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THE PSYCHOLOGICAL BASIS OF EVIDENCE PRACTICES: MEMORY

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The memory of individual witnesses, as it is reported in the courtroom, is the largest fact-substance of juridical decisions. It is frequently intended as the vehicle for the accurate reconstruction of the past events which form the subject matter of litigation. A presumption may generally be said to exist that the memory upon which a person bases his testimony is reliable. A random person, given accurate original perception, will, in the ordinary course of events, reflect a memory competent to serve most of the purposes for which it is demanded. However, courts called upon to give decisions based on the truth, and lawyers retained to advance partisan causes, are not expected to rely upon such a presumption categorically. Practices and rules of evidence were developed to assist them in detecting faulty recollection and to safeguard the accuracy of testimony by testing the reliability of memory.

I. PRESENT RULES AND PRACTICES IN RELATION TO MEMORY AND THEIR PSYCHOLOGICAL INFERENCES

Evidence rules and practices do not prescribe specific qualitative or quantitative indicia to qualify the present memory of a witness for testimonial purposes or to judge the reliability of memory once testimony is given. The implicit recognition that memory cannot be so finely graded or restricted to defined boundaries is reflected in the rule that any "impression" or "belief" may be admissible in the circumstances of the case, so long as there is inherent in the recollection process some basis of personal observation.¹

¹ See WIGMORE, EVIDENCE §§726-729 (3d ed. 1940). The witness' qualification of a positive statement by the assertion that it presents his "belief" or "impression" may be a matter of simple caution on his part, or it may reflect limitation in either his original observation or past recollection. If he is using expedient caution in his statements and his memory of an event purports to be positive and definite, this can be established through questioning on direct examination. The distinction between qualified observation and qualified

Present memory, of whatever extent and quality, is initially admissible, and is then subject to impressionistic tests or rule of thumb indices of its adequacy. Examination to challenge the adequacy of present memory may be directed to the processes of memory as they attach to the specific event in issue,² or it may be directed to demonstrated evidences of memory failure in related or unrelated events within the past or present experience of the witness.³ Courtroom examinations of memory facility in the abstract may also be permitted in a few jurisdictions.⁴

Examination of memory processes is most usually directed to collateral matters and not to the process by which memory takes place. The ade-

recollection is, as a practical matter, difficult to establish. However, as long as there is some basis for the testimony in observation and memory, it is admissible and the limitations, whether from observation or memory, will reflect on the probative value of the evidence. Cf. WIGMORE, SCIENCE OF JUDICIAL PROOF c. 22, §§235-54 (1937). See also MCCORMICK, HANDBOOK OF THE LAW OF EVIDENCE 20 and cases cited in notes 8 & 9 (1954).

² See WIGMORE, EVIDENCE §994 (3d Ed. 1940).

³ WIGMORE, *op. cit. supra* note 2 at §995, and cases cited in footnote thereto. The examination of past memory failures, based upon prior events that occurred out of court, is not allowed by many courts. Examination is limited to demonstrations of present memory failures.

⁴ Examinations of this sort have generally been attempted in relation to a witness' capacity to observe and to hear. See WIGMORE, *Id.* at §993 and n. 2. Upon analogy, a similar examination of memory would be permissible. The use of expert examinations and expert examiners to test memory facility has been suggested. See MCCORMICK, *op. cit. supra* note 1, pp. 97-98; WIGMORE, *id.* at §997, 998; HUTCHINS AND SLESINGER, *Some Observations on the Law of Evidence-Memory*, 41 HARV. L. REV. 860, 869-70 (1928). Cf. Note, *Psychiatric Aid in Evaluating Credibility of Rape Complainant*, 26 IND. L. J. 98 (1950) (cites arguments and cases upholding psychiatric examination of complaining witnesses in rape cases for the purpose of determining the witnesses' credibility). See also *United States v. Hiss*, 88 F. Supp. 559 (S.D. N.Y. 1950) and related Case Comment, 30 NEBR. L. REV. 513 (1951), (psychiatrist permitted to testify as to the credibility of a witness, based upon diagnosis derived from courtroom observation).

quacy of opportunity for the observation and the acquisition of knowledge, the skill of interpretation, and the completeness of observation and information, are the courtroom subject matter of the operation of memory in relation to a particular event.⁵ Similarly, examination of memory in the abstract is generally focused on observational skills. It is established inferentially that poor memory for an event exists if observation has been limited or inadequate, perceptual ability is lacking, or if logical interpolation is faulty.

Examination of the accuracy of the products of memory process in relation to the event in issue, represents the most direct assessment of memory function in relation to the experience that is the subject of testimony. However, examination of memory production is not limited to matters connected with the event at hand.⁶ A free-ranging examination of memory production in relation to any events in any context is permitted, subject to the discretion of the court.⁷ The underlying presumption is that "repeated instances of inability to recollect give the right to doubt the correctness of an alleged recollection of a material fact."⁸ An inarticulate preposition is that the judge or jury, in attributing the significance to be attached to any one or several memory failures, may and perhaps do consider the difficulty of the event or information to be remembered, the recency and frequency of its occurrence, its meaningfulness to the witness, the probable impact or importance of the event to him, his motivation or readiness to make observation and memory, etc.

In point of psychological theory, present courtroom practice tests a witness' memory for a specific event by his skills and opportunities of observation and by his logical interpolations. A general facility for memory is posited. It is presumed operative with equal distinction in all circumstances. Evidence of failure in any number of circumstances is evidence of failure in regard to any particular

⁵ See WIGMORE, *id.* at §994 and cases there cited in n. 1.

⁶ See note 3 *supra* and related text.

⁷ See WIGMORE, *id.* at §994 and McCORMICK, *op. cit. supra* note 1, pp. 54-56. In cross-examination to assess a witness' credibility, including his memory, the criteria of relevancy are vague. The examiner is given full opportunity for experimental probing and forays into the large areas of a witness' experience, a concession to the importance of establishing the credibility of a witness. The examination is subject to limitation and narrowing if the line of questioning is likely to cause undue prejudice to a party or witness, or is likely to be overly-extended and wasteful in point of time.

⁸ WIGMORE, *id.* at §995.

event. It is also presumed that this general memory facility may be tested in the abstract, through the largely exclusive use of examinations of simple observational skills. Impeachment of the witness for failure of memory under any of the aforementioned tests is a matter of impression. Standards of memory accuracy and reliability are implicit and non-specific, and are presumably reflected in the common sense experience and impressionistic judgments of judge and jury.

The legal and courtroom consideration of memory is not restricted to absolute and unaided present recollection to be reflected in offered testimony. A further psychological inference is made that adequate and useful memory of an event may not always be immediately available to a witness and ready for articulation. Some fragmentation and temporary forgetting is inferred. It is further believed that cues and fragments may facilitate more complete and articulate, but still reliable, recollection. On the basis of this set of psychological inferences, operative by reason of a distillation of common sense and impressionistic experiences, provision is universally made for the refreshing of present memory in court during the course of and as part of a witness' testimony.⁹

For the purpose of refreshing and improving a dormant memory a witness is generally permitted to use "any artificial aid which under the circumstances (and at the discretion of the trial court) is appropriate and does not seem improperly suggestive."¹⁰ In particular, writings may be and commonly are used. It is generally not required that the writing have been made by the witness himself,¹¹ and it need not have been freshly made

⁹ See WIGMORE, *id.* at §758-65 and McCORMICK, *id.* at pp. 14-18.

¹⁰ WIGMORE, CODE OF EVIDENCE 146-47 (3d ed. 1942). See also *Ward v. Morr Transfer Co.*, 119 Mo. App. 83, 95 S.W. 964 (1906), but see *State v. Patton*, 225 Mo. 245, 164 S.W. 233 (1914) (aid or memorandum must have been made by the witness, and at a time when the facts were fresh in his memory). Some jurisdictions follow the *Patton* case, establishing by memoranda some of the same requirements for "present memory refreshed" as for "past recollection recorded." See notes 15-18 *infra* and related text.

¹¹ WIGMORE, EVIDENCE §759 (3d ed. 1940). Wigmore points out that "any writing whatever is eligible for use (but) any writing whatever may, in the circumstances, become improper." *Id.* at §758. Various artificial aids, offered as memoranda to stimulate present recollection, may in fact represent deliberate suggestion and coaching by the examiner. The distinction between legitimate and illegitimate uses of aids is difficult to draw. The requirement of a memorandum contemporaneous with the event to be recalled is a safeguard, but limitation to this type of memorandum may un-

after the time of the event.¹² It is generally the rule that the writing does not become part of the witness' testimony and is not in itself evidence.¹³ Implicit in the permissiveness of the procedures used in refreshing memory is the assumption that the memory for a particular event is the product of an association or chain of associations. The association may be readily induced by the presentation of a stimulus known or thought to be sufficiently related to an event so as to invoke a more complete memory of it. The stimulus, in itself, may not be familiar or complete enough to establish *pro tanto* its relevance to the memory response. This latter most courts assume as a general condition¹⁴ without investigating the psychological processes involved in the particular instance of stimulated recollection. The accuracy and completeness of the reinforced memory is checked without reference to the facts or inferences of the reinforcement processes. The tests are, instead, those utilized in connection with unreinforced memory, heretofore described.

