

Memory and Consciousness: An Appreciation of Claparède and *Recognition et Moiïtè*

JOHN F. KIHLMSTROM¹

*Department of Psychology, Yale University, New Haven,
Connecticut 06520-8205*

Claparède's report of a case of amnesic syndrome is an early example of the cognitive neuropsychology paradigm, by which studies of brain-damaged patients are used to shed light on the nature of normal mental processes. The case illustrates the selective impairment of episodic memory, with procedural and semantic memory remaining intact. Moreover, the several demonstrations of preserved learning during amnesia comprise an early illustration of the dissociation between explicit and implicit memory. However, its greatest contemporary relevance is for theories of conscious recollection. Claparède underscored the role of the self, viewed as a knowledge structure, in conscious mental life, and he drew attention to three different modes of recognition: remembering, inferring, and knowing. © 1995 Academic Press, Inc.

If I spent my evenings contemplating the heavens [collecting observations for a study of the moon illusion], during the day I often went to the Lunatic Asylum, where there was at that time a most interesting case of Korsakoff's amnesia. With this patient I made many experiments on memory which I have never published in detail. I do not very well know why, as I brought to light a fact which seems to me important in its bearings upon the theory of recognition and also upon that of voluntary recollection, namely, that the contents of memory can remain unrecognized, even when they are capable of being reproduced or of starting adapted reactions. (Claparède, 1930, p. 85)

These are Claparède's only remarks, in his autobiographical essay, on the paper which has immortalized him among cognitive neuropsychologists interested in consciousness and cognition (Claparède, 1911/1951). This pioneering study of memory in Korsakoff's syndrome is one of the most important documents of that first, golden age of memory research in which investigators moved freely back and forth between the normal and the pathological (Schacter & Tulving, 1982).

Edouard Claparède (1873–1940) was a member of the first generation of scientific psychologists, and, like so many of them, he combined clinical with experimental work, and theoretical with applied interests (for overviews of Claparède's life and work, see Claparède, 1930; Lerner, 1941; Piaget, 1968; and Pillsbury, 1941). Introduced to psychology (and William James) by his cousin Theodule Flournoy, founding professor of experimental psychology at the University of Geneva (and whom he succeeded to the chair in 1915), Claparède conducted a groundbreaking empirical study of synesthesia, which in turn brought him to the attention of Alfred Binet. As a medical student at Leipzig, he was kicked out of Kulpe's course in psychology by

¹ To whom correspondence and reprint requests should be addressed. Fax: (203) 432-7172. Internet: kihlstrm@minerva.cis.yale.edu.

Wundt, who thought that the class should be restricted to four students. Returning to Geneva, he completed his medical studies in 1897 with a thesis on the muscular sense in hemiplegic ataxia; he then spent a year at the Salpêtrière with Dejerine, Binet, and Henri; and in 1900 he published an influential review of visual agnosia. Through neurology (which, along with psychiatry he continued to practice until 1920), Claparède returned to psychology and never left it.

In 1901, Claparède and Flournoy founded the *Archives de Psychologie*, which quickly became an important journal on both sides of the Atlantic. In his 1903 book, *L'Association des Idées*, Claparède argued against a purely associationistic view of the mind, asserting that the attitude of subjects toward the stimulus, their interest in it, and the meaning the stimulus had for them, were important determinants of their response. He distinguished among various types of associative relations, much in the manner of the linguistic criticism of associationism many years later, and he argued that association theory could not account for the feelings of relation that are experienced between stimulus and response. From his point of view, learning was not so much the formation of associations as the development of hypotheses concerning the implications of events and actions. Later, in his autobiographical essay, written as functional behaviorism approached its acme, Claparède (1930, p. 96) criticized behaviorism as a dogma and asserted that "one cannot distinguish [behavior] from other processes of the organism without calling up notions of purpose, plan, internal preparations, etc., i.e., mental activity." Thus, Claparède anticipated more recent analyses of the role of expectations in conditioning and occupies a place of honor as an early champion of cognitivism within psychology.

