

AFTERWORD

LEARNING MEMORY AND REMEMBERING HISTORY

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Oral historians and psychologists alike are concerned with the origin and fate of memories. The task of both types of researchers is to determine *when* and under *what conditions* a memory is first acquired, *how* to ascertain whether the recalled memory is veridical, and if it is not, *why* not. What is the significance of *forgetting*? And under what conditions are memories *fabricated* or otherwise *reconstructed*?

Because the education and resulting research interests of historians and psychologists have them asking markedly different questions about the nature of memories, we should not be surprised when philosophical and methodological gaps between them occur. This volume is no exception. Each type of researcher brings *a priori* and methodological assumptions to his or her study of memory. Psychologists in laboratories using human and animal subjects assume that the determinants of memory can be repeatedly manipulated and accurately measured. Oral historians “in the field” almost exclusively study human memories as they are recalled many years after being formed. Should we be surprised when each type of researcher occasionally misses the point of the other’s enterprise?

A central question running throughout this volume is the extent to which common interests in human memory can overcome the different ways in which historians and psychologists are trained to study, and ultimately to understand, the human mind. Two recent books are relevant to this enterprise, and both are highly recommended. *Memory Observed: Remembering in Natural Contexts*, edited by Ulric Neisser, is an acknowledged classic in cognitive psychology. Neisser’s selection of research articles reveals both the perils and promise of applying laboratory-derived models of memory and cognition to instances in real life. *Memory in the Real World* builds upon and updates the same themes. The present analysis takes advantage of ideas derived from both books.¹

The present paper has three purposes: (1) to observe how historians and psychologists, respectively, study memory, with the hope of capturing the threads which tie together their endeavors; (2) to point out benefits and drawbacks associated with each discipline's methods and to suggest ways in which they may complement each other in future research; and (3) to analyze selected research findings in this volume from the perspective of findings in experimental psychology—specifically, from the study of perception, learning, and short-term memory.²

THE PROBLEM OF VERIDICAL MEMORY

For a memory to be veridical, it must accurately reflect the event being remembered. Given that no two individuals experience the world in the same way, questions about truthfulness of memory are also questions about the *perception* of reality. Stating the obvious, veridicality of memory is initially dependent upon “correct” perceptions.

One could naively argue, for example, that matching one's memory for an event with a videotape of the same event (the videotape of the event being the “real” percept) would be a way to assess veridicality of memory. However, such argument begs the question: Do two observers, be they subjects or experimenters, see the videotape in the same way? Likely not. Psychologists (psychophysicists, to be more precise) who study perceptual processes have measured how well the “real world” is mapped. And, with the exception of simple stimuli (pure tones, flashes of colored light, et cetera) human judgments have been shown to be easily biased by social factors.³ These biased perceptions are subsequently encoded into memory.

MEMORY AS VIDEOTAPE

Considering further the example, let us show the videotape of an episode to a variety of individuals. We will ask them first to describe the scenario, and later to recall the events as depicted in the scenario. Is this a simple memory experiment? No, and for reasons other than the above-mentioned problem of individual biases in perception. Elizabeth Loftus and her colleagues have demonstrated that the memory of what is perceived can also be biased by the experimenter's verbal suggestions as to what is being viewed on the videotape—analogue to “leading the witness.” In one of her studies, a subject views a videotape of two cars impacting. The experimenter asks (“suggests”) whether the two cars “bumped” or “crashed” together. Which word is used apparently has the effect of reconstructing the subject's memory in one of two ways, consistent with the experimenter's language.

Humans are apparently “easily led” in what they perceive and in what they remember.

CULTURE BIASES PERCEPTION

For yet other reasons descriptions of memories using the videotape methodology is not as simple as it seems to be. Glenace Edwall reminds us that a person’s culture also dictates one’s perceptions; we have been conditioned to see and hear (and thereby remember) in highly constrained ways. The psychological deafness required of Japanese families who live in houses with paper walls is one example; a child’s denial and resulting memories of an incestuous relationship *not* remembered as an adult is another.

RESEARCHERS’ BIASED MEMORIES

Bias in perception leads to bias in memory. Accuracy of memories suffers from other factors as well. Historical and psychological theories, for example, delimit the ways in which verbalized memories are heard and interpreted by researchers. A recent criticism of Sigmund Freud’s work, for example, is that he interpreted his female patients’ reports of incest as sexual fantasies rather than as accurate memories. One interpretation of his deafness to the possibility of veridical reports from these women is that he assumed that his culture was civilized in such a way so as to preclude rampant sexual abuse of children by adult males. Our current knowledge that incest is prevalent in Western culture now allows researchers to “hear” their patients explore such memories.

