers free and judges not at all structured. All groups allowed some free responding and control of direction from the respondent at some point. All groups that plan to facilitate open exchange arranged their questions from "easy" and "nonthreatening" to more difficult. Accounts freely given by their subjects were always followed by specific probes by the investigator.

V. SUMMARY OF CHAPTER III

In this chapter we applied a methodology devised for systematically analyzing data obtained from open-ended interviews. A sequential analysis was devised for developing categories for information. A systematic framework not previously applied explicitly to remembering was used for interpretation of the data: the interbehavioral perspective expressed in the language and methods of operation-analysis, more specifically, probe operations. In this manner behaviors in recall of

an incident could be described and summerized without recourse to cognitive theory, or physiological explanations. "Memory" was dealt with as a form of observable social behavior, and "explicable" in terms of such behavior.

Using this approach we found that professions must manipulate the behavior set or mood of the respondent, as well as to arrange and present probes to maximize the number and accuracy of statements describing events in the past. The specific behavior set chosen, and the ways in which the investigators achieved these vary with the purpose and context of the interview. This constitutes yet another but more detailed example of the relativism, identified by Kantor—the subjects recall is not as much dependent on the events recalled, as it is on the variables—the operations into which the subject enters, the "behavioral field" (Kantor's term) at the time of recall. As must happen the varying tasks of the professional investigators have led them empirically to settle on their methods of arranging a behavior set varied, as well as their specific probes.

CHAPTER IV

CONTRIBUTIONS TO THE CLARIFICATION OF THE PSYCHOLOGY OF EYEWITNESS TESTIMONY—DISCUSSION

The results of this study apply in at least three ways to the psychology of eyewitness testimony. The first is a reinterpretation of the negative characteristics of "memory," bias, suggestion, and forgetting, which have received so much attention by researchers. Rather than maladaptive, these must be viewed, as our data indicate, as characteristic of the adaptive behaviors of remembering. They demonstrate how we remember, not what goes wrong in remembering. "Accurate" memory never can occur, nor should it be expected to. If there were a "store" subject to distortion only at the time of recall, likely the human species would never have developed writing. The second application is the distinction among and emphasis on the importance of operations carried out in the recall—behavior sets and probes. The many ways to manipulate behavior sets and to alter the likelihood of veridical responses by the respondent by sequencing and use of probes are explored. This should prove a useful point of entry for psychology into applied areas of remembering research. Finally, the third application is a reexamination of the role of the psychologist as expert witness in the courtroom. If psychologists choose to become involved with legal testimony they will be more helpful for the investigators, if they can clarify and develop methods which investigators can use in maximizing veridical recall of witnesses before trials more so than by explaining

(in terms of their theories) during or after a trial where the interrogators could have gone wrong, and presented as veridical, reconstruction of events that could be contradicted. The real examination of recall occurs before any court appearance. The courtroom situation is one in which the testimonies have already been verified by both sides in order to build a case. In this context the psychologist is more likely being used as a means of intimidating and perhaps even prejudicing a less-educated jury, than serving to establish the veracity of a case.

A Reinterpretation of the Negative Aspects of Memory

The following quote of Elizabeth Loftus (1976⁹) illustrates the state of applied psychology with respect to memory:

At the trial, [I attempted to offer testimony] about the factors present in this situation which would have reduced the accuracy of an identification, in particular, Breckenridge's identification of Tate . . . The first was the cross-racial identification problem. Recall that people are better at recognizing faces of persons of their own race than a different race. Tate was a black defendant; Breckenridge was a white guard. The second factor concerned stress. A person who experiences extreme stress and arousal during an incident will tend to report less accurately than a person under ordinary, nonstressful circumstances. It seemed reasonable to assume that nearly all the participants in the San Quentin incident, particularly Breckenridge whose throat was cut were experiencing extreme stress and arousal. Third, the retention interval was ten days, and while not extremely long, a good deal of memory loss can occur in a ten-day period. Finally, it was possible that Breckenridge's identification of Tate could have been the result of an unconscious transference . . .

She goes on to say that the judge would not allow her testimony saying she was not telling the jury anything they did not already know.

In terms of this study, the judge was correct in his judgement. These statements reflect a lack of appreciation of the role of setting

factors in recall. In the following sections it is hoped that a case can be made for a more interbehavioral interpretation of the variability of an individual and between individuals among the recalls as adaptive and complex occurrences.

Reinterpretation of Loss of Detail in Remembering

Psychologists involved in eyewitness testimony, often do not recognize the relativistic nature of the subject matter of recall. They believe they should be able to set out absolutes of remembering behavior, that somehow, they can "establish the facts," by use of recalls. But as we have seen earlier, the behavior of recall will vary greatly depending on the contextual factors, the setting factors affecting the mood and what will be recalled at both the time of the incident and of its recall. The "content" of "memory" is not stored objective material subject to change through faulty processing, but rather a set of statements made at one time about an event that occurred at a prior time. On each occasion of recall these statements will depend upon the setting, setting factors, and probes at the time of recall and on all events relevant to the incident that have occurred during the lapse of time. The reliance of researchers on the concept of time as an absolute cause and our interviewing events as interferences rather than changes, of forgetting, in eyewitness testimony, and the concept that recall of detail will be inaccurate due to "perceptual distortion" are incorrect.

Time and Loss of Detail

As stated by Woocher (1977) the longer the time period since the incident the poorer the recall:

If a witness' description of a suspect becomes more detailed as the investigation proceeds from the police report through the preliminary hearing to trial, the witness in this situation probably unconsciously has changed the image in memory to include details subsequently acquired from, for example, newspaper reports of the event or a mug shot of the defendant.

As recognized by the professionals in our study, time is not a simple factor.

- | | |
|------------|---|
| D2 | Fifteen minutes later the accounts can be more accurate if they know you are trying to build a case. |
| L2, L3 | Remembering depends on the extent of the involvement. The more involved you are the longer you will remember. |
| C1 | People can remember if you set the stage and take them back there. |
| L3 | People can add more detail by visually examining the scene in their minds looking for additional detail. |
| L3 | The seriousness of the event will affect the detail with which it is recalled. |
| C1, D2, L1 | It is best to get the material while it is still fresh on their minds. |
| D3, L3 | It is harder to remember over longer periods. |
| C1, T3, D2 | People call back all the time after thinking back on the scene and give you a detail they could not recall at the time. |

Time can improve or decrease recall depending on the state of involvement of the subject, and the effort he is making to recall the incident, as well as on the effort the investigator is making to help the subject reconstruct the incident. For many events, then, the veridicality and completeness of recall may increase with time.

Inaccuracy in Judgements of Relations and Loss of Detail

Placing the inaccuracies of subjects in reporting detail in the framework of "perceptual distortion" results from reliance solely on the laboratory perspective, it is misleading, and leads to erroneous inferences. Although researchers such as Buckhout (1976) presented evidence such as inaccurate estimations of 141 persons seeing the same incident in the height, weight, time duration, and age of the participants, as proof of the unreliability of the testimony of eyewitnesses, our investigators present a different picture. People are relied upon to provide such testimony all the time. If it were so unreliable, as Buckhout states, practitioners would surely have abandoned requesting such information. They continue to do so, because they have empirically developed probe methods and questions that yield answers which most often are correct identifications and reconstructions. They do this, with no help from the experts on "the psychology of eyewitness testimony."

The critical features of these probes are providing the subjects with objective points of reference for relations abstract, such as height, which has only a relative meaning unless one has a ruler, and by providing utilitarian probes for those details which might have been

noticed, but in the course of recalling the incident were omitted, i.e., were not recalled, as the subject describes more striking actions in which he participated, or which he observed. This is relevant to the first pilot study, which shows that an incident will not be recalled as it was reported while experienced, but rather in more global terms—in terms of mood, feelings, using terms and language that could not be used until the experience had been completed. This is not distorting, this is remembering.

Our subjects' statements would also tend to indicate that people tend to "forget" what they did not in fact notice or were not thinking about in the first place, such as details of times, heights, etc. (And if they did not notice, they could not accurately estimate these even if these were still before them, but without a point of reference. This is, of course, what Buckhout irrelevantly demonstrated.)

C3, C1, T2, L3 People can estimate in terms of familiar lengths, and heights, things they could not estimate without a point of reference.

D2, D3, D1 People have trouble remembering time, place, dates.

C1, C3 People have trouble remembering how fast they were going, what the weather conditions were like, times, distances, the name of the driver of the other vehicle.

T2, T3 People have trouble remembering what the person that held them up looked like, hair color, height, which hand he held the gun in.

Remembering as seen here is not a matter of faulty processing but rather of effort to recollect, cues provided for recollection, as well as what was noticed initially. No absolute statements can be made on which a psychologist could pronounce an "expert" judgement as a witness in court, of the effects of time, suggestion, or whatever, on recall of certain types of detail.

Probability in Recall Loss of Detail--
Positive Interpretation of
Suggestion

In viewing "memory" as faulty processing, the role of probability functions in recall is restricted to bias and suggestion. The adaptive function of believing what seems to "make the most sense" is not considered. The following statement of Elizabeth Loftus is acceptable except for the negative perspective which it implicitly carries for veridicality of "memory." While the message could be that "interpretation of an incident will vary tremendously," her emphasis, usual among researchers in eyewitness testimony, is on the distortion by a witness of "objective reality."

What we pay attention to and what is stored initially will depend upon our particular background, our prior knowledge and experience, our prior biases and expectations. During the time between the event and our later recollection of it, we may be exposed to new, related information which will also affect later recall. Finally, at the time we try to remember the event, we did not spew out a completely veridical account; rather our recollection will be based upon information from the original perception, knowledge we have acquired prior to the witnessed event, and information presented, or inferences drawn after the event. All of these become integrated into what we are used to calling a "memory" (Loftus, 1976).

Among our investigators, differences in witness accounts were viewed not as different from reality, but as differences in interpretation between

individuals. If reality there is, it is the lowest common denominator of the recalls. The only other cause for inaccurate accounts noted was, once again, not noticing what happened in the first place. Changes in the individual's accounts over time are attributed, again, not to faulty processing but to the effort to state what happened in some consistent relationship, the facts of the world in which the person lives day to day.