A person's past memory, duly recorded, is also

admissible in evidence.¹⁵ Though such a record admitted in evidence is hearsay, it is excepted to the general rule excluding hearsay when it is protected by certain safeguards. The memorandum recorded must have been made when the matter was fairly fresh in recollection, the time depending upon the circumstances of each case.¹⁶ The witness must vouch his belief that the memorandum was a correct statement of his recollection at the time.¹⁷ He need not have written the memorandum himself but he must have been the observer¹⁸ of the matter described in the writing. The particular reliability which appears to except past recollection recorded from the common vulnerabilities of hearsay is the time element. It is presumed that there is an inverse relationship between the recollection of an event and the time of its occurrence. "Recollection is believed to grow progressively dimmer as time goes on, finally fading out altogether."¹⁹ The allowable discretion as to the extent of time beyond an event within which a record is to be made, permits the inference that there may be in-

duly restrict the possibilities and advantages of refreshing memory. See note 92 *infra* and related text. Furthermore, contemporaneity may raise stronger doubts that the witness is refreshing his present memory rather than relying upon a record of past memory with no present recollection of the past events. Cf. notes 15-18 *infra*.

Courts, in their discretion, may decline to permit the use of the aid to memory as part of their discretion in controlling the manner of examination. *State v. Lonardo*, 67 F. 2d 883 (2nd CCA 1933); *State v. Bradley*, 361 Mo. 267, 234 S.W. 2d 536 (1950).

¹² WIGMORE, *id.* at §761, and see notes 10 and 11 *supra*.

¹³ McCORMICK, *op. cit. supra* note 1 at p. 18 and WIGMORE, *Id.* at §763. Opposing party may, however, examine it, use it as a basis for cross-examination and show it to a jury. McCORMICK, *id.* at 17 and WIGMORE, *ibid.* See *Morris v. United States*, 149 Fed. 123 (5th CCA 1907) (reversible error for district attorney to show memoranda to witnesses to refresh memory without first submitting them to defendant's attorney, upon his demand for inspection); *State v. Patton*, 225 Mo. 245, 164 S.W. 223 (1914) (adverse party is entitled to see the data used to refresh a witness' memory for the purposes of cross-examination); *State v. Gadwood*, 342 Mo. 466, 116 S.W. 2d 42 (1937) (right of inspection of memoranda used to refresh memory is conventionally granted but the better rule is that it is a matter of court discretion; no reversal for failure to grant inspection in instance of harmless error).

¹⁴ "It is quite immaterial by what means the memory is quickened; it may be a song, or a face, or a newspaper item, or a writing of some character. It is sufficient that by some mental operation, however mysterious, the memory is stimulated to recall the event, for when so set in motion it functions quite independently of the actuating cause." *Jewitt v. United States*, 15 F. 2d 955, 956 (9th CCA 1926) (dictum).

¹⁵ See WIGMORE, *id.* at §734-36 and McCORMICK, *id.* at 590-95; see also Note, *Past Recollection Recorded*, 28 I.A. L. REV. 530 (1943).

A few jurisdictions require that the witness must be shown to have no adequate present memory of an event before recorded past recollections may be admitted in evidence. See *Jackson v. Pioneer Adhesive Works*, 132 N.J.L. 397, 40 A. 2d 634 (S. Ct. 1945) (memorandum produced by plaintiff, citing the number of hours he worked, excluded because he had present memory of the facts). See also *Bendell v. Bendell*, 315 Mass. 59, 52 N.E. 2d 2 (witness testified on the basis of present recollection; prior memorandum of recollection was admitted in evidence but held to be, in this particular instance, harmless error.) See WIGMORE, *id.* at §738.

¹⁶ *Chamberlin v. Ossipee*, 60 N.H. 212, 213 (1880) (doctor's memorandum three days after examination was "made at a time when the facts . . . were fresh in the mind of the witness"). An older and stricter formula requires that the memorandum must have been made at or near the time of the event, with little discretion as to the time element. This view, held by some courts, is exemplified in *Maxwell's Execs. v. Wilkinson*, 113 U.S. 656, 658 (1885) ("at or shortly after the time of the transaction, and while it must have been fresh in his memory"). Cf. WIGMORE, *id.* at §745.

¹⁷ *Brown v. Provident Loan Soc.*, 282 N.Y. 453, 26 N.E. 2d 965 (1940); *Hancock v. Kelly*, 81 Ala. 378, 2 So. 281 (1887). In the latter case, the voucher of accuracy was based upon the witness' reliance upon habit. He asserted that the memorandum was made in the usual course of business, as a true and reliable record of the event. See WIGMORE, *id.* at §747.

¹⁸ *Mercantile Trust & Deposit Co. v. Rode*, 137 Md. 362, 112 Atl. 574 (1921); and see WIGMORE, *id.* at §748.

¹⁹ HUTCHINS AND SLESINGER, *Some Observations on the Law of Evidence-Memory*, 41 HARV. L. REV. 860, 862 (1928).

dividual variation in recollection. Certain individuals may have better memory facility than others, or certain events may generally be more easily remembered than others. The admission of recorded past memory is both looser and more liberal than the rules and practices concerning present memory. The heavier weight of credibility that attaches to a legal presumption gives more than common value to past statements recording the recollection of an event. Presumably, the judge or jury need not even consider the meaningfulness of the event to the witness, its probable impact or importance to him, his motivation or readiness to make observations and commit to memory, etc. The element of recency, between occurrence and recording, is by itself inferentially considered a sufficient safeguard of the reliability of the recollection, enough to establish a legal presumption to this effect. The liberality of the rules governing past recollection recorded is reflected in the inference that there may be individual differences in the adequacy of early recollection of any particular event.

The element that distinguishes use of a memorandum as past recollection recorded with a failure of present memory sometimes prerequisite to admission for that purpose,²⁰ and its use as an aid in the refreshing of present memory, is tenuous and uncertain, and is left to the judgment of the court. Discretion is entirely the subject of impression and there appear to be no systematic or workable inferences and guides.²¹

In general, however, a substantial psychological scope attaches to the evidence rules and practices governing the present and past memory of witnesses. The psychology is mostly a reflection of the impressionistic experiences and plausible native sense of thinkers and designers of evidence rules. Hutchins and Slesinger²² suggested an improvement in the intellectual approach to evidence procedures, and offered the thought, methods and data that

²⁰ See note 15 *supra*.

²¹ In fact, it is generally the witness who determines, by his statement, whether he is using refreshed memory or a record of past memory. But his statements are not conclusive. The court may decide, in the instance of a present memory refreshed, that memory is not in fact revived and the witness is relying upon a past record. See *Weigel v. Powers Elevator Co.*, 49 N.D. 867, 194 N.W. 113 (1923) (witness testified on basis of memory refreshed by records; court held memory was not refreshed and witness was testifying on the basis of records used without proper foundation). Cf. note 11, *supra*.

²² HUTCHINS AND SLESINGER, *op. cit. supra* note 19.

were a part of measurement psychology and behaviorism up to the time of their writing in 1928. Their approach was foredoomed because of their failure to consider the value and place of their data on memory in the light of contributions of the other psychologies then existent, and in the light of the generally limited conceptual development of all of the experimental psychologies at the time. The claims for the experimental method and scientific measurement were exaggerated and specific findings were given overgeneralized meaning. Gardner,²³ in 1940, provided a discursive treatment for problems in evidence law relating to the perception and memory of witnesses. He worked through a maze of data and the lack of an integrative framework in much of the experimentation on memory, relating collections of experimental findings and authoritative statements to a variety of propositions in evidence law. Gardner's instructive contribution is limited to expressing the wisdom of caution in dealing with evidence rules and practices.

In the main, a conceptual development of memory has not been achieved in legal discourse. While this partly reflects a disinclination in the law to readily adopt new and unfamiliar definitions and constructions, it may also have reflected the lack of sufficient intellectual stimulus and scientific credibility in the data of experimental psychology. But with the evolution and solidification of theoretical frameworks in psychology, incorporating wide ranges and more numerous dimensions of human experience, the meanings as well as the isolated facts of memory can be better hypostatized today. Memory has been the subject of an extensive accumulation of psychological thought and knowledge over the past several decades.

II. CURRENT SYSTEMATIC THOUGHT AND KNOWLEDGE ABOUT MEMORY

Memory, from a pragmatic perspective, is today best understood as a combination of good theory and good operative judgment. It is a complex of processes that cannot in its entirety be conformed to experimental design. The results of experimentation are therefore lacking in ultimate definition and do not permit complete generalizations, though they do permit of reasonably sound inferences explainable in terms of theory. Some few dimensions are sufficiently restricted and characteristic

²³ GARDNER, *The Perception and Memory of Witnesses*, 18 CORN. L. Q. 391 (1933).

of certain individuals so as to permit some more than the usual level of reliability in general and normative conclusions.