Furthermore, how we educate our children will influence what they perceive and what they will remember as adults. Cultures acknowledging incest and other forms of abuse likely will produce children who will encode and report such events when they occur and will be more inclined to recall them in the future.

The problem of the perception of reality hampers not only subjects, then, but also flavors interpretations of reality by researchers. We design experiments with preconceived results in mind; is it any wonder when our interpretation of results reflects these biases? Perhaps the best we can do at present is try to understand the *zeitgeist* of both the researcher and of the individual (i.e., their biases), to recognize the cultural milieu at the time a given memory was formed, and only then make a best guess as to whether a reported memory is veridical.

SCIENCE AND HISTORY: METHODS AND GOALS

Another theoretical/methodological difference between historical accounts and scientific findings concerns the role of *evidence*. In science, causal relations are validated by a consensus of observers (cf., the necessity of both *inter-observer agreement* and the requirements of *replicability*). Oral historians do not experiment, precluding replicability of their observations. Achieving inter-observer agreement *is*, however, within their methodological realm. In theory, inter-observer agreement on historical evidence would help close the methodological gap with the behavioral sciences and their more stringent requirements of evidence.

Is it possible to achieve a consensus of agreement among scientists studying memory in laboratories and among historians interviewing subjects at different times and places in the field? Scientists have the luxury of repeating their memory experiments when they cannot agree upon the experimental outcome. For example, Scientist B might challenge an interpretation of Scientist A by copying Scientist A's experiment, changing one or more critical aspects of it, perhaps including a demonstration of the effect of another variable in an experimental replication. This widespread research tactic defines so-called "normal" science.

HISTORY AS BEHAVIORAL SCIENCE: A CASE STUDY

Can historians do "normal science"? Let us take as an example research reported in this volume by Michael Frisch. Over a period of many years he asked his students what they remembered about famous historical figures from American history. He used a variant of the *method of free recall*, commonly used in the laboratory by memory researchers. One important methodological difference is that psychologists typically control presentation and rehearsal of the items to be recalled, whereas Frisch measures end-point performance of school work learned (or not) over an extended time period.

Frisch correctly points out that he lost data in his research by collapsing across *order of item recalled*. Had he retained the order in which students remembered historical names (i.e., the first famous person which came to mind, then the second, et cetera) he more than likely would have found a serial position effect in the list of names recalled by his students.

Simply stated, the serial position effect describes a bow-shaped relationship between the frequency (number) of items recalled from a list when plotted as a function of the *order* of items on the list. First and last items appearing on the list are recalled with a higher frequency (i.e., remembered better) than items in the middle.

For ninety years the serial position effect has been the object of intensive study by psychologists because of what it tells us about how lists of items are encoded into memory.⁴ One might argue that only psychologists (certainly not historians!) would be interested in a serial position effect and related memory concepts of *primacy* (first items on the list are remembered better), *recency* (last items on the list are remembered better), and *anchoring* (position cues affect which items are remembered).

How can the order in which names are recalled be of value to the historian or to educators interested in teaching history? Frisch used the prompt “American history from its beginning through the end of the Civil War” to elicit the list of historical figures. This prompt provided two anchors (“beginning,” and “Civil War,” respectively) around which individual names were recalled. Even without the serial-order data, by inspecting the rank order of names we can make educated guesses about the order in which items were recalled. For example, we can surmise that the first name remembered was that of Washington and the second that of Lincoln—one for each anchor. Note in Table 1.4 that five names cluster around the first anchor (i.e., Washington, Jefferson, Franklin, Adams, and Revere around “beginning”), while three names cluster around the second anchor (Lincoln, Grant, and Lee around “end of Civil War”). One can speculate that Columbus’s ranking of ninth on the list would improve had the anchor differed (i.e., had the prompt been “From the *discovery* of America” rather than “From the *beginning* of America”).

As every teacher knows, questions must be carefully worded; many “wrong” answers reflect students’ idiosyncratic but understandable misinterpretations of the question. The use of two anchors in the prompt has the effect of determining particular items and the order of their recall. Frisch’s methodology is different than that used in Loftus’s research, but the finding is the same. The experimenter’s choice of words in the prompt suggests (cues) *what* is remembered. In the present instance, both an evaluation of student curriculum and of student performance hang critically upon the selection of words comprising the question.

Readers who remain skeptical about the relevance of the serial position effect for the recall of historical knowledge are directed to research by Henry Roediger and Robert G. Crowder.⁵ They allowed college students five minutes to write the names of all American presidents they could remember “in any order.” These psychologists found the now familiar serial position effect—first and last presidents were remembered better than the intermediate ones.