Claparède's work touches on a wide range of issues, although it is regrettable that he rarely pursued any particular line of inquiry through to its end. He wrote an important book on sleep, arguing that organisms do not sleep because they are tired, but rather in order to prevent fatigue. Always interested in practical applications of psychology, he performed pioneering experiments in eyewitness memory. Long before Bartlett, Claparède understood the role of inference and informed guesswork in ordinary remembering. His work on agreement in error may be considered a forerunner of Asch's classic work on conformity. In his studies of higher mental functions, he invented the method of spoken reflection, which we now recognize as the think-aloud protocol: the resulting experiments revealed the role of hypothesis-testing in reasoning and problem-solving. His interest in the relations between affect and intelligence, combined with his political liberalism (he had been swept up in the Dreyfus case during his year in France), led him to work on problems of attitude formation and prejudice. In his *Law of Becoming Conscious*, he asserted that routine mental operations are performed outside of conscious awareness and that consciousness occurs when they are interrupted, or encounter conflict or other problems. This is a clear anticipation of the contemporary distinction between automatic and effortful mental processes.

Claparède devoted the latter portion of his career to developmental psychology. As a neurologist, he understood that studies of patient material could provide important insights into normal mental function; and he made a similar argument about studies of children. Furthermore, partly because of his own unfortunate experiences and elementary and secondary school, and partly because he himself had a child who would

soon be entering school, Claparède was determined to put education on a firm scientific base. In 1905 he published four successive editions of *Psychologie de l'Enfant et Pédagogie Expérimentale*, which went through numerous editions and was widely translated, and in 1906 he established a seminar on pedagogical psychology in his laboratory. This effort to cross disciplinary lines initially met with institutional resistance, but Claparède responded by founding the independent J. J. Rousseau Institute, devoted both to developing a science of the child and to experimental research on educational techniques.

The Rousseau Institute brought psychologists, teachers, teachers-in-training, and children together, and it attracted a great deal of interest elsewhere in Europe and in America. One of its themes was the role of play in learning and teaching: according to Claparède's functional conception of education, children should be placed in environments which will naturally arouse their interest and awaken their mental processes. Of course, the children also served as subjects in experimental research. Earlier, Claparède had proposed the concept of syncretical perception, by which young children are able to form representations of objects in general, but not of their particular details. He found that while children are better able to describe differences than similarities between objects, they were capable of generalization. He also argued that intelligence develops as the child moves from handling objects to testing hypotheses about them. These ideas proved attractive to Jean Piaget, who had just returned from work with Binet on intelligence testing and whose first psychological paper Claparède had published in the *Archives de Psychologie*. In fact, contact with Claparède's research and theories played a large role in the development of Piaget's ideas (Peiro, 1991). When the Rousseau Institute was incorporated into the University of Geneva as the Institute of the Sciences of Education, Piaget became its director.

We owe the preservation of Claparède's work to David Rapaport, onetime director of research at the Menninger Foundation. Rapaport, a leading figure of what has come to be known as psychoanalytic ego psychology, constantly sought rapprochement with experimental psychology. In psychoanalytic theory, the ego is that structure which monitors external reality as it attempts to satisfy the instinctual demands arising from the id. Accordingly, Rapaport was interested in what scientific psychology had to say about such matters as perception, memory, and thinking—and especially in the effects of emotional and motivational factors on cognition. He was also, of course, interested in the development of mind, and in the idea that conscious experience, thought, and action was determined by unconscious mental structures and processes.