- | | |
|------------|--|
| C3, T3, D2 | Different people see the same incident and give you different stories. |
| D2, J1 | Each person believes it happened as they recall it. |
| T1 | Three people see it one way and six another |
| J1 | Inconsistencies in accounts occur because you are not prepared to see a sudden accident. |
| C1 | Maybe he looked and really didn't see the car, but a car doesn't come out of nowhere. |
| D2 | People aren't aware of what they are doing at a given moment. |
| C3 | If he doesn't like the other party, he assumes he was speeding. |
| J3 | Some people want to please their parents or think of themselves as good people. |
| T3 | Stories change over time as you think back to the event often to minimize guilt. |
| D2 | People block out information they place it aside that they don't like to remember. |

- J3 Sometimes information is wrong because people with it happened that way.
- C3 People remember what they want to.
- C2, D2 After talking to family and friends and attorneys, stories are changed to minimize guilt.
- C2, T3 Keep witnesses and victim apart or they will collaborate and combine statements.
- L1 The incident is retold many times and exaggerated with each telling till you believe it happened that way.
- L3 Asking for specifics can result in suggestion.
- T1 Put the drivers in the accident together in the back seat, have one speak and then the other. There are no fights and some interesting conclusions have been reached.

As these statements show, differences in accounts need not be attributed to "faulty processing"; the origins of such differences are diverse, but they are systematic in ways that preclude their useful explanation in terms of "faulty processing." Differences between the event and subsequent recalls show the adaptive function of remembering which serve to make the past consistent with present. The implications of these characteristics of remembering can be used in a positive sense as by the police, where accord among the drivers and witnesses in an accident is the goal. The effectiveness of suggestion demonstrates the probability effect, in recall, in one particular context. The production of recall by suggestion is, rather than a negative characteristic of recall,

positive in that suggestion can (and should) be used as probes; acceptance of a suggestion by a witness should rule the suggested detail out of the interrogator's reconstruction of the events being recalled.

I. A REEMPHASIS ON THE BEHAVIOR SETS, SETTING FACTORS AND PROBES FOR RECALL

From an interbehavioral point of view, remembering of any sort is one class of interactions between stimuli and responses both of which are observable and specific. From this, it follows that the emphasis of research in an applied psychology of eyewitness testimony should be placed on the setting in which recall takes place; the time, the place, and the individuals present during recall. This is not at all the perspective of those who do research on eyewitness testimony. They examine the witnesses output of recall independent of how it was obtained, compare it with "truth" and find "bias" and "suggestion" which they attribute to wheels within the subjects' heads, and to specific evil intentioned questions. They do not look at the encounters in which recall occurs, and the behavior-sets these control, which do determine what will be recalled. In the following, some behavior sets, and how to manipulate them in the situation of the interview are presented and discussed followed by presentation of probing techniques for recall. It should be noted that some of these factors are in the texts of eyewitness-testimony. But they do not receive the emphasis which appears in the statements of the individuals we interviewed.

Behavior Set of the Respondent

The behavior set of the respondent functioning during the interview, the mood he's in, will determine whether and to what extent he is able to talk or recall the incident, and indeed if he is willing to do either, or will refuse, or will lie. A large part of the task of the investigator is to deal with these behavior sets, recognize them, make use of them or alter them, shifting the respondent into a mood for favorable, complete, and accurate recall and less likely to make statements that do not correspond with the event recalled.

Applied psychologists in memory have been generally unconcerned with the behavior set of the respondent although Yarmey (1979) and Loftus (1979) mention them with regard to the Yerkes-Dodson law, which states that low-levels of "stress" at first increase performance and then decrease it.¹ From this, they have drawn implications for testimony (e.g., if the person was under "too much" stress he will be inaccurate in their testimony; this generalization is easy to disprove). In our study, altogether 47 percent of all statements, 33 percent of Figure 1, page 74, and 54 percent of Table 2, page 75, were related to observations of the effect of "emotions" on recall, and how these could be manipulated.² These figures include only those statements relating to the manipulation of

¹"Stress" is a generic term applied, or misapplied to a variety of behavior-sets, not all of which are either favorable or unfavorable to recall.

²"In many languages including lay-language, the term "emotion" is applied when an individual is displaying one or another behavior set. Other terms so applied include "instinct," "drive," "motivational state," and so on.

the behavior set of subjects which are directly related to recall, we did not include many statements related to manipulation of lying and evasiveness in the taxonomy, which might have inflated these figures. The specific behavior sets which can facilitate recall were dealt with in the previous chapter and need not be repeated. Summarized: any mood can facilitate recall of some details, except "nervousness." At the extremes the detective says the optimal state for recall by the arrested person is a state of shock, in an unfamiliar environment. The lawyer identifies the behavior set best for recall by a person from whom you wish to ask voluntary assistance to be a "pleasant mood," in a familiar environment. Some behavior sets listed by our respondents, the observable indicators of these and possible historical factors involved, follow. The sets included here are stress, fear, shirking, avoidance, insincerity, and, of course, these could go on. These sets are particularly troubling to those attempting to obtain the reconstruction of an incident.

Stress

CA, TI, JT	Looking down at the floor.
CA	Twirling their hair.
CA, TI	Becoming highly emotional.
CA	Sweating about the nose and mouth.
CE, LD, LT, JT, JP	Acting very nervous.
CE	Twidling thumbs.
MI	Sweating excessively.
MI	Changes in color.
MI	Speeding of the heart.

MI Excessive swalling.

Mi, Ci, Lt, Ld, JT Avoiding of direct gaze.

CI Looking at the wall or phone.

CI Loosing voice completely.

CI Dry mouth, finding it hard to swallow.

JT Person is hesitant.

TI Talking with breath away mumbling.

Fear

R2 Fear of not remaining anonymous.

R2 Fear of talking to an investigative reporter.

T2, T3, D3, D2 Fear of revenge from the person they are prosecuting.

D3 Fear of being labeled a snitch or a stoolie.

D1 Fear of hurting someone.

D1 Fear of the consequences of their act.

C1 Fear of messing up a controversial case.

L1 Fear of talking to a person they don't know.

L1 Fear of tricky questions.

Δ Fear of being discovered drunk.

Δ People do not want to be discovered with the person they are with, publicly.

Shirking

C3, T1, D3, L3 People don't want to come to court.

T2, L1 People don't want to get involved.

T2, T3, D2, D3, L2 People don't want to lose time from work.

- D2 People don't want to spend the time to prosecute.
- T2 People say they can't do anything.

Avoidance

- R2, T1 Respondents can be courteous but evasive.
- R2 Respondents can stonewall you.
- R2 Respondents can throw you out.
- R2 Respondents can keep talking a long time so as not to be asked any questions.
- R2, C3, T3, L1 Respondents can shut up like a clam.
- R1, L1, L3, L2 Answers just what you ask and won't elaborate.
- C3 Won't give a straight answer.
- C3 Says your question has nothing to do with my claim.
- C2 Answering a question with a question.
- D2 Saying they don't know what you are talking about.
- D2 Telling you everything they did the week before and the week after but not during the incident.
- L1 I have already told people what I know.
- L1 I don't know anything.
- J2 I will get it for you next week.
- R3, T3, J1 Saying "I cannot remember" a detail which is embarrassing to them.

Insincerity

- L2 Your client tells you something that does not check out in investigation.

C1, L3, J3	They change their story as they go along.
T1	They really want to tell you their story and then change it five minutes later.
L3	Sketchy account turns out later to be untrue.
L3	Person says one thing on the witness stand and another thing in your office.
D1, J3	The salesman type is automatically suspect who can say his lines with no stress.
L3	People claim they saw what they could not see from where they were.
L3, J2, J1	Waffling and backtracking indicates the person is questioning his own testimony.
J1	Contradictory witnesses appear.
T1	Overanxious person wants to get back to the car for papers.
C1, C2, T2, J3	People lie when it is hard for them to admit they did wrong.
C1	Some people are coached by their attorney.
C2, J3	People who are very old or very young are likely to minimize guilt for the parents or the driving record.
L3	Person lies to hurt you or your client.
D2	Enough information is held back in confession to minimize guilt to an attorney.
L3	To get rid of you they agree with whatever you say.
C3	They have a profit motive.

- D1 They are guilty.
- D2 Juveniles and wierdos confess to crimes they did not
 commit.

Investigators must be aware of the behavior set of the respondent, and the desired set they wish to achieve in order to obtain detailed and veridical information. The initial behavior set of the respondent determines the techniques which the investigator must employ. These are a part of the setting factors in recall determining the functional stimuli and responses to the respondents. In order for the probes which follow to be effective the investigator must carefully manipulate the setting factors and therefore the behavior set of the respondent.

Setting Factors as Manipulated by the Investigator

The first efforts of our investigators were always to achieve recall through friendly persuasion. The approach toward achieving this friendly behavior set varied, as the initial behavior set of the respondent varied. Fear, or stress could be eliminated by alleviating fears, and stressing the purpose of the interview to be nonmalicious. Persons could be approached as though they were the close friend of the investigator, from whom a pleasant and free exchange was to be expected. If these approaches did not work, the investigators in our study could then resort to putting the respondent in a position where he felt it was in his best interests to cooperate to avoid the consequences of continued evasiveness. If the respondent gave false information, the investigator could either confront to achieve the avoidance cooperation,

or not confront and attempt to collect information as before. Some of the setting factors, in the form of investigator techniques listed by the persons in this study, are given in the following pages.

Alleviating Fear

- R1, T2, T3, D3 Assure anonymity.
- C2, D2 Assure them you are not going to mislead them in any way.
- C2 Say the work is seldom used in court but if it is, it is a basis for depositions.
- D2 Do not wear a uniform.
- R2 Do not say "this is the News Sentinel and I am investigating." Give your name and say you are trying to find out.
- C2 Say you want an interview rather than a statement.
- C1 Give the people a few minutes to look you over.
Don't dash into the topic.
- D2 Don't have too many people in the room. Switch from a tape recorder to a written statement if a tape recorder makes them nervous.

Explain the Purpose of the Interview

- D1, C3, C2, D2, L3 Tell them all you want are the facts.
- J1 Tell them the object is not to punish or embarrass but to prevent accidents.
- L1 Tell them all you want to do is get the facts straight in your own mind.

- C1 Tell them all you want is information to help them make a decision.
- J3 You tell them they are not there to be punished but protected as they were not at home.
- J3 The police are not causing trouble, you tell them but preventing worse trouble.

Establishing Rapport and a Personal Relationship

- R1, D1 Be fair and consistent, people trust those who are honest with them.
- L3, L2 Tell them what the other side will ask in advance.
- C2, D1 Win their confidence.
- C2, L2 Switch personalities to fit who you are with manner and speech.
- R1, L2 Deal with them in a reassuring fashion. Show what they have to say is interesting and relevant.
- C2, L2 Be sympathetic to a hostile person. Tell them you understand their reluctance to cooperate.
- C1, L2 Show you are really concerned.
- C2, D3 Make people comfortable and they are more likely to talk.
- R3, C2 Make people relax and they will speak candidly.
- R1 Develop trust and people will go off the record and give you a lead.