PREVAILING CONCEPTS OF MEMORY

Memory is today a constituent in three distinguishable processes around which theory and industry in psychology have evolved. It is an associate of the learning process, of the perceptual processes, and of the emotional processes.²⁴

Learning theorists have emphasized that memory is a product of a stimulus-response function.²⁵ Certain measurable properties of the original experiencing of an event provide the preconditions for memory. Phrased differently, they provide the stimulus value that will determine the extent of retention and recall. The memory response is a function of these stimuli. The memory for a prior event is also a function of the learning that takes place in connection with the subsequent experiences of the individual and of the impact of these later learnings and memories on the earlier memory. In general, later distortions of original observations and learning, and failures of memory, are attributable to this latter process. Learning theorists refer to it as retroactive inhibition.²⁶

A vast amount of experimentation in the perspectives of learning theory has established that vivid impressions are better retained than "run of the mine" impressions.²⁷ Meaningful material is better

²⁴ The conceptions and experimental data of memory are extensively covered in interpretive treatises by WOODWORTH AND SCHLOSBERG, *EXPERIMENTAL PSYCHOLOGY* (Rev. ed. 1954), especially c. 23 and 24; MILLER, *UNCONSCIOUSNESS* (1942), especially c. 9; and RAPAPORT, *EMOTIONS AND MEMORY* (1942). Woodworth and Schlosberg use the language and perspectives of learning theory and experimental psychology. Both Miller and Rapaport reflect the predominant influence of psychoanalytic thinking in their work.

²⁵ For an effective exposition of learning theory, and one that comprehensively explores the experiments in learning relating to memory, see MCGEOCH, *THE PSYCHOLOGY OF HUMAN LEARNING* (Irion. ed. 1952). A concise presentation of various facets of memory conceptualized in terms of learning theory is presented by HOVLAND, *Human Learning and Retention*, in STEVENS, *HANDBOOK OF EXPERIMENTAL PSYCHOLOGY* 613 (1951).

²⁶ MCGEOCH, *op. cit.* supra note 25 at pp. 404, 432; see also WOODWORTH AND SCHLOSBERG, *EXPERIMENTAL PSYCHOLOGY* 761-767 (Rev. ed. 1954). WOODWORTH AND SCHLOSBERG provide a cursory review of the theories and data of retroactive inhibition.

²⁷ CALKINS, *Association*, 1 *PSY. REV.* 476 (1894); CALKINS, *Association: An Essay Analytic and Experimental*, 2 *PSY. MONOGR.* (1896); JERSILD, *Primacy, Recency, Frequency, Vividness*, 12 *J. EXP. PSY.* 58 (1929); VAN BUSKIRK, *An Experimental Study of Vividness in Learning and Retention*, 15 *J. EXP. PSY.*

retained than nonsense material.²⁸ The forgetting of learned material is rapid at first and becomes more and more gradual as time advances.²⁹ As between two or more experiences competing for the threshold of effective recall, assuming other things to be equal, the first, the most recent, most frequently repeated or most intense stimuli of a series will be longer remembered than the others.³⁰ An early theory of retroactive inhibition asserts that comparative relaxation after the observation of learning of an event will conduce to better recall. Turbulence and strenuous mental activity are likely to reduce the extent of recall.³¹ The proposal is a "soaking in" theory. Rest "soaks in" the memory. More generally prevailing, however, is the "interference" theory of retroactive inhibition.³² "For-

563 (1932). In a typical experiment (Jersild), subjects are orally presented statements of facts concerning fictitious entities. The vividness of particular statements is inferred from the manner of their presentation. Selected statements are given with gestures of emphasis, with considerable pause before or after the statements, with increased loudness, etc. The relative effects of vividness and non-vividness are measured by the degree of recall for each kind of presentation.

²⁸ BOREAS, *Experimental Studies of Memory 2. The role of forgetting*, 5 *PRAKTIKA ACAD. ATHENES* 382 (1930); cf. LEAVITT AND SCHLOSBERG, *The Retention of Verbal and of Motor Skills*, 34 *J. EXP. PSY.* 404 (1944). Boreas found that poems were better recalled than nonsense syllables. Leavitt and Schlosberg found that there was better retention for a motor task than for nonsense syllables. They offered as one explanation the possibility that learning the motor task involved more organization of the material than learning nonsense syllables.

²⁹ This "curve of forgetting" is the product of the frequently cited pioneer work of Ebbinghaus on memory. EBBINGHAUS, *Über das Gedächtnis* (1885) (Trans. as *MEMORY: A CONTRIBUTION TO EXPERIMENTAL PSYCHOLOGY*, by RUGER AND BESSENIUS (1913). The author, intensively utilizing himself as the subject, learned lists of nonsense syllables, lay them aside for a certain interval, relearned them, and then noted the savings in time or number of readings due to the partial retention of the effects of the first learning. Ebbinghaus' findings have since been confirmed by a number of experimenters. Cf. STRONG, *The Effect of Time-Interval Upon Recognition Memory*, 20 *PSY. REV.* 339 (1913).

³⁰ JERSILD, *Primacy, Recency, Frequency, Vividness*, 12 *J. EXP. PSY.* 58 (1929); HOLLINGWORTH, *PSYCHOLOGY; ITS FACTS AND PRINCIPLES* 243-246 (1928).

³¹ MULLER AND PILZECKER, *Experimentelle Beiträge zur Lehre vom Gedächtnis*, 1 *ZEITSCHRIFT PSYCHOLOGIE ERGÄNZUNGSBAND* (1900). The experimenters had their subjects learn a list of nonsense syllables and determined the degree of recall after a short interval of time. The interval was spent either in apparent rest or in strenuous mental activity.

³² See JENKINS AND DALLENBACH, *Oblivescence During Sleep and Waking*, 35 *AM. J. PSY.* 605 (1924). The subjects of this study also learned nonsense syllables and were asked for recall at later specified periods

getting is not so much a matter of the decay of old impressions and association as it is a matter of the interference, inhibition or obliteration of the old by the new."³³

Learning theorists have tended to conceptualize memory in terms of the subsequent behavioral products of an experience. Memory is a derivative of varying degrees of integration in earlier learning. External characteristics of an event were more the focus for the interpretation of recall and memory than were the internal interpolations and the processes of consciousness applied to the event. It is only in the later theorizing, in the conception of retroactive inhibition, with the "interference" theory underlying it, that there begins to evolve a concept of memory as an active process in the individual that is in fact modifying previous experience and not merely registering it for later recall or simply forgetting it.

The gestalt psychologists offer a variation in the theoretical formulation of memory based upon their theories of perception, with the underlying postulation of subconscious modifications of perceived experiences.³⁴ Koffka, on the basis of experiments in the gestalt orientation, wrote of something describable as a continuous subconscious activity of a memory trace, with the whole continually exerting its unifying pressure on the parts, and the parts conforming better and better to the general form of the whole.³⁵ The essential rationality of perceptions and experience in the human mind is emphasized. Any vagueness resolves itself in the subconscious tendency to make uncertainties conform to a general pattern of understanding. Congruity and consistent meaning in the stream of experience, and conformity with normal expectancies, are highlighted as the forces that condition the

quality of memory. Bartlett³⁶ offered in effect a variant of gestalt theory in his famous studies of remembering. He concluded that a person, in the attempted recall and reproduction of a story, produces a new story in which only some of the general characteristics and specific details of the original will be retained. The remainder consists of a reservoir of the person's past experiences and thoughts substituting for uncertain elements so as to retain story consistency and meaning. The well-noted Zeigarnik experiment³⁷ demonstrates another facet of gestalt theory as it applies to memory. Zeigarnik produced the experimental effect of a better recollection of interrupted tasks than of tasks which were carried through to completion, establishing the individual's need to perceive definition and finality in experience.³⁸

The gestalt theories of memory focused on the tendency of the person to seek order and generality through his original perception and later recall. Later students of the perceptual processes began to consider that there were other moving forces in the processes of memory, particularly motivation.³⁹ The perceptual theory of memory was moving in the general direction of a further emphasis upon the

³⁶ BARTLETT, REMEMBERING, AN EXPERIMENTAL AND SOCIAL STUDY, (1932); see also KUELMANN, *On The Analysis of the Memory Consciousness*, 13 PSY. REV. 316 (1906).

³⁷ ZEIGARNIK, *Über das Behalten von erledigten und unerledigten Handlungen*, 9 PSY. FORSCH. 1 (1927). In this experiment subjects were given a number of varied tasks to complete. Half of these were interrupted without opportunity for resumption, and half were carried through to completion. Subjects were then asked to recall as many of the tasks as possible. Their recall for interrupted tasks was significantly better.

³⁸ However, the effects of time and motivation vitiate the Zeigarnik result. She herself determined that with the lapse of time and intervening occurrences the effect was lost. Frustration of motivation and the need for achievement will also tend to modify and even reverse the Zeigarnik results. See LEWIS AND FRANKLIN, *An Experimental Study of the Role of the Ego in Work, II. The Significance of Task Orientation In Work*, 34 J. EXP. PSY. 195 (1944), and ATKINSON, *The Achievement Motive and Recall of Interrupted and Completed Tasks*, 46 J. EXP. PSY. 381 (1953).