TIME EFFECTS IN HISTORY AND PSYCHOLOGY

In their memory research Paul Thompson and Karen Fields address the importance of *location in time*. Their subjects' memories were often tied to a house in which successive generations had lived. By contrast, scientists generally believe that their observations are "timeless," that is, are repeatable *irrespective of time and place*. That "Science" produces findings that can be replicated in laboratories around the world is a commonly held belief.

In fact, however, for many years behavioral scientists experimenting on how humans and animals learn and remember in the laboratory have been aware of the importance of *context*. For example, rats and other experimental subjects *trained* to criterion in one apparatus have been shown to respond differently when transferred and *tested* in another. Likewise, students who hear lectures and take notes in one room will perform better when tested *there* than if moved to another location. These so-called *context*, or *state dependent* effects, are presumably due to the fact that memories of the environment (cf., context) are inextricably bound to and learned in conjunction with the target memories in question.

Should we be surprised, then, when a visit to an elementary school releases a flood of memories? Even more importantly, the above laboratory research predicts that the field researcher will get better memory reports (or at least, *different* memories) if the subject is interviewed where the memory was formed.

SHORT-TERM AND LONG-TERM MEMORY

Oral historians restrict their study of memory to what psychologists call "long-term memory." We noted in analyzing both Loftus's and Frisch's research that *recall* from long-term memory is heavily influenced by the nature of queries addressed to that memory. The *contents* of long-term memory are mostly (exclusively?) determined by *acquisition* processes which occur during the operation of "short-term memory."

Here we ask whether studies of short-term memory, that is, of the conditions under which memories are *acquired*, are relevant to issues governing recall of long-term memories, a domain of particular interest for oral historians and psychologists alike.

What better place to start than with the work of Alice and Howard Hoffman, who discuss the role of *emotion* in acquiring memories. Alice Hoffman (historian) and Howard Hoffman (experimental psychologist) discuss the finding that many incidents are apparently remembered with

less emotion as time passes from the time of encoding—the so-called “Pollyanna effect.” (I shall return to this point later.)

One possibility raised by the phenomenon of emotional decay of memory is that memories are not constant events but rather are dynamic in time—that the form and content of a memory is in part dependent upon *when*, after encoding, the memory is recalled. The Hoffmans followed up on this idea in their most recent work. They posit that after a critical amount of time has elapsed following the encoding of the target memory, *archival memories* are formed. Archival memory is so permanent and resistant to change that written records and other forms of evidence to the contrary are ineffective in “correcting” the nonveridical target memory.⁶

LEARNING LIFE’S MEMORIES

Can theory and research in experimental psychology shed light on the foregoing aspects of dynamic memory? One key may lie in an analysis of how life’s memories are acquired in the first place. With all due respect to Carl Jung’s notion of inherited memories (i.e., the *collective unconscious*), most if not all memories are *learned*. Psychologists specializing in the study of learning assume that many long-term memories are acquired as the result of learned associations between events.

For example, I have only two or three memories from my fourth year of life. Why do I retain these memories to the exclusion of others? In one I am lying on a table watching my right hand wave a small American flag. I presume that I remember this image in part because of the events surrounding this episode. My father has described to me (and I vaguely remember) how he gently held me down with an ether-soaked cloth over my nose and mouth while acting as an anesthesiologist for a country doctor who proceeded to remove my tonsils. My most vivid memory is of seeing the flag waving and of the smell of ether; later I remember the bitter taste of Aspergum brought by an uncle following the surgery, and how the taste of the gum affected the taste of ice cream I painfully (dutifully) swallowed.

Is it as obvious to the reader as it now is to me that the flag became a memory because it symbolized an overwhelmingly emotional occasion? The flag became associated with a small child’s suffocating fear. Interestingly, I can’t remember “seeing” any other details of the room—neither my father nor the doctor nor (according to family accounts) the uncle who was present during the incident.

The “taste of Aspergum”? Forever associated with a sore throat. Interestingly, I have a vague remembrance of my uncle who produced the gum from his pocket.

THE CONDITIONING OF MEMORIES

Ivan Pavlov was the first to demonstrate in a laboratory that a novel, “neutral” stimulus (any stimulus producing a sensation—a bell, a small American flag, the taste of Aspergum) would be remembered better if it were associated with a “biologically meaningful stimulus.” Pavlov rang a bell, then placed food in a dog’s mouth, eliciting reflexive salivation. By ringing a bell and following it with food, Pavlov loaded into the dog’s memory a special significance for “a ringing bell.” Again, with no Jungian overtones intended, food already has a special significance for the dog due to genetic inheritance (cf., a “biologically meaningful” stimulus). In my case, the flag was associated with the “biologically meaningful” stimulus of foul-smelling ether and the fear-inducing gestalt of the surgery episode.