- D1 Go through all the excuses for not confessing until you get to the real one and then turn it around to establish rapport.
- R2 Attention and flattery will get people to tell you what is on their minds.
- L2 Be friendly explain the situation.
- D1 Have a friendly atmosphere.
- T2 Tell them to do the best they can.
- L1 Sound informal.
- R2 Sound interested.

Intimidating and Threatening with Consequences

- R3, D1, D3 Indicate, I am running this not you. I am in charge.
- R3, R2, L2 Be demanding with people to answer.
- T2, L2, J1 Tell people that lying will result in their being charged.
- T3, D1 If a person relaxes after a disliked person leaves the room, the effect is like a beer and he says more then he would have.
- R2, R1 Tell politician on a spiralling explanation to cut the crap.
- R1, R3 Persist in calling and badgering the person until they talk to you.
- R2, R1 Corner the person. "Why are you afraid to talk to me?" "These are the facts I have, talk to me or I will crucify you."

- R3, D3 Put person in a position where they say I better not lie to this person because he knows all about it and if I lie to him I will only get in more trouble.
- R2 Sit with pen in hand eyeball to eyeball waiting.
- C3 Tell an uncooperative policy holder unless they give you complete cooperation they border on voiding their policy.
- J3 Talk roughly to a crying child to get the real story.
- D2 Let the person know you know he is involved or he would not be there in the first place.
- D1 Ask questions before they have time to think.
- L2 Get them mad and they may say things they would not have.

Dealing with Known Lying

- C2, T2, D2, D3 Confront a person who is flagrantly lying.
- C2, T1, L3 Do not confront a person who is lying unless you can prove it in a court of law.
- D2 Try to get a denial that can be used against them.
- T1, J1 Cross examine to discredit testimony.
- D1 A person not sure how a polygraph works will be put in a more cooperative spirit if he is lying.
- R1 If you don't know if you can trust a witness make sure the readers know you are quoting.
- D2 Offer a polygraph and confront with negative results.

C2, T3, D2, J3 Confront the person with the fact we have conflicting eyewitness reports.

The investigator attempts to shift the respondent gradually from one behavior set to another, if the first is not compatible with his probe operations, from the perspective of the legal requirements of his job. This is at first attempted in a friendly manner, and later in an avoidance set. If our investigators had the legal authority it is conceivable that the next stage would be escape, and torture could be utilized. The psychology of eyewitness testimony has utterly bypassed behavior set and setting factors in their internalized approach to memory.

Probes

Psychologists generally concentrate on the dangers of suggestion as a distorting influence in their inquiries into probing and recall. To a certain extent every question may include one or more words or phrases that are likely to produce one rather than another answer, that is, almost every question will suggest an answer. Indeed, almost anything may be interpreted as "suggesting," in the broadest sense the situation itself serves to suggest a direction for answers. Metzler (1977) states that often if you let the respondent talk about anything they want, they will lead the conversation back to the matter of interest and talk a blue streak. This is an example of the situation serving as suggestion in a positive sense. Probes that suggest answers may be generated primarily by the respondent or by the investigator, by asking general

questions that facilitate by self-cuing, or specific questions placing more dependence on the investigator for cuing and less free flow of information.

We have in the following pages listed the production and arrangement of cues for prompting the respondent, and the cues used by the investigator to self-prompt, that is, to remind himself on the job. (Another phenomenon of remembering that escapes theorists.) The purpose of probes in the context of the interview is to shape the behavior of the respondents in the direction of the desired information. This can be seen in the arrangement of questions where general probes eliciting free description and easy bantering is followed by specific probes which suggests prompt. Some statements of the subjects in this study follow.

General Probes

- | | |
|----------------|--|
| C2, C2, T2, T1 | Get open-ended account and follow with specific questions. |
| L3, L2, L1 | Take a deposition. |
| C2, D3 | Ask for an open-ended account from the opposing party and take it verbatim. |
| C1 | Set the stage, where they were going, what it looked like, and ask for an open-ended account of what happened. |
| C2 | Listen to them and gradually get the facts. Then ask if you can get it in interview form. |
| R2, R3, C2, D2 | Talk about the kids, or the weather for a while and lead the conversation to what I want. |

- D1 Organize your questions from knowns to unknowns.
- L1 Write down all the questions with experience you can branch out.
- C3 No organization, just adapt to the situation.
- C3 Talk to the person about things you have heard two or three other persons mention.
- R3 Save the stickiest questions for last, easy before difficult and embarrassing.
- T3 Use the standard questions and branch out.
- T3 Ask about the event from general to specific.
- D1 Organize your questions sequentially.
- D1 Go through all the reasons he is not confessing.
- L1 Start by asking a few questions you think they would not mind answering. Often you get through all your questions.
- L1 Ask general questions at first.
- R3 Ask injured on the scene how they feel and proceed from there.
- R1 Talk in a friendly fashion without prepared questions.

Specific Probes

- T3, T1, D2, L1 Ask specific questions.
- C3, C1, T2, L3 Use a point of comparison, was he taller than me, as far as the end of the room, could you estimate in car lengths.

- R1, R3, D1 Appear to know everything so that you can drop knowledgeable guesses as though they were facts leading the person to think you know it already.
- C3, T1, D1 Ask if there is anything else they want to tell you.
- T3, T1, D2 Fish for what you want to hear without putting words in their mouths.
- R1, C3, J3 Ask once, talk of something else, ask again, in a different way.
- L3, L2 Suggest answers to people who can't remember.
- R1 Ask general questions of professional interviewee who is not going to open up to you anyway.
- C1 Prompt forgotten material saying according to my source it was . . .
- D2 If people have trouble in recall, ask the general time frame, location, and work from there.
- T1 Ask for the information in a positive assumptive manner, where did you first see the two cars vs did you see the accident.
- R2 Ask the person how you can get them to talk to you.
- J3 When people try to change the subject you bring them back to it.
- D2 Show the mug shots in groups to avoid suggestion.

Self-Cuing on the Job

- T1 If you can recall where each accident occurred, you can recall each accident.

- J1 The accident report is to help refresh the memory of
 the police who investigate five accidents a day.
- R2 To reconstruct a conversation verbatim, you must be
 interested and you must take notes.
- T1 The police officer instantaneously recalls nicknames,
 addresses, and license plates.

In this section we have discussed the need for an increased emphasis on the behavior set, setting factors, and probes for recall. The view has been presented that remembering is something which occurs at the time of recall in response to cues, not something which is stored and changed in the course of processing. The answers given to probes depend on the mood of the respondent, his behavior set, and the manner in which the probes are presented as well as the content of these probes. A psychology of eyewitness testimony ought to emphasize systematic study of probing and setting factors in reconstructing the incident, rather than the negative aspects of recall discussed in the previous section, suggestion, and bias.

II. THE PROPER ROLE OF THE PSYCHOLOGIST AS AN EXPERT WITNESS IN THE COURTROOM

Professionals are concerned with veridical recall, their job to reconstruct an incident, with plan and outcome, and some purpose. Some of our investigators spelled these responsibilities out. This can be seen in the following quotes from the professionals on the nature of their task:

Lawyer L1:

When a client comes to me, it is my responsibility to do a thorough investigative job of research, as is possible; to present the best possible case that can be presented. . . . What I am doing is just sitting down with a person and finding out what the facts of their problem is.

Insurance Investigator C2:

We investigate the civil end of it, never the criminal aspect. And from there we are involved in getting all the aspects of a given accident, be it automobile or whatever, and along with the investigating officer's report of the accident to set ~~do~~ down and evaluate the value of the given insured and the other party, assess the liability and attempt to evaluate it. As far as the ticket and all that sort of thing we do not get involved with it at all

Detective D2:

Along with pointing a gun at them, if it was a toy gun, or a blank you are talking about simple robbery. If it was a 38 calibre, loaded or unloaded really you are talking about armed robbery, you are talking about 5 years, and you can apply for probation. Armed robbery is automatic 10 years In the course of the investigation a lot of times you apprehend someone and interview them, and try to get information as to what part they might have played in the alleged crime.

Traffic Investigator T1:

That's the accident investigator. First of all why do you investigate accidents? To determine if a traffic law has been violated. If so we have reasonable grounds to warrant a prosecution. And to prevent accidents from occurring.

Reporter R1:

You come back and write a story and look for a new way to say things, and a new angle to say things. That's what's interesting to me about it. Then you are supposedly doing a public service, you are keeping the public informed about things that otherwise they might not know. And that some people may not want them to know.

The continuum of responsibilities gives every reason to expect that judges should be different from other groups in their observations on

remembering, as they really are not presently concerned with investigation by recall. As stated by Judge J1:

I just have to rest on the testimony as it comes in. But if I really ~~want~~^{went} into cross-examination and attempted to break the person down—well really that would give the appearance of my favoring the other side. I never do that. I just have to rest with what comes in. I give them an opportunity to clarify. I will say to them, 'Well you said this and that at such and such a time. Now there is some question in my mind as to what you meant to say.' I will give you the opportunity to explain. But I don't really dig in as an advocate or prosecutor or defense counselor would.

Seventy-nine percent of the coded statements of judges related to topics which were judged not germane to the exploration of recall. One of these was a category we called Evaluations Based on the Account. This category came almost exclusively from statements by judges and the paraphrased statements as follows:

Evaluating an Account

- | | |
|------------|---|
| D3, L2, J2 | One must consider a preponderance of the evidence in civil cases, and beyond a shadow of a doubt in criminal cases. |
| J1, J3 | You must consider what can be done about it, fines? Rehabilitation? |
| J1 | Write down like columns of figures the testimony for and against. |
| J2 | How could anyone so dumb think of such a good idea? |
| J3 | Was the act physically and mentally proper? |
| J3 | Are parents at fault for out of control child? |
| J3 | Are both sides lying? |

J3 Why is the child misbehaving, can he change at home?

J2 What are the facts most probably?

As stated by Judge 2:

"How do you know what really happened? That's why judges use the words 'credible evidence' and 'I find the facts most probably as follows: He does not say 'the facts were . . . ' but 'it can be taken that the facts were as follows from the evidence before me.' That is all they can say."