³⁹ See, e.g., ALLPORT AND POSTMAN, *THE PSYCHOLOGY OF RUMOR* (1947). This study was patterned after many that assess the memory of single individuals. Here, one subject's observation was communicated by him to another person, who in turn communicated it to another, etc. The last subject's communication was then compared to the original stimulus that was the material of the initial observation and communication. The findings stress the fact that changes tended to reflect the particular needs and fears of each storyteller. Embellishment and modification took the form of exaggeration, elaboration, condensation and "conventionalization."

of time. They spent the interval in either a sleeping or a waking state. See also VAN ORMER, *Retention After Intervals of Sleep and of Waking*, 21 ARCH. OF PSY. #137 (1932). See MCGEOCH, *THE PSYCHOLOGY OF HUMAN LEARNING*, 432-447 (Irion rev. 1952) for an analysis of various theories of retroactive inhibition.

³³ JENKINS AND DALLENBACH, *id.* at 612.

³⁴ KOFFKA, *PRINCIPLES OF GESTALT PSYCHOLOGY*, c. 10 & 11 (1935); KOEHLER, *GESTALT PSYCHOLOGY*, c. 4, 8 & 9 (1947). The principal formulations of memory by gestalt psychologists are briefly presented by KATZ, *GESTALT PSYCHOLOGY* c. 20 (1950).

³⁵ KOFFKA, *ibid.*, particularly pp. 493-506. Cf. HENDERSON, *Memory For Connected Trains of Thought*, 23 PSY. MONOGR. (1903). In his experiment, providing for the recall of a story, Henderson found that there was omission on recall of superfluous and incongruous details and modifications of details so as to conform to the general plot and meaning of the story.

processes of consciousness. The external, behavioral and descriptive phenomena of memory increasingly represented the by-products of theory and research and received little or no attention.

The psychoanalytic approach to memory emphasizes the intensity and quality of the emotional factor in experience. Freud noted instances of forgetting, of names, words, places, etc.⁴⁰ Through meticulous association and analysis he established that the forgetting was a phenomenon of motivation and a function of certain effective attributes and emotional experiences associated with the "forgotten" elements. Rapaport⁴¹ elaborated the Freudian theory of memory in contradistinction to the learning theory and gestalt viewpoints. He asserted, "Ideas are apperceived in terms of the emotions, affects, strivings, wishes, attitudes of the individual; they become preserved or distorted—that is, organized—according to these; they are delivered into consciousness—that is, reproduced—when the affects or attitudes which were responsible for their apperception are brought again into play by a situation. For such a view, memories of words, images, bodily movements are but representatives of emotions, or affects, or attitudes."⁴² The tendency to condense and distort events when they are reproduced is an important Freudian construction.⁴³

Laboratory experimentation with Freudian theory has been difficult. The processes of consciousness are subtle and expansive, and not easily reduced to experiment. However, existing experimental results tend generally to reflect favorably on psychoanalytic concepts of memory. Events associated with a sense of shame and guilt are forgotten,⁴⁴ though the explanation for this particular

⁴⁰ FREUD, *PSYCHOPATHOLOGY OF EVERYDAY LIFE passim* (Brill trans., 2d ed. 1948). Cf. FREUD, *THE INTERPRETATION OF DREAMS* (Brill trans., 3d ed. 1927).

⁴¹ RAPAPORT, *EMOTIONS AND MEMORY* (1942).

⁴² RAPAPORT, *DIAGNOSTIC PSYCHOLOGICAL TESTING*, V. II, p. 17 (1946). The statement is based on his earlier analysis of the relationship of emotion and memory. See note 41, *supra*.

⁴³ See FREUD, *PSYCHOPATHOLOGY OF EVERYDAY LIFE*, 174-75 (Brill trans. 2d ed. 1948). Condensation, distortion and displacement are important mechanisms relating to unconscious processes and significantly affect behavior products. They are treated at some length in one of Freud's most important works, *THE INTERPRETATION OF DREAMS* (Brill trans. 3d ed. 1927).

⁴⁴ ZELLER, *An Experimental Analogue of Repression. II. The Effect of Individual Failure and Success in Memory Measured by Relearning*, 40 J. EXP. PSY. 411 (1950). In this experiment, the subject is given two tasks at a given time and place. He completes one successfully and is shamed for failure in the other. His recall of the successful task is then measured. This is

result may as well be posited in terms of poor initial learning or perception. Most studies tend to show that there is greater recall for pleasant than for unpleasant experiences.⁴⁵ The "Zeigarnik effect"⁴⁶ in interrupted tasks has been vitiated where a lack of motivation for the task has been demonstrated.⁴⁷ It has also been demonstrated that the effectiveness of recall is directly related to the strength of the affect attached to the experience.⁴⁸

Schilder, generalizing as to the impact of the emotions on memory, states that "Forgetting proves to be an attitude with a goal and an aim."⁴⁹ The psychoanalytic view of memory is today a very forceful view that accounts fully for the concept of consciousness and, in the same stroke, can explicate learning and perception. Its enduring contribution to a succinct concept of memory is a disposition to an analytic frame of reference, and recognition that memory is a dynamic process structured by pressing thoughts and feelings.

INDIVIDUAL VARIATIONS AND THE MEMORY PROCESS

Conceptualization has increasingly leaned toward an elaboration of the basic thesis that memory is most of all a product of intra-organismic interpretation. Individual preferences and individual differences are the major sources of dis-

followed by a successful completion of the failed task, and then another evaluation of the recall of the first task. Invariably the recall after the "removal" of the shame associated with one of the tasks is superior. The result, while it can be used to validate the psychoanalytic hypothesis, can also be explained in terms of poor initial learning of the first task, with relatively less recall the first time a function of poor learning, not repression. For a variant in the technique and essentially the same result, see SEARS, *Initiation of the Repression Sequence by Experienced Failure*, 20 J. EXP. PSY. 570 (1937).

⁴⁵ MELTZER, *Individual Differences in Forgetting Pleasant and Unpleasant Experiences*, 21 J. EDUC. PSY. 399 (1930); JERSILD, *Memory for the Pleasant as Compared With the Unpleasant*, 14 J. EXP. PSY. 284 (1931); STAGNER, *The Redintegration of Pleasant and Unpleasant Experiences*, 43 AM. J. PSY. 463 (1931). See also the analysis of experimental results and discussion by SEARS, *Experimental Analysis of Psychoanalytic Phenomena*, pp. 321-24, in HUNT, ed., *PERSONALITY AND THE BEHAVIOR DISORDERS*, V.1 (1944), and by MILLER, *UNCONSCIOUSNESS* 252-55 (1942).

⁴⁶ See note 37 and related text.

⁴⁷ See note 38.

⁴⁸ WATERS AND LEEPER, *The Relation of Affective Tone to the Retention of Experiences of Daily Life*, 18 J. EXP. PSY. 203 (1936). In this experiment, students who represented experiences over a particular period as making a strong impression upon them, remembered these experiences longer.

⁴⁹ SCHILDER, *MIND, PERCEPTION AND THOUGHT*, 384 (1942).

coloration in the true memory of past events. The clinical experiences and the experimentation of psychology and psychiatry offer a number of reliable indices of memory behavior associated with individual variations. The personal factors of age, intelligence, brain injury and emotional disturbance are the best documented and most reliable discriminants.

The extremities of youth and age are characterized by the failure or undependability of certain aspects of memory. The advancing degeneration associated with old age contributes to a gradually extending amnesia, with memory failures most likely to be manifest in persons over sixty-five years of age.⁵⁰ The failure tends to be most prominent in connection with the recall of recent events. While the impairment is initially "spotty", resulting in the failure to recall some events or some aspects of a recent event, it becomes increasingly diffuse with the advancement of age and deterioration. The memory failure "reaches further and further back, and gaps are filled in by fabrications. Patches of amnesia increase until there is a complete and continuous loss of memory extending into childhood."⁵¹ Ultimately, only fragments of personal memories may remain.

The unreliabilities of the memory and report of children are most generally associated with the incomplete development of their capacities.⁵² Perceptual discriminations may not be refined, spans of concentration and attention are more limited, and language facilities are not sufficiently well-developed for precise reporting. The capacities for remembering events experienced are most limited in younger children, increase gradually up to mental maturity (in the teens) and remain stable until senile changes set in.⁵³ A number of experiments have been conducted to measure the accuracy with which children describe a situation or relate the details of an event previously experienced.⁵⁴ The results in the three to seven year age

⁵⁰ See HENDERSON AND GILLESPIE, *TEXTBOOK OF PSYCHIATRY* 509-10 (7th ed. 1950). Cf. NOYES, *MODERN CLINICAL PSYCHIATRY* 125-28 (4th ed. 1953).

⁵¹ HENDERSON AND GILLESPIE, *id.* at 510.

⁵² Investigations of memory in children are reviewed by MUNN, *PSYCHOLOGICAL DEVELOPMENT* c. 11 (1938). Munn also presents a slightly more recent review of the experimental literature in his chapter *Learning in Children*, pp. 401-423, in CARMICHAEL, ed., *MANUAL OF CHILD PSYCHOLOGY* (1946).