In 1920 John B. Watson similarly conditioned “Little Albert” by showing the eleven-month-old infant a white rat. Initially, Albert, a normally curious child, showed no fear as he reached out to touch and explore this “neutral” stimulus. Watson then waited for Albert to visually locate and reach for the rat. At an opportune time Watson struck a steel bar (suspended behind the child’s head) with a hammer. From Watson’s written account the loud and unexpected clanging sound gave the infant a horrible fright, causing him to cry. After seven such pairings of “rat” with “frightening noise,” Watson presented the rat by itself. Not surprisingly, the child cried and tried to get away. A month later Albert’s memory of the conditioning procedure persisted, and Watson mused that unless the memory was experimentally altered, it would persist into adulthood as a phobia.⁷

The point of recounting these memories of bells, flags, and rats is not to suggest that we remember only vividly aversive events but rather that in the welter of information bombarding us hourly, daily, and throughout a lifetime, some episodes *are* singled out and remembered better than others. Among this category of memories are episodes in which we were *emotionally* involved. These memories tag significant occasions in our lives.

THE EXTENSION OF EMOTIONAL COMPONENTS OF MEMORIES

To return to a question raised by the Hoffmans in this volume: Why a “Pollyanna effect” in which the aversiveness associated with a memory decreases over time? One interpretation is suggested by the research of Pavlov and others into how conditioned responses can be *extinguished*. Recall that after conditioning dogs to salivate, Pavlov rang the bell and did not present food. The conditioned response to the bell diminished, a phenomenon he called experimental extinction. Is it unreasonable to

suggest that the dog initially experienced a psychological/emotional state not unlike that of “disappointment” in humans when the bell rang and food was withheld? Further, that the dog became less emotional as it relearned, with repeated extinction trials, that the food was no longer forthcoming?

Forty years after the fact, my “flag” memory is a relatively dispassionate one. I suspect that the many iterations of this memory during the days immediately following my tonsillectomy allowed extinction of the emotional arousal attendant with that memory. I am left with a scripted story, some fading visual images, and little memory of the degree of fear experienced during my fourth year.

Our meager understanding of human behavior profits both from the study of psychology and from the study of history. Of the two the latter seems to be the more complex endeavor. Oral histories are accounts of human behavior based upon memories that have been encoded through perceptual processes colored by the biases of culture, the vagaries of emotion, the distortions of time, and the lability of researchers blind to the *zeitgeist* within which they work. The conceptual tools and methods of experimental psychology do not and cannot inform all aspects of the study of history or, for that matter, of the study of human behavior. Indeed, experimental psychologists and historians alike continue to raise far more questions about human behavior than they provide answers, or even partial truths.

Most marriages have rocky starts; the present one is no exception. The articles collected in this volume bespeak the fertility and promises of an overdue union.

Notes

1. Ulric Neisser, ed., *Memory Observed: Remembering in Natural Contexts* (San Francisco: W. H. Freeman, 1982); Gillian Cohen, *Memory in the Real World* (London: Lawrence Earlbaum Associates, 1989). Neisser’s edited book contains articles by Marigold Linton and Elizabeth Loftus, both of whom are contributors to this volume.

2. Learning and memory constructs developed by experimental psychologists can be differentiated from psychoanalytical constructs so popular with many historians. By and large Freud’s theories, including that of unconscious motivation and the defense mechanisms of repressed memory, while not without merit, lack an empirical base.

3. Classic work by Solomon Asch demonstrated that even when making simple judgments, such as estimating the length of a line, a person’s perception can be

influenced by peers making conflicting estimates. The evidence of raw sensory experience yields to the pressure to conform with the group's judgment. S. E. Asch, "Studies of independence and conformity: I. A minority of one against a unanimous majority," *Psychological Monographs* 70 (1952), Whole No. 416.

4. The serial position effect was first reported in 1902 by Hermann Ebbinghaus in *Grundzuge der Psychologie* (Leipzig: von Veit, 1902). An overview of the serial position effect can be found in Robert G. Crowder, *Principles of Learning and Memory* (Hilldale, N.J.: Lawrence Erlbaum Associates, 1976).

5. Henry L. Roediger III and Robert G. Crowder, "A Serial Position Effect in Recall of United States Presidents," in Neisser, *Memory Observed*, 230-37.

6. Alice M. Hoffman and Howard S. Hoffman, *Archives of Memory: A Soldier Recalls World War II*. (Lexington: The University Press of Kentucky, 1990).

7. John B. Watson and Rosalie Rayner, "Conditioned Emotional Reactions," *Journal of Experimental Analysis of Behavior* 3 (1920): 1-20.