Judges are not concerned with obtaining recall, but rather with judging a case incorporating one or more recall-reconstructed descriptions of the incident which is put before them. They accept the relative nature of "memory" which the applied psychologists seem not to do. They know every case is one interpretation of the facts, but not a distortion of the incident.

Lawyers in the courtroom were concerned with presentation of their case. As stated by Lawyer L1:

I consider myself a legal mechanic. I know the law, the procedures, the evidence, the mechanical things the person needs in order to get their case to the jury.

By the time it was to be presented in court, lawyers were almost exclusively involved, according to our respondents, with the presentation, not the veridicality of their cases. A category readily identifies this in the analysis which was excluded from our taxonomy as not directly germane to remembering. The statements listed here in paraphrase form, come almost exclusively from lawyers:

Presenting a Good Case

D3, D2, J2 If the witness is relaxed with words coming freely,
it is assumed that he is telling the truth.

- L2 Low-keyed approach is better for playing down injuries.
Fiery is best for plaintiff who has been wronged.
- L1 Have the client use his own words and take a deep
breath before each answer.
- L2 A good witness has a demeanor of confidence and
knowledge without gaps.
- L1 Sincerity makes believability.
- L1 People believe middle-aged people more than old or
young.
- L1 People believe those of their same race and background.
- R2 Using the words of the local people adds credibility
to the story.
- L1 Conservative dress is more convincing.
- L2 Appeal to a jury's common sense of justice and
emotional feelings.
- J2 Blame it on someone else, say there is some mistake,
show there was good reason.
- L1 Develop a proof making the bad point seem less
significant.

Lawyer L3 put the matter:

"Interviewing is not the same as cross-examining. When you are interviewing someone, it is usually because they are coming to you to be your client. You want to find out all there is to know about the matter that is troubling them . . ."

He went on to talk of the parallels between interrogation work he did with prisoners of war in Korea, to find what they could recall of military interest, and the work he does in his office. With the exception

of most of the work of reporters—all the investigator's tasks thus far involved eliciting remembering of an incident from a participant. With regard to what goes on in the courtroom, however, he states the primary concern as "How do I carry the burden of proof."

As stated by Belli (1954), quoted from Yarmey (1979):

Law and justice are not always synonymous and [law students are not trained] to study justice, but are here to study law . . . a body of rules formulated for the conduct of society.

The courtroom is probably not the place in which an "expert" on the psychology of remembering, can best make a contribution. The problems with which psychologists must deal arise, and must be solved before the cases enter the courtroom—during the course of the investigations. We submit that the empirical knowledge of remembering, as it has been developed by investigators themselves, is far "sounder," that is, more likely to be the source of a predictive science of remembering than the laboratory, and it is this that needs to be subject to further scientific investigation if we are to understand how remembering functions, and how recall by individuals, of an episode, can be used to reconstruct that episode.

In making a contribution prior to the courtroom, however, psychologists must drop their misconceptions about the extent to which informing the investigator about the existence of bias and suggestion, is a contribution. The view of psychologists working in eyewitness testimony is that persons concerned with the legal procedures are unaware of how inaccurate these accounts are likely to be, and that these are

allowed to carry an undo amount of weight as evidence. This perspective comes from failing to research or consider what these investigators in the course of structing a case actually do.

"Uncritical acceptance of eyewitness testimony seems to be based on the fallacious notion that the human observer is a perfect recording device of all that he sees or hears"
(Buckhout, 1976).

The statements of our investigators indicate that there are very few instances in which there is risk of uncritical acceptance of eyewitness testimony. The following statements reflect the fact that the initial eyewitness account is greeted with some skepticism. Investigators follow more or less standard methods for checking the veridicality of the eyewitness for internal reliability as well as external validity, that is, against the physical evidence and the independent testimony of others. These are standard for each of our professions.

Initial Skepticism

- | | |
|--------|--|
| T1 | Don't believe too much of what they tell you, much of what is volunteered is totally incorrect. |
| T1, L2 | Your client can be off base and confused. |
| R3, L3 | Sometimes people lie to get your attention. |
| R2 | Don't believe anything you read in a complaint until you read the reply filed in civil court and find what the other side did. |
| L2 | There is a tendency not to give you unfavorable information. |
| L2 | Anticipate the facts will be shaded in their favor. |

R3 Do not print anything on the basis of what one person says.

Internal Reliability of Testimony

R3, C3, D1 Ask a known as though it were an unknown to check a persons propensity to lie.

C3, D2 Ask for times and the show to verify he was at the movie.

L3 Commit him to a version and then show it is absurd.

L2, L3 Show there is a direct contradiction between examination and cross-examination.

D1 Ask an ambiguous question to sort out those stresses caused by stimuli other than guilt.

L3, L1, J1 Emphasize one point of error and exaggeration to see if you can get him to change his testimony.

J3 Get a reputation for giving stiffer sentences to those who lie so no one does.

G3, G2, D2 Ask in polygraph session if they know who did the crime and watch their reaction.

C2, T3 Reinterview people whose statements do not hold up and offer them a polygraph test, more often than not they back out.

External Validity of Testimony

R1 Conflicting accounts are pieced together and verified by a reliable source.

- R1 Tell what everyone said and who said it if the accounts conflict.
- R1 Go with the official account if there is some question.
- C3, D2 List peoples' stories together and try to mesh the information to see if there is some conflict.
- C3, L2 The majority of people say this in the middle between the two extremes, piece the facts together and draw a down the middle. The truth is usually somewhere down there.
- T2, D3 Don't get involved in straightening out multiple accounts. Take them all down.
- R2 Check the public record to straighten out accounts of what happened.
- R3 Check information against documents and records.
- C1, J2 Bills, doctor reports, and employer records will support a claim.
- C3, T1, D2, L3 Compare the statements to the physical evidence.
- T2, J1 Look at the skid marks to see who is at fault.
- T2 Be suspicious of a burglary with no point of entry.
- D3 With enough physical evidence, you do not need a confession.
- C1, T1 Verify the facts in an accident.
- C3 Check the facts vs what a confused person says.
- T1 A hit and run accident reported 30 minutes later, a car reported that was used in a felony, is suspicious.

- T1 With no witnesses only point of impact can separate the truth when both parties swear they are innocent.
- R3 Check the information against the experts.
- G1 You can tell from their income the type of house and possessions they would have.
- R2 Never believe what anyone who has lied to you says again without checking it against another source.
- C1 Check for professional claimants in the national filing system.
- G3, G1 Check what an emotional person says against the evidence.
- D2 If 20 people give you the same story, you know something is wrong.
- D2, C1, L1 At an uncontrolled intersection or light dispute, a witness plays a big part, when it is one person's word against another's.
- R1, R3, R2, G2, D2 Know as much as possible before the interview, know what it is you want.
- R3, C3 Know the correct answers before the interview.
- G2, C1, D3 People can refuse to sign their statements but you can use them anyway if there are witnesses, or you do not intend to use the statements in court.
- R1 Consult another person independently for the information, locals in a bar, the ambulance service, his boss.

III. SUMMARY

Three applications of the study of the psychology of eyewitness testimony were discussed. The negative orientation of researchers in the psychology of eyewitness testimony has been found to be unjustified; memory behaviors must be viewed as adaptations to the contingencies of the environment in which recall takes place. The nature of "forgetting" and "inaccuracy" in recall were discussed. These are currently seen as failures to process information correctly in the research literature. Our data suggests that these are special instances of either adaptive behaviors, or instances of not noticing in the first place the desired detail.

Our second application was reemphasis on the development and use of cues and probes with the interbehavioral framework of observable behaviors, for research. Setting factors, behavior sets, and probe operations were discussed in this context. More emphasis need be put on these methods for achieving remembering.

The third, based upon the statements of the persons in our study, is that the psychology of eyewitness testimony concentrate more on assistance to and training of professionals constructing the events before the courtroom, rather than in the courtroom. Clearly, psychologists are hardly in the position to do this at present; the professionals know more about remembering than experimental and theoretical experts. Scientific investigation of recall as it occurs outside the laboratory, should provide the data and methodology that would enable psychologists to make a more substantial contribution than the demonstrations of

one-upmanship that characterize present efforts. We need to learn how to maximize the effectiveness of probes in establishing veridical reconstruction of events prior to presentation of a case. In the courtroom persuasion is the central problem, and that is peripherally related to veridical recall. Outside the courtroom the psychology of eyewitness testimony must be oriented toward the true problems of applied work, and these call for positive suggestions rather than considerations of possible sources of unreliability and validity in testimony, which applied professionals appear to be well aware of. In sum this study has applications for the direction of the current psychology of eyewitness testimony.

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APPENDIXES

APPENDIX A

INTERVIEW STUDY INFORMED CONSENT FORM

This study is being conducted by Alice Gordon, graduate student in the Department of Psychology. It will consist of interviews and observations.

By agreeing to participate in this study, I understand that:

1. What I say will be tape-recorded.
2. I will answer questions about my work in so far as I can.
3. I may refuse to answer any question without penalty.
4. My participation is completely voluntary; I may terminate my participation in this study at any time. In this case the data I have provided will be destroyed, if I so request.

I understand that the person conducting the study will:

1. Continue to answer promptly any questions I might have about this study.
2. Not do anything that could reasonably be expected to be harmful to me.
3. Will keep all records and transcripts anonymous, unless I specifically request identity in the interview.
4. Use the materials from these interviews in her dissertation, and perhaps in an eventual publication, to both of which I consent, given that my identity will be concealed, unless I request otherwise.
5. Share the eventual results with me at my request.

signed (participant)

date

witness

Alice Gordon
3500 Sutherland Avenue, C121
Knoxville, Tennessee 37919
588-3874

APPENDIX B

SAMPLE INTERVIEW

- Q. The first thing I am interested in is information on your job, what your position is.
- A. Well, I'm classified as a detective with the Knoxville Police Department. I investigate larcenies, burglaries, rape, robberies, armed robberies, homicides, whatever comes up.
- Q. What does your position entail? What do you have to do?
- A. You have to make investigations whenever a complaint comes in. In the course of the investigation a lot of times you apprehend someone, and interview them, and try to get information that you can from them as to what part they might have played in the alleged crime.
- Q. When would you get called in say in the whole sequence of events?
- A. After a uniformed officer makes a preliminary investigation, they ask the person if they request a detective, and if they say yes, then a detective is called to the scene and he makes his investigation which goes along with the patrolman's investigation.
- Q. So what would happen from the time you get a call?
- A. You would go to the scene of the crime, you would make your investigation. You get the information as to what happened, when it happened, why it happened, and if you can, who did it. And this is where my work comes in, this is what I do.
- Q. You are the person who goes to the scene and makes those inquiries.
- A. Right.
- Q. Do the phone calls come directly to you or someone in the office and you are assigned to the case?
- A. If you file a complaint the lady downstairs takes the information from you. She sends a uniformed man and he will ask you what happened, when it took place, how it happened, if you know the subject that did it. He in turn asks you do you want a detective assigned to the case, for prosecution purposes. If you say yes, then the uniformed man calls me and this is when I come to the scene. And I in turn get basically the same information, although maybe a little more in detail than the patrolman.