⁵³ See CURTI, *CHILD PSYCHOLOGY* 155-57 (2d ed. 1939).

⁵⁴ Some of the earliest and classical work in this area was done by Stern in relation to the problem of the validity of testimony. STERN, *ZUR PSYCHOLOGIE DER*

range indicate that there is rapid improvement in accuracy in the earlier years, with a more gradual improvement thereafter.⁵⁵ The differences in rate of improvement between the age levels of nine and fourteen are small.⁵⁶

Memory is not only influenced by intelligence but is, in fact, a component in most conceptions and measures of intelligence. "An adequate assessment of the . . . efficiency of intelligence is not possible without a test of [the] efficiency of memory."⁵⁷ The greater the intellectual endowments of an individual, other things being equal, the more likely will his memory function efficiently.⁵⁸ Characteristics of memory functioning have been graded, both within intelligence measures and in independent measures of memory. These tests provide a scale of judgments as to the effectiveness of an individual's memory relative to others of comparable age and relative to other facilities in his intellectual make-up.⁵⁹ The high correlation of memory functioning with general intellectual functioning points to estimations of intelligence as a relatively useful criterion of the reliability of memory, where other more explicit evaluations are unavailable.⁶⁰

AUSSAGE (1902). The *aussage* tests which he developed required individuals to give reports from memory of experimentally contrived incidents which they observed. An alternative procedure required the subjects to report memories of pictures which they were given to view. The results achieved were not reflections of memory alone. They simultaneously reflected, in addition to memory, the accuracy of original perception, vocabulary and facility with language, and proneness to fantasy. A brief description of Stern's technique and results is presented in ALLPORT AND POSTMAN, *THE PSYCHOLOGY OF RUMOR* 50-53 (1947).

⁵⁵ WINCH, *CHILDREN'S PERCEPTIONS* (1914).

⁵⁶ MCGEOCH, *The Influence of Sex and Age Upon the Ability to Report*, 40 *AM. J. PSY.* 458 (1928).

⁵⁷ RAPAPORT, *DIAGNOSTIC PSYCHOLOGICAL TESTING* V.1, p. 319 (1945). Cf. THURSTONE, *PRIMARY MENTAL ABILITIES* (1938), WECHSLER, *THE MEASUREMENT OF ADULT INTELLIGENCE* 85-87 (1939). Thurstone isolated seven factors in intelligence, one of which constituted memory. Wechsler incorporates a subtest involving an individual's ability to recall increasingly difficult spans of digits in his widely used adult intelligence scales. A test of digit span is a traditional feature of individually administered intelligence tests.

⁵⁸ RAPAPORT, *id.* at 325.

⁵⁹ Cf. note 57 *supra*; also, WECHSLER, *A Standardized Memory Scale for Clinical Use*, 19 *J. PSYCHOL.* 87 (1945).

⁶⁰ Note, however, that the inference of the quality of memory from the quality of intelligence cannot be made categorically. To take an extreme and dramatic example, certain mentally defective individuals have some exaggerated memory facilities. These persons, referred to as *idiots savants*, may have a superior skill or ability in recalling a list of numbers, or in recalling

Cerebral injury and the impairment of cerebral functioning notably interfere with the working of intelligence and the processes of memory.⁶¹ The processes of senescence offer one manifestation of the effects of impaired cerebral function on memory behavior. In cases of traumatic brain injury, as in the instance of an accident concerning which an individual is asked to report, there may be localized amnesia which persists for events immediately before and immediately after the accident.⁶² Structural or toxic changes in the brain may be induced by accidental events resulting in head injury or cerebral damage,⁶³ or as a consequence of medical and surgical intervention in cerebral functioning.⁶⁴ Varying degrees of memory debility may result, depending on the nature and extent of injury or intervention. The more temporary the character of the injury, the more likely will the brain regain its normal capacities and memory be recovered.⁶⁵

Psychological imbalances may be associated

a specific kind of dates, events or other information. See TREGOLD, A TEXTBOOK OF MENTAL DEFICIENCY c. 15 (8th ed. 1952).

⁶¹ LANDES AND BOLLES, TEXTBOOK OF ABNORMAL PSYCHOLOGY 482-86 (Rev. ed. 1950). Cf. HENDERSON AND GILLESPIE, A TEXTBOOK OF PSYCHIATRY c. 14 (7th ed. 1950), and HALSTEAD, BRAIN AND INTELLIGENCE (1947).

⁶² RUDOLF, *Brief Retrograde Amnesia*, 93 J. MENT. SCI. 342 (1947); see also NOYES, MODERN CLINICAL PSYCHIATRY c. 11 (4th ed. 1953). Rudolph analyzed the nature and extent of the memory difficulties of 117 cases of amnesia relating to injuries and other traumatic experiences. In many of his cases, however, memory defect was held to be mostly a function of repression due to fear rather than brain injury. The distinction between psychogenetic and organically caused memory debility may be difficult to establish. Memory was generally recoverable.

⁶³ See NOYES, *ibid.*

⁶⁴ See ZUBIN, *Memory Functioning in Patients Treated With Electric Shock Therapy*, 17 J. PERSON. 33 (1948); but see COLUMBIA-GREYSTONE ASSOCIATES, SELECTIVE PARTIAL ABLATION OF THE FRONTAL CORTEX c. 23 (1949). Zubin discovered that there are wide individual variations in memory disturbances following the administration of electroconvulsive therapy to mental patients. In general, information acquired a short time before the administration of a shock treatment was forgotten and was difficult to recover without virtually complete relearning. Older information tended to survive better in memory. His findings indicate that memory tends to become disorganized for varying periods after shock, but memory is generally not destroyed.

The extensive tests of patients following leucotomy (removal of part of the frontal lobes of the brain, presumably affecting mental functioning) failed to show evidence of memory disturbance in the Columbia-Greystone Project.

⁶⁵ See RUDOLF, *op. cit. supra* at note 62.

with organic debilities in the production of memory disturbances. Deterioration due to chronic alcoholism may involve both psychological and organic disorders.⁶⁶ Impairment of memory is a symptom, and may be associated with an inability to think clearly, a loss of intellectual grasp generally, and the dominance of emotions reflected in outbursts and mood changes. Cerebral arteriosclerosis accompanied by psychosis may produce memory failure.⁶⁷ The inability to recall names is especially common. The failure tends to be capricious, the same name being recalled at one time and forgotten another. With increasing disturbance the memory defect becomes more general and gradually extends from recent to remote events. At times, gaps in memory may be supplied with fabrications.

Emotionally distressed individuals are notably susceptible to functional memory disorders. In large part this may be a function of faulty perception. With increasing disturbances of consciousness the objectivity of perception and responsive thought processes is impaired. Distortions in impression take place as a response to internal needs and preferences.⁶⁸ A further restructuring and re-interpretation of events takes place within the mind, with emotional states strongly coloring the conceptual formation and ultimate memory of the original perception. The nature of the memory disturbance varies with the type of emotional disturbance. The extent of the impairment is usually a function of the degree of psychopathology.

Falsification or distortion of memory is particularly pronounced where an individual reflects an acute sense of insecurity and an immature outlook on life. Fabrications reflect an attempt to achieve status and recognition, and dispel any doubts as to one's efficiency. An exaggerated instance of this underlying process is revealed in the

⁶⁶ See OVERHOLSER AND RICHMOND, HANDBOOK OF PSYCHIATRY 90 (1947). Korsakoff's psychosis is a particular form of alcoholic psychosis in which an important distinguishing characteristic is the fact of poor retention for recent events accompanied by a tendency to fabricate where gaps in memory exist. The disease is associated with persons past fifty and memory may not be recovered. It is frequently used as an example to demonstrate memory failure in mental illness. See HENDERSON AND GILLESPIE, TEXTBOOK OF PSYCHIATRY 444-45 (7th ed. 1950).

⁶⁷ See HENDERSON AND GILLESPIE, *id.* at 519-20.

⁶⁸ See HUNT, *Psychological Experiments With Disordered Persons*, 33 PSY. BULL. 1 (1936). Hunt summarized a number of experimental studies of memory defect. His findings indicate that the emotionally disturbed person manifests his disturbance in perception and thought, thus predisposing toward what would appear to be a faulty memory.

"pathological liar."⁶⁹ Generally complacent and giving an air of confidence, the pathological liar is gay and full of information, much of which may be superficial and unreliable. He liberally intertwines true and false details in drawing upon his memory. Though apparently sincere in his belief as to the veracity of his statements, he may have an underlying realization that he is fabricating. In his adulthood proclivities for liberalizing the truth, he is continuing in exaggerated form a tendency that may be part of a developmental process in childhood.