- Q. Were you specifically trained as a detective or did you start as a patrolman?
- A. I worked in traffic patrol for 17 years before becoming a detective, and I have been a detective for about 6 years.
- Q. Is that different from being on traffic patrol?
- A. Quite a bit.
- Q. Really?
- A. You might give me a little information on what it was like on traffic patrol.
- Q. Now we have combined the two units, we used to separate the units. The Traffic Department basically enforced the traffic laws, and investigated traffic accidents. Patrol division, their work consisted mostly of well basically all police work is prevention. That is the key to it, to prevent a crime from happening by being on the street and being seen. And they handled everything not related to traffic, public drunkenness, disturbance calls, fight calls. They make preliminary investigations on all major crimes, such as homocides, rapes, robberies, so. But now since February they have combined the two, so a patrolman now just answers like the detective bureau. He just answers whatever call comes in.
- Q. But you worked specifically on traffic?
- A. No, I worked in every division in the Police Department with the exception of narcotics.
- Q. Is being a detective very different from working in the other divisions?
- A. Quite a bit. Your investigation is much more detailed. A detective spends a lot more time in court, criminal court.
- Q. You said your investigations are a lot more detailed than those of a patrolman?
- A. Well, I would say a uniformed man goes out and he gets the basic information. All right, then he turns this information over to a detective, in the form of a written report. We keep a copy of that report and we gather our information from the victim, plus what we have got, and a lot of times it is different. A person can give a uniformed man information and a lot of times when I arrive on the scene it will be altogether different, in just a matter of a few minutes.

Q. Why would that be?

A. It is just human nature. People add things, they take away things, they change their stories, and I mean in 5 or 10 minutes. The information that a detective gathers is sometimes altogether different from what the victim will give a uniformed man.

Q. Is that information more or less accurate?

A. It tends to be more accurate when they are giving it to a detective because they know that he is working to build a case to take to court. The detective has to get into detail a little more than the uniformed man. What the uniformed man is doing is just getting the basic information, then the detective takes it from there, and he gets more detailed information, tries to apprehend the suspect that is involved, and tries to build a case.

Q. What sort of questions would you ask that a patrolman wouldn't?

A. Well, on a particular call a good case would be a rape case. The patrolman goes to the place of the scene. A female will tell him "I was raped at such and such a place, by, maybe she knows the subject, and she might give him the name, and he writes this down on the report. All right, the detective when he gets on the scene, he has to find out where it all started, what the subject said, and did, did he use force, did he not use force, did you try to stop him, what did he do after what he did with you, what did he do with himself. Was there anything peculiar that you noticed, about maybe the vehicle he was in, type of clothes, personal appearance. Any unusual actions, everything he said or did. Everything you said or did. The patrolman does not get all of this. Your investigation on the detective end, as I say, if you apprehend a subject you talk to him, you want to know everything that took place, so you know in your own mind whether or not the person is telling you the truth when you start talking to him, of course, realizing before you ever talk to him, the subject, that they have to be advised of their constitutional rights.

Q. You said that one of the purposes of the interview when you arrive at the scene of the crime is to find evidence to build a case. What sort of details do you have to notice?

A. Well, it depends on the offense. In a burglary you want to find out first how they entered and once they made an entry, was it forced, what they took, what they touched if anything. If they touched anything then, of course, you can get fingerprints, for comparison to the closest subject in the house or in the business, how they left. Each offense has different aspects that you have to investigate.

Q. Well, what would be some of the people that you come in contact with that you have to interview?

A. It ranges anywhere from juveniles to 80-year old men and women. Again, it is just the nature of the offense, who committed it, or who you think committed it. And then once you get a suspect, you like I say, you lay your groundwork before you ever talk to a suspect so that you will know what you are talking about. And in talking to the suspect you might have information that he has but he tries to hide it from you, and what you try to do is to ring this out of him to give it to you. And a lot of times they will just upon advisement of their rights, they will just tell you that they did whatever you picked them up for. A lot of times they will admit it, a lot of times they will deny it. And, of course, when they deny it, that's when you try to put that person at the scene of the crime.

Q. How do you do that?

A. Well, you use what ever information you have already built. Finger prints, witnesses, a lot of times you will have eyewitnesses. And you just have to follow up your information. Whatever information you get. Well, two weeks ago today I investigated an attempted strong armed robbery. A lady was walking through the parking lot of the shopping center, a car passed beside her, and a boy reached out of the passenger side of the vehicle and he grabbed her purse strap and he drug her a few feet and pulled her to the ground and let her go. She got the license number of the car, and a male witness got the color. Alright, in two or three days I located the car, found out who was in the car, who was driving and who the passenger was and never did locate the subjects. I knew where one of them lived and where one of them worked, I had enough information from the victim and the witness and the other witnesses that knew who was in that car on that day at that time. I had enough information to build a good case for attempt to commit a felony and an attempt strong arm robbery. I go to the lady with this information and she informs me she did not think that I would ever get that far in my investigation, and she decided that she doesn't want to prosecute because she is in fear for her three small children and her husband. I mean a lot of times you run into dead ends, but now had I picked those boys up and brought them in here, I could have given them, although more than likely they would have denied it, I could inform them "you were at such and such a house, you left one of your houses at such and such a time, you came back at such and such a time, the lady got your license number, a witness got a description of the vehicle." I knew everything they did, but the lady refused to prosecute.

Q. So that is one of the problems you would run into in dealing with the people who originally filed the complaint?

A. Well, you have numerous people that at the moment the crime happens they are eager to prosecute, until you apprehend the subject, and then a lot of people change their mind, and they say, "Oh no, I don't want to prosecute."

Q. Is that usually because they are worried for their safety?

A. Not really. A prosecution in a criminal case involves a lot of time, especially for the victim. Once you apprehend the subject and get him charged, you have to go through the preliminary hearing in criminal sessions court. From there you have to go to the grand jury and testify, and then again if you are indicted you have to go to criminal court, and you are talking anywhere from 6 months to a year and a half, and no telling how many times you are going to appear in court because defense attorneys like to play a waiting game. They will set a case for a certain date, that day or the day before they will come up with an excuse to get the case passed. What they try to do, they try to wear the victim out to where they get to the point where they say "to heck with it, I am spending too much time, I am losing too much money." And we have a lot of people that once they go through a prosecution they will openly tell you "I'll never do it again." Because it does entail a lot of time, a lot of time.

Q. What problems do you run into in trying to get information when you first arrive on the scene?

A. The biggest problem you run into is trying to locate witnesses. The problem you run into is "I don't want to get involved." That's your biggest problem.

Q. How do you respond to that?

A. Well, there is nothing you can do. You can't make a person tell you. You will find on occasion people that will willingly come up and give you information if they have seen a crime. They will be glad to come up and tell you what they say. That doesn't happen very often but occasionally it will happen. Of course, this is the type of people that we like to find. Say at a shooting scene or whatever, who fired the first shot? Where were they when they fired it? What kind of weapon were they using? And your witnesses help you build your case. They give your information so that when you apprehend the subject you know you have two or three people that actually saw it and their stories pretty much go along with each other. Then you know what to talk to the subject about. When he starts denying it then you've got some material that you know that you can put in front of him, and you can say it didn't happen this way. And when he finds out or she finds out that you know pretty much what has taken place, a lot of times they will just quite deny it and voluntarily give you a statement. Of course, it doesn't always go

along with what the witnesses say, they will tell you up to a point. They normally try to hide or hold back a lot of the information.

Q. What kind of information are they holding back?

A. Information that once they find out that they are going to be charged on an offense they will hold back enough information to change their stories, give it to you in a different form. They know they are going to have to hire an attorney and the story that they give me and what they give the attorney will be two different stories altogether. I mean they may come and tell me "Yeah, I shot so and so." But then they will tell the attorney "Well, I shot him, but he drew a gun on me first." What they try to do is, they just try to build a defense for themselves by withholding information.

Q. You are pretty much convinced of the person's guilt before you apprehend him?

A. Well, of course, everyone works a little different, I mean there are no two detectives that work alike. Personally, I like when I bring a person in here, I want to feel like in my own mind that I have got the right person, and know enough about the crime to show I can tie him or her into that crime.

Q. What do you do if the person will not admit the crime if you are convinced that they did it?

A. Well, it depends on the person. Of course, everyone reacts differently to a police officer. The way I do it, I let them know that I have enough information that I know they are involved or they wouldn't be there in the first place. You can offer them a polygraph test. Of course, it is not admissible in court and you tell them this. You ask them if they are willing to take a polygraph test, which basically tells you whether or not they are telling the truth. A lot of times they will take the polygraph test, and if you get negative results with this, you confront them with it. You say, you weren't telling the truth on the polygraph test, and a lot of times they will after they found out that the machine has said that they are not telling the truth then they will turn around and tell the truth or part of it, not all of it all the time, but . . .

Q. Is there some other technique you might use with a person you believe is guilty, that you want to confess?

A. The only thing that you can do is to try and convince that person that there is enough evidence that you can tie them in with.

Q. Is there something that you do to set a certain atmosphere at an interview?

- A. Personally, I like to get a person in a position to where they are comfortable. I like for them to know that they are going to be treated like I would like to be treated sitting where they are if they were behind the badge that I have. I tell them that I will not promise them anything, threaten them in any way, I don't cause them any bodily harm, and I just like a person to get comfortable and relaxed. I try to win their confidence, and what you can do, then you can talk to a person. With some people, the hardened criminal you are wasting your time talking to because he knows that is going to be charged and he just will not tell you a thing. It depends on the person. If it is a first offense, and they find out that you have enough information to charge them, most of them will come around and admit and then they start asking for help, mercy.
- Q. Is there some way that you organize the questions that you are going to ask?
- A. No, again you have to talk to the person for a while, or at least I do, to find out what type of temperament he has got. I just like to feel the person out and see how they react, and I just go from there, I mean there is no set pattern that you can question people on.
- Q. What kinds of questions and conversation would you make just to feel them out?
- A. Ask them how they are and where they work, do they go to church, who they associate with. And after you have talked to them a bit, they tend to come down a bit. Once you get on good talking terms then you just get into the subject matter whatever you have them up there for.
- Q. What sort of problems do you run into in dealing with the witnesses?
- A. About anything that happens. If you have three witnesses you are going to get three different versions most of the time. But somewhere in those three versions something is going to be similar and it is just up to you to pick out the things that are similar and tie them together. I mean a description of people is a good example. One person will tell you that the person is short and fat, another will tell you that he is tall and skinny. Another might say that he had a beard and a mustache, which maybe the other two didn't see. And sometimes it gets kind of confusing really as to who said what. You can see something and then when you try to tell me what you say it will be altogether different than what the person next to you says. They can see the same incident and it will be two different stories, or even the victim will give you a different story. They see things differently, they see things differently about the person that actually committed the crime.
- Q. They actually believe it happened exactly as they recalled it?

- A. Right. But most of the time I would say you get two or three different versions where in what they are telling you there will be something similar.
- Q. Do you ever run into people who are just trying to out and out lie to you?
- A. Well yes. You answer calls where people say that such and such happened, and in fact you can look at the area and tell after being a police officer so long, you can walk up to a scene and you can pretty much tell whether the person is telling you the truth from the start. A lot of your burglaries, people will say, my business or home was broken into. And there is no signs of a forcible entry at all. Well, in order to commit a burglary you have to make a forceful entry. They will say "My doors and windows was all locked, but my TV is gone" and there was no forced entry. Then you know right off the bat the person is not telling you the truth. What they are doing is they are hunting insurance money. And you must have to observe the situation. And after some time you can pretty much tell. After four or five minutes you can tell whether or not the person is telling you the truth.
- Q. What sort of behavior during the interview would make you suspicious and make you suspect that something funny is going on?
- A. Most people when they are guilty of something, they will do certain things unconsciously that they don't even know they are doing. You watch that person you will notice these, you will pick them up. Some people tend to get nervous. Sometimes they do things with their hands, they don't want to look at you. They want to look at the floor or the wall or the telephone. Most people will get dry mouth and their lips will get dry, and they lose their voice completely. Their mouth gets dry, you will notice that they will start swallowing. They will start evading you. They give themselves away really. If you watch them closely enough they will give themselves away.
- Q. Are there things that you might try to watch for during the interview?
- A. Well, those things I try to watch for, you watch the person to see how they react, if they tend to get fidgety on you. If you've got nothing to hide you are going to be in a relaxed position and the words are going to come freely. If you are guilty then your answers won't be (pause). So you just have to watch the person and once you can get a person to talk, admitting such and such, like I said when you get a person here you are trying to get their version. And if they are going to be charged and taken to court, you want everything in relation to the offense that you can get from the person, whether it be a denial or an admission. In court a lot of times a denial is

worth more to me in court than an admission. Because say I am talking to you in regards to a burglary, and I have your finger print that came out of that burglary, came off a bill that was lifted out of a cash drawer, and you say "I have never been in that building." Fine but when I get to court, I am going to produce your finger print on that cash register, which is going to make you out of a liar in front of the judge and jury. Now, who are they going to believe? Are they going to believe your story with a finger print that no one could possibly put there except you? An admission helps, a denial is better if you've got enough proof to go to court with.

Q. How do you get people to remember specific information for you?

A. You can talk to a person. And when you first arrive people are excited and they start talking. And they give you a lot of information on the spot. After they have had a little time to think about it you can go back to them and they will say, "Well, I remember this." They will remember after they calm down. They will start remembering little things that they probably didn't even think about. Maybe what the person had on, which way they left, what kind of car they got in, what color it was. I answered a call where there was a shooting, five people ended getting shot. I had four witnesses, I got basically the same story from all four people. One person told me that one man was in a room was shooting out of a window, which actually resulted in three other people getting shot. The suspect that I was hunting that we at first had thought had shot all four people had really only shot one. One man had gotten shot, and then a witness who was in the room where the shooting took place, told me that the man who had gotten shot, first had shot the people outside the apartment.

Q. Do the people just spontaneously add more detail or do you have to ask them?

A. You have to ask them, you have to pump it out of them. They will give you basically what happened. The specifics that you need you have to ask them, you have to drag out of them. I mean, you get a suspect in, say for armed robbery, and he'll say "Well, I robbed the place, I told them to do so and so, and they did it, and I took the money and left. They haven't told you a thing about the robbery. What did you do when you went in? Did you have a gun? Was it loaded? What type of gun was it? Was it a revolver? Was it a blank? Was it a toy? Because this makes all the difference in the world in the amount of time they are going to get. You want to know the specifics. Did you point the gun at the person? Did you threaten them? Along with pointing the gun at them, if it was a toy gun or a blank gun, you are talking about simple robbery. If it was a 38 calibre loaded, or unloaded really, as long as it is a real gun then you are talking about armed robbery. If you are talking about simple then you are talking about 5 years and you can apply for probation.

Armed robbery is automatic 10 years. So your specifics that you get out of the subject or the witnesses a lot of time determines who much time the person is going to get. An armed robbery a lot of times people will use blanks or toys, it reduces from armed robbery to simple robbery, and this is what you want to find out. If you can find the weapon that was used you can corroborate one side or the other. I mean the victim might say it was a toy pistol when actually it wasn't. But if it was a toy and you confiscate it on the scene or shortly thereafter off the person and he tells you it was a toy, you've got corroboration that it was simple robbery and that is what he would be convicted of.

- Q. Do people sometimes say they can't remember when you first asked them and then later call you up and tell you the information?
- A. Yes, this happens all the time. And you can take what we call mug shots, photographs of people that have been charged here, and this is one way that you get people identified, and they will give you a description of the person. If you have come up with a suspect, take that picture along with 5 or 6 more, never show a person one picture, show them a selection of people with similar features, white male 18 to 21, beard mustache, what have you. Basically, the same height and hair color. And you show them these pictures. A lot of times they will identify the person from the picture and he won't be anywhere near the description they have given you to begin with. And you might pick the person up and bingo, you have the right person. He might admit it. I mean age especially is one of those things. A lot of people will tell you, "Well they were 23-25." And you pick them up, and they may be 18, especially in your black people because black people tend to look older than what they really are.
- Q. What other things would they tend to remember sort of poorly?
- A. The time, I'd say, the time probably would be because people are not aware of what they are doing at a given moment. They might give you a time range. But time I would say is really an important factor. Time, places, and in certain cases something might happen to confuse them as to where they are at. They might give you a general area, and they might notice something in that area, and point it out later. Or you might be able to take them back to the area and they could point it out. Sometimes dates are hard, but later something might come up that jobs their memory, and they can come back with a specific time or date or whatever. Well, really to make a good investigation you have got to go to the scene, you try to gather whatever information you can, and then give the person time to get over the initial shock, and you go back and they will remember more in detail as to what actually took place.
- Q. Do you ever run into people who are telling you exactly what they think you want to hear?

- A. Well, not too often. Occasionally, you will have someone come in, or you will bring someone in and really they want to, juveniles, for example, they want to be big in the other juveniles eyes, and they will occasionally want to admit to stuff that really they did not do, but really not too often. I mean basically what you run into there is occasionally, there will be wierdos that want to get publicity, and they'll come in and admit something you know that they didn't do. But you still have to talk to them. But really that doesn't happen very often.
- Q. Is there something important about the investigative aspect of your work that I haven't asked you about?
- A. No, I can't think of anything. Basically, like I said, when you get a person up there to interview them, you just more or less have to feel the person out, what type of person they are. Some people you can talk to real easy, some you can't. I think it depends largely on the investigator. If you get in too big of a hurry you are not going to make a good investigation. You can't conduct a good interview in four or five minutes. That's the reason that I say when I get a person up here, I like to sit them down and talk to them. I like to find out a little bit about the person, and then I know how to talk to them. Some people, well educated, you have to talk to them on a different level than you do someone who is not as well educated. Even though person suspects they are going to be charged with an offense, you still have to make them comfortable enough to talk to you before you can get anything out of them really. I think it just depends on the situation really. And if you have too many people in the room, you cannot get any information at all. Say if you have three detectives in here trying to talk to one suspect, you have three people asking different types of questions, then you get a person confused and they don't know who they are talking to. The best thing to do is if you have got more than one investigator on the case, let one of them do the talking, let one of them do the questioning. And then, if the others feel that you have left something out, call them out of the room and talk to him. Then go back and talk to the subject, and you can conduct the investigation and invariably you will have some minor detail left out that you need to know. During the course of the conversation you will forget something. Somebody else might remember it and call you outside and say you forgot to get their whatever. If you jump in on the questioning then a lot of times people will just refuse to talk. And we run into a problem in the detective bureau, where if we had a uniformed man, people will not talk in front of a uniformed man for some reason or other, it is fear of the uniform I imagine. But once you get the uniform out of the room you can pretty well talk to a person.
- Q. Do you think it makes a difference in getting information on the scene that you do not wear a uniform?

- A. It makes all the difference in the world, it makes all the difference in the world. People tend to give more information because I am not in a uniform, consciously they relate to me easier than they would a uniformed man. A lot of times they won't give the uniformed man enough information. Well, the only reason I can come up with is the uniform in most people's minds shows authority. Most people resent authority. But when I arrive on the scene I can relate to that person a lot easier. And I get a lot more information.
- Q. Does it make a difference in asking people to serve as witnesses whether you are in a uniform or not?
- A. Oh yes. I get a lot more cooperation.
- Q. Are there things you remember very easily or notice more readily than a layman now that you are a professional investigator?
- A. Well, interviewing people, that average man on the street would not pick up the things that a person is doing in order to cover his guilt. Like I stated a while ago, basically one of the first things that will happen is that he will start licking his lips because they get dry, and when they start to talk their throat kind of closes up on them, and they find it hard to swallow. Sometimes it is pretty severe and sometimes not quite so much. They tend to be evasive, they don't want to have wondering eyes. A lot of people won't pick this up.
- Q. What kind of answers would they give you that are evasive?
- A. Well, basically "I don't know, I don't know that you are talking about, I wasn't there" when you know that they were. If you have conducted a good investigation like you should before you ever bring in the person to talk to them, you want to know (at least I do in my own mind) that I am talking to the guilty party. Of course, my job is to try to get him to admit it. Sometimes it comes very easily, and sometimes you don't ever get an admission.
- Q. What proofs are not admissible to you as evidence?
- A. A lot of times you get people, they want to tell you every thing that went on for a week before and a week after, and they try to get you to believe that they are telling you something, when all they are doing is evading the issue. They will tell you everything they did, everything they ate, how many hours they slept for the week before the incident and after, but nothing about the incident itself. And they try to get in proof or evidence on their behalf that "I am not even the type of person who would do something like this. Of course, you can't accept something like that. Basically, when I start an investigation all I want to know is what happened immediately prior,

during, and after. And that's it. And people will try to give you everything but that when you are interviewing, a lot of them will, not all of them.