Falsification may also accompany certain instances of an exaggerated memory facility. Overly sensitive individuals, inclined toward inordinate fear and suspicion, are most likely to have a vivid recollection of various aspects of those events about which they reflect greatest sensitivity and concern. In an extreme form, those individuals who are markedly paranoid and are denoted as paranoid reaction types⁷⁰ are likely to have an abnormally pronounced memory of events related to their delusional preoccupations with persecution and grandeur. Fabrication of missing or distressing elements in conformity with the orientation of the delusion may be anticipated. Markedly erratic, occupied and overactive individuals, who in their extreme suffer from mania and hypomania,⁷¹ are also likely to have an exceedingly alert recollection of events. This is embroidered by a flight of associations and ideas that may markedly distort the memory.

Memory defects are increasingly pronounced with increasingly severe psychotic conditions. The greater the individual's confusion in his relationship to life realities, the more overpowering his self-preoccupations and the more bizarre his thinking and feeling processes, the greater is the likelihood of an undependable report of past events. Experimental studies have demonstrated that psychotic individuals are comparatively inefficient in memory tests.⁷² It is, however, their impression that suffers more than their retention. Perception is markedly clouded and may be distorted, and

their fund of available and socially meaningful information is reduced.

Marked fears and anxieties may in themselves contribute to the loss or functional impairment of memory. In a pathological extreme of phobias and in other manifestations of the neurotic condition known as "hysteria," the repression of psychologically painful and distressing events may take place.⁷³ There is a consciously indeliberate but subtle and definite blocking out of the unpleasant events, and a resistance to the development of associations that may bring them to mind. Only under conditions of marked reassurance and the dispelling of anxiety is the repressed event likely to return to consciousness. It may be generally stated, even in the absence of pronounced psychological disorders, that intense unpleasant emotion and anxiety inhibit memory.⁷⁴

THE ESTIMATION OF MEMORY BEHAVIOR

It has been suggested that the presumption is probably warranted to the effect that a random person, given accurate original perception, will in the ordinary course of events reflect a memory competent to serve most of the purposes for which it is demanded. An effective challenge to this probability may be posited in terms of (1) personal characteristics that influence memory functioning,

⁶⁹ See HENDRICK, *FACTS AND THEORIES OF PSYCHOANALYSIS*, *passim* (1st ed. 1939). Repression is the major mechanism of hysteria and the major construct in the Freudian system. Repression "consists of an unconsciously purposeful forgetting or not becoming aware of internal impulses or external events . . . (it is) initiated to hinder their real effects as well as the pain on becoming aware of them . . . although the repressed is not felt consciously it remains effective." FENICHEL, *PSYCHOANALYTIC THEORY OF NEUROSES* 148 (1945). Repression has been demonstrated in a number of experimental studies. See MALAMUD AND LINDER, *Dreams and Their Relationship to Recent Impressions*, 25 *ARCH. NEUR. AND PSYCHIAT.* 1081 (1931) subjects were asked to recall a picture shown to them; omissions in their recall were later identified and analyzed in their dream material). See also notes 44, 45 and 48 *supra*.

Dissociation, resulting in the "splitting off" and hence forgetting, of large segments of experience and whole areas of personality was described in the pioneer work of PRINCE, *THE DISSOCIATION OF A PERSONALITY* (1920). *Split personalities* represent extreme and dramatic instances of molar memory failure accountable to the operation of unconscious mechanisms.

⁷⁴ See HENDRICK, *op. cit. supra* note 73, particularly c. 7. DASHIELL, in the first edition of a general treatise on psychology, describes the effects of anxiety and intense emotion on memory in the commonplace experience of a school examination. DASHIELL, *FUNDAMENTALS OF GENERAL PSYCHOLOGY* 430 (1st ed. 1937). In some instances, anxiety virtually disorganizes memory completely.

⁶⁹ See HENDERSON AND GILLESPIE, *id.* at 399-402.

⁷⁰ Paranoia and paranoid reaction types are described extensively by HENDERSON AND GILLESPIE, *id.*, c. 11. See also NOYES, *MODERN CLINICAL PSYCHIATRY*, 125-26 and c. 28 (4th ed. 1953).

⁷¹ See NOYES, *op. cit. supra* note 70 at pp. 121, 333-37 and HENDERSON AND GILLESPIE, *op. cit. supra* note 66, at pp. 230-44.

⁷² See note 68 *supra*.

(2) general intellectual facilities that characterize memory, and in terms of (3) specific sets of relationship that qualify the adequacy of memory for a particular event or set of events.

The personal conditions of memory performance provide the essential cues and characteristics through which an acutely perceptive individual is able to entertain reasonable suspicion of another person's memory deficiency. They are the basis for the more minute inspection of memory provided in the more formal assessment of memory skills. Consciousness of cues and characteristics will direct the observer to seek out from the total context of an individual's behavior such factors as exceptional youth and advanced age, limited intelligence, acute anxiety and fear, inordinate suspicion and doubt, evidence of brain injury, immaturity and superficiality, confusion and pre-occupation, chronic alcoholism, and erraticism and flightiness.

An adequate and appropriate suspicion of memory defect warrants a more concerted examination of the memory processes. The formal assessment of memory as an abstract entity is a characteristic procedure in psychiatric examination and in clinical psychological examination where deficiencies are suspected. The psychiatric and psychological measurements offer the most systematic bases available for the judgment of memory functioning. Formal examinations of memory as an abstract entity encompass particular kinds of skills. Short-hand assessments, such as those provided in psychiatric examinations,⁷⁵ evaluate the individual's facility for recalling remote events⁷⁶ and recent events,⁷⁷ and his capacity for retention of simple communications.⁷⁸ More elaborate, formal

⁷⁵ See HENDERSON AND GILLESPIE, *TEXTBOOK OF PSYCHIATRY* 102-03 (7th ed. 1950); see also STRECKER, *FUNDAMENTALS OF PSYCHIATRY* 83 (5th ed. 1952) and NOYES, *MODERN CLINICAL PSYCHIATRY* 148 (4th ed. 1953). Cf. WELLS AND REUSCH, *MENTAL EXAMINER'S HANDBOOK* (1945).

⁷⁶ Patients are generally asked to give a chronological account of their life experiences. Specific information is requested on such facts as date and place of birth, age upon entering and leaving school, time of marriage, names and ages of children, and data concerning employment.

⁷⁷ Memory for recent events is frequently tested by such questions as "When did you come here?" "Where from?" "What were you doing yesterday?" Etc. Failures in response are more likely to reflect gross memory disturbance.

⁷⁸ Patients may be orally given simple information, such as a street address, a name, a color, etc. After a brief interval their recollection for the information is tested. Facility for recalling spans of digits, words or

psychological examinations, such as the Wechsler Memory Scale,⁷⁹ assess the individual's fund of personal and current information, his immediate orientation to time and place, his immediate recall of logical material, his memory span for digits, his reproduction of simple geometric figures from memory, his ability to learn the pairings of words and his mental control.^{80, 81, 82} Memory in such examination is conceived as a composite of objective self-awareness, adequate perceptual orientation, capable association of ideas, ability to retain, recall and reproduce, and ability for coherent and rational thought organization and responsiveness. Abbreviated assessments of each of these characteristics collectively reflect memory facility. The results of formal examination may be reduced to a standardized measure and interpreted in rela-

letters, and the testing of recall for words associated in pairing with other, stimulus words, may also be attempted.

⁷⁹ WECHSLER, *A Standardized Memory Scale for Clinical Use*, 19 J. PSYCHOL. 87 (1945). There is also an alternate form. STONE, GIRDNER AND ALBRECHT, *An Alternate Form of the Wechsler Memory Scale*, 22 J. PSYCHOL. 199 (1946).

⁸⁰ "Mental control," as used in the test, refers to the subject's ability to associate and respond quickly and accurately. He is asked to count backwards, repeat the alphabet and count by threes.

⁸¹ The Wechsler Memory Scale is described in some detail in WEIDER, *CONTRIBUTIONS TOWARD MEDICAL PSYCHOLOGY*, V.II, p. 757 (1953). References to the technique and critical reviews are provided in BUROS, *THE FOURTH MENTAL MEASUREMENTS YEARBOOK* 364-66 (1953). Akin to most psychological test techniques, it is the subject of constant experimentation. Its validity and reliability are substantially less than perfect but it appears to be particularly useful as a clinical instrument, relying heavily upon the examiner's skill for effective interpretation. The scale, in any event, is most likely to reveal gross memory disturbances.

Skillful clinical use and analysis of the technique is demonstrated by HOLZBERG in his case, *A Carpenter With Brain Damage*, in BURTON AND HARRIS, eds., *CLINICAL STUDIES OF PERSONALITY*, V. 2, pp. 415-422 (1955).

⁸² Other tests, geared partially or completely to the assessment of memory, measure some of the same facilities. The Babcock Test of Mental Deterioration, for example, assesses the adequacy of paragraph reproduction and sentence repetition, memory for designs and the adequacy of association of paired words. See BUROS, *op. cit. supra* note 81, at p. 31. Cf. Hunt-Minnesota Test for Organic Brain Damage, briefly described and discussed in WEIDER, *op. cit. supra* note 81, pp. 760-65. See also brief description of other lesser known memory tests in ANASTASI, *PSYCHOLOGICAL TESTING* 337-38 (1954).