APPENDIX C

METHODOLOGY: ANALYSIS OF TRANSCRIPTS AND THE RELIABLE IDENTIFICATION OF CATEGORIES OF STATEMENTS

One significant contribution in the development of this study, was devising a useable methodology for deriving categories, instances of which can be reliably identified. A hierchical method of sorting the data and obtaining reliability for two observers was found which will be described here.

I. SUBJECTS

There were two subjects, the writer and one other person with training in psychology. Whereas the author had conducted all the interviews, the other judge had no prior exposure to the content of the material that was to be sorted. Both subjects were female, age 25 and 23 respectively.

II. APPARATUS

The materials used for the sorting were the transcripts of eighteen (18) interviews, in single-spaced typing, altogether 182 pages. These interviews had been held with professional investigators in the Knoxville area, reporters, policemen, insurance investigators, detectives, lawyers, and judges. The theme of all these interviews was the methods by which these investigators obtained recall of a car accident or crime scene.

III. PROCEDURE

Sorting Procedure

Each observer received copies of all the transcripts, with instructions to circle all the statements by the investigators which related to their methods and observations in the course of investigative interviewing. These circled statements were read one to the other observers. They in turn selected out for these statements one they considered as falling outside the scope of this part of our study were statements on lying, evasiveness, judgements of evidence, and others. Although important in their own right, these involved many areas of psychology and it was deemed was best to omit them from the analysis of remembering. These are presented and commented upon in Chapter IV.

The remaining statements were then read by and to the two subjects. First, one subject read the statements to the other, while the listening subject wrote down broad divisions into which the statements could be partitioned. Then the other listened to the list and did the same, independent of the classifications of the first. After the list had been read through these preliminary classifications were compared and discussed until useable categories were agreed upon. From previous efforts at such sorting the author had found that no more than three mutually exclusive categories could be distinguished reliably at each sorting. Larger numbers of categories confuse judges with subtle differences so that they often change their category definitions in mid-task. Therefore, for accordance with our previous finding, no more than

three (but usually only two were necessary) mutually exclusive categories were developed for each sorting.

Sorting Sequence

After then dividing the whole set of statements into two categories, the subjects again independently sorted the behaviors, and the reliability of their sort was determined using Kelly's Point by Point reliability (1977) and Cohen's Kappa (1960). These measured agreements on nonoccurrence, as well as on agreements on occurrence only. If reliability was found to be around .80 or better, an attempt was made to break the categories down further into reliable subcategories. The procedure was repeated until no smaller reliable classifications could be obtained. In this manner, complex data could be reliably classified through a series of progressive sequential discriminations.

IV. RESULTS

Reliability

The categories of the taxonomy are reported in Figure 1, page 74, the reliabilities of the categories in Table 4. Two tests of reliability shown are: M. B. Kelly's "Point Reliability with Nonoccurrence" (1977), which compares the agreement for both occurrence and nonoccurrence with the overall N, and J. Cohen's "Kappa" (1960), which indicates the proportion of agreements, corrected for chance agreements. In addition to the Point Reliability with Nonoccurrence and Kappa, Point reliability without Nonoccurrence, Phi, and Effective Percentage Agreement for Nonoccurrence, were also calculated (all in Hartmann, 1977). The results

Table 4. Reliability of each sorting.

A vs B		AI vs AII + AIII		AIII vs AI + AIII	
Respondent Behavior as Described by Investigator		Behavior Related to Accuracy of Recall		Difficulties of Recall of Details	
Investigator Techniques	$\frac{106}{5} \frac{14}{76}$	Difficulties of Recall of Detail and Respondent	$\frac{36}{1} \frac{0}{33}$	Behavior Related to Accuracy of Recall and Respondent Bias	$\frac{11}{1} \frac{1}{57}$
PBPR* = .90 Kappa = .80		PBPR = .98 Kappa = .98		PBPR = .97 Kappa = .89	
AIII vs AI + AII		AIIa vs AIIb		AIIIa vs AIII b	
Respondent Bias		Emotional and Mood Factors		Respondent Bias on the Scene of Incident	
Behavior Related to Accuracy of Recall and Difficulties of Recall Detail	$\frac{19}{1} \frac{3}{47}$	Nonemotional conditions Affecting Respondent Recall	$\frac{13}{0} \frac{3}{21}$	Biases after the Incident	$\frac{12}{0} \frac{0}{9}$
PBYR = .94 Kappa = .82		PBPR = .92 Kappa = .83		PBPR = 1.00 Kappa = 1.00	
BI vs BII		BIa vs BIB		BIIa vs BIIb	
Setting the Mood of the Interview		Setting a Comfortable and Friendly Mood		The Sequence of Questioning	
Question Techniques	$\frac{73}{6} \frac{4}{48}$	Intimidating and Threatening Statement of Consequence	$\frac{42}{3} \frac{1}{25}$	Eliciting Specific Details	$\frac{23}{0} \frac{5}{32}$
PBPR = .92 Kappa = .83		PBPR = .94 Kappa = .87		PBPR = .92 Kappa = .84	
BIa1 vs BIa2 + BIa3		BIa2 vs BIa1 + BIa3		BIa3 vs BIa1 + BIa2	
Alleviating Fear		Explain the Purpose of the Interview		Establishing Rapport and a Personal Relationship	
Explaining the Purpose of the Interview and Establishing Rapport and a Personal Relationship	$\frac{13}{4} \frac{2}{27}$	Alleviating Fear and Establishing Rapport and a Personal Relationship	$\frac{19}{0} \frac{3}{24}$	Alleviating Fear and Explain the Purpose of the Interview	$\frac{8}{1} \frac{1}{36}$
PBPR = .87 Kappa = .71		PBPR = .93 Kappa = .86		PBPR = .96 Kappa = .86	
BIIa1 vs BIIa2		The tables were constructed in accordance with Hartmann's (1977) procedure for determining "Trial Reliability for Categorical data.			
Getting a Summary Statement					
Ordering the Questions	$\frac{22}{2} \frac{0}{8}$	Box A		Box B	
PBPR = .94 Kappa = .85		Both raters agree these items belong in category 1		Rater a sorts in category 2, b sorts in category 1	
		Box C		Box D	
		Rater a sorts in category 1, b sorts in category 2		Both raters agree these items belong in category 2	

*Point by point reliability.

of these tests were essentially similar. Since the others did not seem to provide additional information, only the Point reliability with nonoccurrence and Kappa results are given.

Table 4 shows that the range for the Point Reliability with Nonoccurrence is from .87 to 1.00. The range for the Kappa is from .71 to 1.00. The median scores are .94 and .86 respectively. It seems clear that the statements had little overlap in categorization. Only one Kappa fell below .80 reliability, and no Point Reliability with Nonoccurrence did so.

The Categories

When taken as far down as reliable sorting could be found, the final sort yielded of 12 categories, which could be broken down no further. The descriptive categories that emerged from reviews of the transcripts are presented here. Each category will be described, and the explanations presented as follows:

I. Respondent Behavior as Described by Investigator—70

statements specifically related to remembering. These fell into three categories.

A. Behavior Related to Accuracy of Recall—37 statements of factors affecting the ability of the person to recall the incident. These fell into two categories.

1. Emotional Mood Conditions Affecting Respondent Recall—23 statements about the emotions of the respondent at the time of questioning and at the

time of the incident as they may affect recall. Some examples follow:

Detective D.1.: After they have had a little time to think about it, you can go back to them and they will say, "Well, I remember this . . ." They will remember after they have calmed down. They will start remembering little things that they probably didn't even think about.

Traffic Investigator T.1.: When you ask a person who is in shock something, they are much more likely to utter the truth. This is one of the things you look for.

Lawyer L.3.: By getting them angry then they start talking spontaneously, and they say things they really shouldn't be saying. You work on their anger to get them to talk.

2. Nonemotional Conditions Affecting Respondent Recall—

14 statements of respondents' reactions to cuing for the purpose of obtaining further recall. Some examples are as follows:

Insurance Investigator C.1.: You could tell them that according to the information I have it was at so and so, and they say, "yes, I remember because I want to the store and I had to pick up so and so at such and such a time.

Detective D.2.: A lot of times they will identify the person from the picture and he won't be anywhere near the description they have given you. And bang—you have the right person.

Traffic Investigator T.1.: You walk up to them and say "Where were these two cars when you first saw them? . . . A request like that will usually elicit an opinion. I have found that in my experience people are very susceptible to giving their opinion. I don't care who or whom it might be.

- B. Difficulties of Recall of Details—12 statements of information a respondent often has trouble recalling.

Some examples are as follows:

Claims Investigator C.1.: Another thing that it is hard for people to notice is distances. And that would be difficult for me too. So you may try to tell them, "Well, if you can't tell me how many feet away your car was, or how close in feet, can you tell me in car lengths?" And people can relate to that a little better than they can feet. Unless you get out and measure 100 feet, you really don't have that much of a concept of what distance 100 feet is.

Traffic Investigator T.3.: As I said before, was the gun held in the right or the left hand? "What difference does it make? He held me up!"

Traffic Investigator T.2.: If the witness says, "I can describe the person pretty well, I have seen him before" or something like that, we can put together a composite of what the guy looks like, but we have run into problems using it before. Like I said, we have two people who see the same man and the two composites don't look anything alike at all. People get confused about the color of hair, and the guy's height.

- C. Respondent Bias—21 statements of why respondents who are judged "honest"—as not trying to mislead the investigator might give conflicting or false accounts of an incident. These fell into two categories.

1. At the Time of the Incident—10 statements of why events at the incident were seen or interpreted differently by different respondents. Some examples are as follows:

Insurance Investigator C.1.: . . .they say, "Oh, they just pulled right in front of me." Most of the time this is the stock answer from people who stop at a stop sign and then pull on out into traffic . . .