Most memory tests have been used to detect gross disorders as part of an attempt to assess whether there is a significant impairment in the intellectual functioning of a patient suggestive of possible brain injury.

tion to standardized results achieved by large populations of age-segregated individuals.⁸³

The reliability of memory for a particular event is inferrable from the operation of general memory processes. It can be more exactly determined, however, by an acute evaluation of time and personal exponents in the relationship between the person and the event sought to be remembered. Inquiry will be directed to the meaningfulness and vividness of the event to the individual, and his emotional relationship to it, with a particular focus on elements of fear and unpleasantness. The intensity of original perception, degree of preoccupation at the time, concern or interest in the event, the amount of turbulence occurring in the same activity context at the time of and subsequent to the event, characteristics of the event that are unique to general experience, and the recency and duration of occurrence are of established importance in considering the reliability of memory.

III. THE IMPLICATIONS OF PSYCHOLOGICAL THOUGHT AND KNOWLEDGE FOR LEGAL PRACTICES RELATING TO MEMORY

Juxtaposition of the premises of law and the views and findings of psychology concerning memory may at least serve to project the status of evidence law in this area from the perspective of a studied knowledge of the subject matter. The bases of some evidence rules and practices become more articulate and systematic; others seem to be more disreputable than the casual and uninformed observer admits.

It is apparent today that any single existing conceptual definition of memory is incomplete. Furthermore, the substances of memory lack a vigorous delineation in point of both theory and practice. Memory is a label of practical convenience to describe the operation of learning, perceptual and emotional processes expressed in terms of certain phenomena operative in objective reality. These phenomena are for the most part independently verifiable as facts existing in a universe that are subject to common observation and in-

terpretation. An example of such a phenomenon would be the recollection that it rained in a particular place some particular time in the past. The event is, at least theoretically, a matter of common experience and agreement. Verification of this particular fact establishes that the individual's learning has been effective, his perception was correct and his emotions were not distortive in relation to the event.

Verification by objective or consensual criteria may, however, be difficult or impossible in many fact situations with which law deals. It may not be possible to test the memory product offered by an individual for lack of a complete and objective record of the fact. Examination must then focus upon the processes associated with memory. The accuracy and reliability of memory products are inferrable from the order and efficiency of the processes. It is in this situation that conceptual faults and the lack of ultimate definition in memory substances lead to the vagaries and uncertainties that are a common characteristic of memory assessment. Different conceptual orientations emphasize different desiderata as the essentials of memory processes, and interpret memory functioning in terms of performance with these desiderata. In learning theory, time is one of the more important substances and performance in the course of time is used as a determinant of the adequacy of memory. Perceptual theory offers fewer memory fact-substances than learning theory. Such conceptual integrity as memory may have in this system is largely sacrificed to the need to explain perception. The substances that may test memory, incongruity, nonconformity, etc., are mostly inverted so as to amplify the concept of perception. In psychoanalytic theory the behavior of the emotions is the most important fact-substance, and memory operation is interpreted in terms of the emotional propensities and conduct of the individual.

The assessor of memory who operates outside of the context of theory construction and theory testing in psychology is, to a certain extent, left to his own devices in determining the scope of memory, its parameters and appropriate methods of measurement. The state of the law in treating memory can be taken as an appropriate reflection of the lack of definition in this field. Memory is not defined and graded for the purpose of establishing the competence of a witness to testify. Disqualification of testimony by reason of poor memory is

⁸³ The Wechsler Memory Scale provides a "memory quotient," corrected for deficiencies due to age. The memory quotient corresponds fairly closely to intelligence quotients on the Wechsler intelligence scales. In fact, the basis for these latter quotients, existing in the scores of hundreds of subjects and adjusted for age, serves as the basis for determining the memory quotient to be derived from memory scores. See WECHSLER, *MANUAL FOR THE WECHSLER MEMORY SCALE*, New York: The Psychological Corporation (1946).

a matter of impression, not definitive assessment. "Impressions" or "beliefs" are given some probative value as instances of memory. Examination of the processes of memory is really examination of the processes of observation and logic. There is no clear-cut basis for distinction between a present memory refreshed and a past memory recorded.

However, the legal theory of memory is not entirely nebulous. Memory in law, whatever it is, has fixed characteristics of relative order and regularity for each individual. To the extent that psychology recognizes and attempts to assess memory in the abstract, there is some theoretical basis for this view. That the conception may be merely one of practical convenience and not one of theoretical vigor may not be so offensive as to destroy its value. But the law goes further. It asserts that the characteristic is fixed in relation to nearly all circumstances, so that its manifestation in one or more past or present circumstances, or in an abstract instance, is sufficiently reliable evidence of its deportment under all conditions. With this psychology is not in unequivocal agreement, and may not be in agreement at all. It may be possible to characterize an individual's memory in general terms, assuming a general equality and stability of conditions. But the events with which law is concerned in litigation are not necessarily normal, anticipated and stable. They may frequently be characterized by or tend to evoke unusual, strange and abnormal conditions. In these circumstances, psychology recognizes that the individual's memory cannot be accurately assessed by his usual behavior and propensities. A more meticulous analysis of the person's feelings and his experience in relation to the event is necessary. Memory for events are therefore likely to be unequal, not so much because of deficiencies in individual capacity but because of unequal characteristics of the events themselves. The nature and description of the events selected to test memory are in themselves exponents of memory performance and, if not regulated, provide no adequate memory measure.⁸⁴ The invariable courtroom practice of permitting generally free-ranging examination of memory for past and present events, with the common presumption that a series

of failures reflects general deficiency, is at least questionable.

Law also conditions the operation of memory on the basis of time lapse, establishing the presumption of an inverse relationship between effective memory and the occurrence of an event. With this psychology would agree, and would support the legal view that no categorical time limit for the effective recall of an event may be set. Characteristic individual differences preempt such a general decision. But psychology will not assert that time interval in itself safeguards the correctness of a memory and justifies a categorical presumption in favor of accuracy. This distinction on which the "past recollection recorded" hearsay exception rests is a product of incomplete understanding of memory and, probably, a consequent faulty application in the form of a mechanical rule. Elapsed time is an important factor in the adequate recall of an event, but it may have no unique merit for safeguarding the memory when opposed to such other desiderata as the meaning of the experience to the individual, the intensity of original perception, interest in the event, emotional disposition of the observer, the diffusion of associated circumstances, etc. Any one element is probably not a sufficient definition for the relationship between an event and its true recall.

Legal practice also permits the solicitation of memory through the introduction of fragmentary cues. Psychology would agree that this can be effective procedure, and it would agree with the law that there may not be an immediate foundation for the probable correctness of the recall, because of the lack of evident logic of the stimulus material. But that the connection between stimulus and recall may not be evident does not mean that it cannot or will not be evident. Where the matter to be recalled may be the subject of repression it is commonplace that the stimulus to consciousness may be, and of psychological necessity may have to be, symbolic in character. It will be devoid of an immediate logical reference and will be subjectively understood. On the other hand, a factual rather than a symbolic cue may sometimes be effective in stimulating the chain of associations that will eventuate in more complete memory. The cue is a logical part of the total experience and subject to inspection for its logical connection and probable inducement to accurate recall.⁸⁵

⁸⁵ In point of legal practice it may be difficult to distinguish when a cue is being used symbolically and when it is being used factually. The use of cues for

⁸⁴ Though a charitable view allows that the judge or jury do give consideration to the particular conditions and circumstances that might govern memory, and particularly memory failure (See text at page 16), it seems unlikely that this in fact happens. That the conditions and circumstances are systematically evaluated is surely doubtful.

The conceptual status and the reputable facts and techniques with which law operates in the field of memory are but minima. Notwithstanding the lack of full comprehension and semblance of finality in the handling of memory by psychology, law can draw upon psychology's more concentrated efforts in this field to evolve better definitions, characteristics and techniques than it now utilizes.

A crude conceptual framework can be constructed. Memory is a process whose outcome is dependent upon intra-individual operations. These operations have certain universal features. The features are modifiable by the general character of memory operation in specific individuals. They are further modifiable by distinguishable elements relating to particular events. These particular elements may have general effects on the memory operation of nearly all individuals, and they may have differential effects on the memory operation of particular individuals.

Memory is a function of original perception. It is dependent upon intellectual capacities, particularly for association and logical organization. It is influenced by the operation of emotion. The processes of perception, cognition and emotion interact and are functionally non-separable.

Extreme youth or age, brain injury, and acute states of emotional disturbance, with or without advanced psychopathology, may prejudicially affect memory behavior. The inhibition or distortion of normal perception, cognition and emotion may create significant memory disturbances and unreliabilities.

Memory for a particular event may also be a function of the dimensions of time and meaning of the event itself, and of time and meaning as carried through experience. Elapsed time since the event, the event's meaningfulness to the individual in general and personal terms, the intensity and duration of its occurrence, and its uniqueness in general or personal experience, may be important determinants of memory sufficiency and accuracy. Exaggerated personal characteristics of age and organic or emotional status may result

in the dimensions of a particular event having highly individualistic effects on memory. Elapsed time may not have an inverse effect upon memory efficiency, the intensity and duration of an event may not have its usual or expected effects, the meaningfulness of an event may be implausible or diluted, etc.

Within this more complete conceptual framework memory must be conceived as a phenomenon of the individual to be studied in the context of his characteristics and experience. This, however, may frequently be too exacting and unrealistic for legal contexts. It becomes more feasible and less of a formal necessity with the expert training and accompanying keener intuitions and judgments of judge or jury.⁸⁶ It may in any event be necessary in those instances where any single memory or set of memories is so utterly crucial for reasonable and fair decision. Evidence rules and practices ought to permit and define memory examination for an event in issue, and thereby guide the court in its discretion concerning examination in these and other instances. One phase of examination should be directed to the perceptual opportunities and the conditions for memory, the quality of the event and the quality of the experience had by the observer. Much of this testimony may be collateral to the basic issues in the case but its introduction must be weighed in the light of competing merits of expediency and truth in any given instance. If restriction be made it ought to be upon the extent of the examination in all areas and not upon total inquiry into any one area. The validity of memory analysis is thereby better safeguarded.

Considerations of expediency and the extensity and exceptional skill required in the phase of examination suggested above, may operate in favor of a general preference for only the simpler

⁸⁶ The training of decision-makers, particularly judges, in at least some of the nuances of individual differences is a large problem-area in itself. An awareness of such differences is generally a gratuitous accompaniment of alertness and intelligence. Subtler distinctions may today often as not reflect prejudice based on ignorance, rather than informed opinion. A greater degree of training in and information about psychology is, of course, helpful. One learned judge, Jerome Frank, has gone further and advocated some systematic course of self-exploration as a part of judicial training. This better prepares a person to understand individual and interpersonal behavior. See FRANK, *COURTS ON TRIAL* 247-53 (1949). Perhaps some combination of systematic personal exploration and formal study in psychology offers the promise of decision-makers who are more sensitive and sophisticated about people's actions and attitudes.

cross-examination and their presentation before a jury is in some instances ill-advised if they would directly or impliedly reflect upon the value of present memory to be inferred from the logic and relevance of the aids. The inference is largely justified when factual cues are used, but the devaluation of present memory because of the apparent failure of a demonstrated logical relationship and relevance between symbolic cue and memory content is unfortunate and unwarranted. Cf. notes 10-13 *supra* and related text.

and briefer assessments provided in the second phase of memory testing. General memory competence may be determined as the basis for inference concerning the operation of memory in the particular instance in issue. Evaluation of memory skills alone may be reasonable and adequately valid for any given case where the issuable event for which memory is sought is not, from general appearances, markedly peculiar to common experience or to the personal experience of the witness. An adequate assessment of general memory competence must relate to the perceptual and cognitive skills and the emotional status of the individual. Testing perceptual and cognitive skills can be done by objective examination, largely through the use of impersonal questions, conducted by the legal examiner in court, by a memory expert (generally a psychologist) in or out of court, or by standardized examination.⁸⁷ A reasonably comprehensive and valid examination, though brief,⁸⁸ will traverse those elements of perception and cognition that are particularly important to memory.⁸⁹ Superficial and single tests, of simple observation for instance, may be insufficient to justify any substantial inferences about memory.

The examination of emotional status is a greater challenge to tactical skills and necessitates more stringent requirements if validity is to be assumed. The danger of misinterpretation as a product of fragmentary and distorted examination is particularly great. As a practical safeguard, formal courtroom examination of memory capacity should perhaps be limited to assessments of perception and cognition. Evidence of emotional status would be garnered impressionistically by judge or jury,⁹⁰ supplemented by psychiatric or psychological records of reasonably current dis-

turbances. In those instances where there is a reasonable and firm suspicion of emotional defect significantly affecting memory, and the nature of a witness' memory is critical in the case at issue, it may be desirable practice to permit petitioning the court for objective psychological examination or psychiatric study of the emotional status of the witness.⁹¹ The report of such evaluation, conducted by an impartial expert selected by the court, would be admitted in evidence as relating to the memory competence of the witness.

The determination of past memory failures and present failures unrelated to the events in issue is, of itself, an insufficient and inappropriate index of memory capacity. To provide such determinations substantial and reliable meaning, evidence must be produced and assurances given concerning time and meaning dimensions relating to the events for which there are memory failures. Reliable estimates must also be given of the perceptual, cognitive and emotional facilities of the witness at the time of the events lost to recollection. The provision of these safeguards for the correct interpretations of poor memory products may involve the introduction into evidence of considerable collateral material. It may also bring confusion to the immediate justiciable issue of present memory for matters of ultimate importance in the case. In any event, examination into these collateral matters may merely duplicate in scope and time the explicit examination of immediate memory facility and memory experience for the events in issue. This latter examination is to be preferred and is sufficient for the litigation at hand.

The refreshing of memory on the witness stand is founded in sound psychological principle and can be a useful and valuable device for the solicitation and recovery of valuable testimonial material. The fragmentary cues that are provided as stimuli may or may not be, in themselves, logically relevant to the matters in issue and sought to be recalled. The distinction between symbolic and factual association, either of which may be the basis for memory recovery, may in any given case be difficult and exceptionally time-consuming to

⁹¹ Cf. note 4 *supra*, citing instances of psychiatric examination used to assess the credibility of witnesses. Such evidence has most often been admitted where the witness is the complainant in a rape case. See discussion by McCORMICK, *HANDBOOK OF THE LAW OF EVIDENCE* 97-100 (1954); see also COMMENT, *Psychiatric Evaluation of the Mentally Abnormal Witness*, 59 *YALE L. J.* 1324 (1950).

⁸⁷ Cf. notes 75-83 *supra* and related text.

⁸⁸ Most memory examinations are brief and take under ten minutes. The Wechsler Memory Scale, perhaps the most comprehensive memory examination utilized today, takes an average of fifteen minutes to administer, and can be scored and rated in another five or ten minutes.

⁸⁹ Common measures of perception and cognition in memory relate to the adequacy of association in recalling simple life experiences, ability to make and to relate simple associations with numbers, letters or words quickly and accurately, amount of retention of simple numbers, or of phrases or slightly more extensive logical material, and the ability to recall simple designs from memory. See notes 75-83 *supra* and related text. Other relevant tests are, of course, possible. However, as they become more difficult and abstract, the test becomes more characteristically one of intelligence and information and less a matter of memory.

⁹⁰ Cf. note 86 *supra*.

assess. The tracing of the stimulus to the memory event, testing the process of association, may offer some assurance of the proper functioning of memory and of a reliable product. In the instance of symbolic cues, this is feasible for a psychoanalysis, not for a courtroom examination.⁹² Where the cues are intended, evident or acknowledged to be a factual element in the total matter to be recalled, the introduction of the factual cue in evidence and the examination of the association process should be permitted. It should be required where demanded for cross-examination.

Past recollection memos may have no particular claim to special merit. Memoranda offered as past recollection recorded, as well as any prior statements of fact by a witness, may have some probative value for the determination of ultimate facts. Their true value ought not to be a matter of presumption. Special evidence offered in support or refutation of the memoranda or statements ought to condition their value. Examination and proof should be directed to elements of and subsequent to the event that affect memory, and to the memory capacity of the witness offering the past recall. Examination should be restricted to evi-

dence existing at the time the memoranda or statements were made. The difficulty or impossibility of offering such evidence does not bar the examination but may limit the assumptions to be made concerning probative value.

Theory and knowledge of memory is sufficient to permit some refinement of an understanding of its operation. It is adequate to permit reasonably precise examination. It is not so refined, however, as to provide totally accurate or reliable calibrations of the results of study and examination. The procedures for evaluation can be substantially knowledgeable and meticulous. Ultimate judgments are, however, most reasonably left to impression. Only logic and understanding can assure and safeguard the correctness of the judge or jury's judgments concerning a person's memory.

Memory is imbedded in a complex process, or a complex of processes, that are not the subject of accurate mathematical equations. As a variable conditioned on these processes there are no final indices that can represent or attest to the precision of its operation. It is the subject of constant test and interpretation modifiable in the light of time and circumstances. Our present indices are reasonable and reliable—they may not be final. The expectations of litigation demand that memory be used, and the status of our knowledge requires that all memory be admitted in use. Reasonableness and fair play dictate that memory be carefully evaluated, and knowledge directs that it be freely judged. Memory in both law and knowledge is uncertain, but law can be made to conform to the knowledge of memory with greater fairness and precision than it has so far demonstrated.

⁹² "Free association," the method commonly used to trace symbolic data to real feelings and experiences is usually a complex process involving skillful and timely interpretations by the examiner and careful probing of the thoughts and feelings of the subject. A lack of carefully applied skill will most often result in erroneous conclusions or the failure to establish a connection between symbol and actual experience. Cf. WHITE, *Interpretation of Imaginative Productions* in HUNT, ed., *PERSONALITY AND BEHAVIOR DISORDERS*, V.I., pp. 216-18 (1944); REIK, *LISTENING WITH THE THIRD EAR* (1948); FROMM-REICHMAN, *PRINCIPLES OF INTENSIVE PSYCHOTHERAPY* (1950).