You know that it didn't come from nowhere . . . It's really true, I think that they stop, they look, and they don't see again . . . maybe their mind is somewhere else and the car does seem to come from nowhere. I really think it happens and they don't see it.

Judge J.1.: . . . you can observe an accident out there and I can, . . . And you will be certain that it happened in a certain way. I'll see that same accident and I will see it entirely different. Both of us are telling the truth because we know it. But when something happens so quickly, we can through our eyes, see it differently.

Insurance Investigator C.3.: He may actually have been doing 90 miles an hour when he [the respondent] saw the car, but he may have been doing 20 when the accident occurred . . . you are sorting out what is factual, what he actually saw, and what is something he assumed from something he saw either before or directly after the accident.

2. After the Incident—11 statements on why respondents might change their accounts after the incident. Some examples are as follows:

Insurance Investigator C.2.: After an opportunity to talk with friends, attorneys, relatives, then they change their stories a little.

Traffic Investigator T.3.: If you have two witnesses to say a burglary, if the witnesses get together for any length of time, they have a tendency to collaborate.

Lawyer L.2.: . . . when you've lived an accident for two years, say before it comes to trial, you've gone over and over it so many times it becomes a little bit more of an exaggeration. You just built it up a little bit more every time you tell it, and finally you just probably believe that this is the way that it is.

- II. Investigator Techniques—131 statements of how recall could be rendered more likely by the investigator. These statements fell into two categories.

A. Setting the Mood of the Interview—71 statements of how the interviewer can set an emotional mood to the interview to facilitate recall. These statements fell into two categories.

1. Setting a Comfortable and Friendly Mood—45 statements of establishing a pleasant exchange. These statements fell into three categories.

(a) Alleviating Fears—13 statements in which the investigator assures the respondent no harmful consequences will result from their cooperation.

Some examples are as follows:

Detective D.3.: You know the first thing we have to do is to gain their confidence in order to get them to talk. We are going to assure them that no ones on the street is going to know that they gave us the information We do not give out our sources of information. And if we can gain their confidence, if we can get them to believe that, then sometimes they will talk to us. But in addition to that, they may be fearful for their lives, and if that is the case, then they may not talk to us.

Detective D.2.: I tell them that I will not promise them anything, threaten them in any way. I won't cause them any bodily harm. And I just like for a person to get comfortable and relaxed.

Insurance Investigator C.2.: When you come across people who are reluctant to give you information you have to get on the same level they are on and get them to relate to you Assure them that you are not out to mislead them in any way.

(b) Explain Purpose of the Interview—10 statements giving the respondent reason to believe the

intent of the investigator is not malevolent.

Some examples are as follows:

Lawyer L.3.: You talk to them and explain to them that their testimony is really important, and all you are interested in is the truth.

Insurance Investigator C.2.: I think the interview is just a matter of stating who you are and saying that the interview is just to collect the facts detrimental or helpful.

Judge J.1.: I normally tell them that the objective of the whole thing is to prevent accidents, not to punish or embarrass, or be critical because there are very few judges or police officers who haven't done the same thing.

(c) Establishing Rapport and a Personal Relationship

—23 statements of how the investigator encourages the respondent to relate to him as to a trusted friend with the intent of facilitating free and accurate recall. Some examples are as follows:

Reporter R.2.: And most of us, and I myself am certainly no exception, are flattered by attention from someone who thinks that maybe these words are golden. And if the attention is genuine and the flattery is not too obvious, then people tend to say what is on their mind.

Reporter R.3.: And then once you have engaged the person in a conversation, once you have put them at ease, then just sort of lowered their barriers, you can then sort of start to get back to the information that you wanted to get. And by that time, usually they are relaxed. They are casual and they usually speak rather candidly.

Insurance Investigator C.2.: A lot of it is just winning their confidence. Out there again, you

sort of have to switch personalities to fit whoever you are talking with. A farmer out there on the farm, or a professional person, a doctor or whatever in their office. You sort of have to change to where it will be acceptable by them as far as your speech and manners.

2. Intimidating and Threatening Statement of Consequences

~25 statements of situations which the respondent is likely to view as an avoidance contingencies. Some examples are as follows:

Newspaper Reporter R.1.: You can use cajolery or threats. Threats are usually veiled. "These are the facts that I have so far. They do not rebound to your credit. Maybe you would like us to hear your side of it. (Which means talk to me, you son of a bitch, or I will crucify you.)

Lawyer L.2.: And also you can get them defending themselves and their position. And then sometimes also they will say something they didn't mean to say.

Insurance Investigator C.3.: Most of the time you would write to the individual that the clauses of the provision require his 100 percent cooperation, and that he is bordering on voiding his policy if he does not cooperate and make this information available. I tend to approach people in a straight-forward way.

B. Questioning Techniques—60 statements about the use of cues or prompts to facilitate recall. These fell into two categories.

1. The Sequence of Questioning—32 statements concerning the organization of probes to maximize recall. The statements fell into two categories.

(a) Getting a Summary Statement--14 statements of how to get an open-ended account from the respondent. Some examples are as follows:

Insurance Investigator C.3.: . . . just a series of questioning, identifying themselves, asking them to explain in words what they saw or what the circumstances are.

Detective D.3.: If it is a statement surrounding the incident they were arrested for, then we would take it down even though we feel like and may know that it is not the full truth, and not even the truth at all. We will take that statement down because it has to be done for court later.

Traffic Investigator T.2.: . . . then you usually ask the two drivers to step aside and find out what happened from both sides. This information is recorded on the accident report. It is a statement of fact from each person's point of view, signed at the bottom as to what happened.

- (b) Ordering the Questions—18 statements in which the organization of probes to facilitate "chains of association" toward the desired information is discussed. Some examples are as follows:

Newspaper Reporter R.3.: I would break it down into different pieces so the information would sort of flow together. And I would save the stickiest questions for the end . . . put the easy questions before the more difficult and embarrassing. The stickier questions down at the bottom of the interview.

Detective D.1.: Then, organizing these questions, you try to present them in a logical flow. The logical flow being defined by several parameters. The first is the sequential order of events. However, also you must keep in mind that you look for known to unknown, and general to detail. This is the essential way that I prepare before the interview.

Lawyer L.1.: What I try to do is, from the very top, name address and job—just write down every single question. Now every day that passes by I get a little more experience so that I can branch out from these questions a little bit.

2. Eliciting Specific Details—28 statements of probing and prompting to cue specific information.

Some examples are as follows:

Newspaper Reporter R.1.: You ask them two or three different ways. You would ask them, and then you would go on and talk about something else. And then you would ask them again and get back to it. Just push them for information is what you have to do sometimes.

Traffic Investigator T.3.: "Did he walk with a limp? Did she wear heavy makeup?" You can't put words in their mouths. You almost have to fish for what you want to hear.

Lawyer L.1.: You just have to ask them specific questions. Were you looking directly at the kid before he started out on the street? Did the kid look to the left or the right before he started into the street? . . . You have to ask pretty much the questions that you want to do.

V. DISCUSSION

A method of obtaining reliable categories from open-ended interview data was devised, which involved a sequential analysis. No more than three discriminations were made at a time, when these were found to be classifiable by two independent observers with a reliability of .80, using Cohen's Kappa (1960) and Kelly's Point by Point Reliability (1977), then finer discrimination were made within each category, until no further analysis was possible.

This method seemed in our study to distinguish the major properties of the investigators' statements. We found a major distinction between behavior observed by the investigators and the techniques they listed. The behaviors observed pertained to the ability of the person they are

investigating to answer questions accurately, recall details and give an unbiased account of the incident. The techniques which the investigator had to use pertained to setting the mood of the interview and then arranging probes about the incident in a way that would maximize recall. These correspond to the problems facing the investigator in reconstructing an incident and the methods by which he can cope with these. These discriminations can be directly related to probe operations in which behavior set (mood of the respondent) must be considered in deciding upon setting operations (method for determining the respondent's mood) which will determine how the probe operations (the specific questions, prompts, hints) will serve as the functional stimulus for the responding of the person concerning his recall of the incident being investigated.

APPENDIX D

INTERBEHAVIORAL TERMINOLOGY

I. Setting factors: (Kantor, 1946)

. . . There is the setting factor which consists of the immediate circumstance defining which particular sf-rf operate at the moment. For example, genuinely communicative actions containing the utterance "men" instead of "guy" depend upon the presence of certain persons and not others.

In our study these would be the presence of the investigator and the appearance and relationship he projects to the respondent.

II. Setting operations and events: (Verplanck, 1980) In order to define setting operations we must first define behavior sets.

A behavior set of any individual is a set of stimuli, reinforcers, and responses that covery in likelihood of occurring in the behavior in the individual through a period of time. That is to say, they are correlated. They include "notices" or "pays attention to," what he does about, to, or with them, and what he will work for, try to get, or try to do.

In terms of our study this is the "mood" or "emotion" of the respondent, determining the manner in which he will respond to the investigator. Setting operation and events therefore are:

Those which control the behavior sets of the individual Events or operations can be identified as setting ones if and only if there are observationally or experimentally demonstrable changes in the behavior sets the individual shows following or during the occurrence of the event.

In this study these are the many techniques and observations of investigators concerning the mood of the interview. These are

extremely varied and are related to the likelihood of behavioral changes, the climates.

III. Probe operations—(Verplanck, unpub. glossary) A procedure in which one can observe the degree to which behavior has been altered by an operation, "the most frequently occurring probe operation is stimulation, with subsequent measurement of the response given to the stimulus." In this study investigators probe for recall of a stimulus event, checking the responses against independent evidence using as stimulation for the response probe questions. These are questions which would not have been produced otherwise. "A question that produces response to some some other object or event as well as to itself, and that hence enables the identification of stimuli otherwise not identifiable as such." It follows from these definitions that behavior set at the time of an event (the mood when an event occurred) and behavior set at the time of the probe (the mood when probed) are both important. They will determine functional stimuli (what is initially noticed and responded to in the setting) and functional responses (what probes will achieve a desired response). In all as stated by Kanter (1942) a psychological event will be determined by functional stimuli, functional responses, historical factors, setting factors, and the medium of interbehavior (physical factors allowing an interaction). In this dissertation the setting factors in recall have been explored.

VITA

Alice Julia Rena Gordon was born in Ellenville, New York, on August 24, 1954. She received her BA degree from the University of Michigan in December 1975 with majors in Psychology and Anthropology. She entered the Graduate School at The University of Tennessee, Knoxville, in September 1976 in Experimental Psychology. She did her research primarily on observational approaches to human memory, and test evaluation.