Searching the American literature in the heyday of behaviorism, when the cognitive revolution was only a gleam in the eye of a few psychologists, Rapaport found precious little of interest. He translated Claparède's paper partly because it showed how pathology might be studied to gain insight into normal mental function. Rapaport notes (1951, p. 68, fn. 22): "A pathological condition in which a certain function is particularly impaired offers an exceptional opportunity to study the function in question." In addition, the case served as a demonstration of the relations between conscious and unconscious mental processes. The patient in question has lost voluntary control over remembering; both her ongoing thought and her interpersonal behavior are influenced by past events of which she has no awareness. In his extensive annota-

tions, Rapaport seeks to relate Claparède's ideas and observations to classical psychoanalytic concepts like the Id and the Ego, in a manner that strikes many of us today as quaint. Contemporary readers, unburdened by psychoanalysis but still interested in matters of consciousness and cognition, will forge rather different connections. Each reader will see a somewhat unique set of implications, perhaps, depending on his or her own empirical interests and theoretical commitments.

Claparède's patient is a classic case of Korsakoff's syndrome, whose memory deficit stands out against a background of preserved intelligence. She cannot recognize doctors and nurses whom she has seen every day for 5 years, but she knows the capitals of Europe and can perform mental calculations; she does not know what day it is, or her age, but she can calculate her age if given the current date. Thus, at one level of analysis, the patient illustrates the distinctions among procedural, semantic, and episodic knowledge (Squire, Knowlton, & Musen, 1993; Tulving, 1983; Winograd, 1975). The patient has lost the capacity to acquire new episodic memories (unfortunately, we do not know whether, and to what extent, she suffered a retrograde amnesia as well), but her funds of procedural and semantic knowledge apparently remain intact.

Moreover, she retains some ability to acquire *new* procedural and semantic knowledge. Having lived in the hospital for 5 years, she can find her way to the bathroom, but she cannot say where the room is, or describe it. She behaves appropriately with the nurse, without being able to identify her or specify her role. She can produce isolated facts gleaned from stories, and newspaper articles, although she does not remember the stories themselves. When tested by the method of savings, she shows some evidence of new learning (apparently this evidence is presented in Claparède, 1907). And, most famously, she has the idea that people sometimes hide pins in their hands, although she has no recollection of the experience by which she acquired this knowledge.

In other words, Claparède provides ample evidence of what we now recognize as the distinction between implicit and explicit memory (Schacter, 1987; Schacter, Chiu, & Ochsner, 1993; Roediger, 1990a,b). Explicit memory is reflected in conscious recollection, as exemplified by acts of recall and recognition; by contrast, implicit memory is reflected in any change in experience, thought, and action that is attributable to a past event. In principle, implicit memory is independent of explicit memory; in practice, Claparède's patient shows that implicit memory can be spared, even though explicit memory is profoundly impaired. Korsakoff himself had recorded similar observations, but not in the famous paper that announced his eponymous syndrome (Korsakoff, 1889b). Rather, these paradoxes of memory were described in another piece (Korsakoff, 1889a; see Schacter, 1987), which is not nearly so well known. Thus, it fell to Claparède (1911/1951) to bring them into bold relief. But that is not why Claparède's paper still deserves to be read. After all, the distinction between explicit and implicit memory is now a major industry, and a large number of investigators have gone beyond simple demonstration experiments to much more analytic research (for collections of relevant research, see Levandowsky, Dunn, & Kirsner, 1989; Graf & Masson, 1993). Claparède's observations reveal a dissociation between explicit and implicit memory, but they fail to address any of the theoretical issues that interest us today.

Somewhat paradoxically, perhaps, Claparède's paper speaks to us now on an entirely different issue—one that is almost forgotten in our rush to understand the nature of implicit memory: the problem of conscious recollection. The paper itself was intended to be a commentary on a theory of recognition proposed by Katzaroff (1911), based on his own observations of Korsakoff's syndrome and posthypnotic phenomena. Like James (1890), Katzaroff argued that we can recognize objects and events as familiar without any awareness of the past circumstances in which we encountered them. In perceptual identification, for example, we recognize objects without localizing their previous appearances in the past. In *déjà vu*, on the other hand, we recognize as familiar objects that we have not seen before. In general, Claparède notes, recognition of an object or event precedes localization in the past. Therefore, recognition must be mediated by something besides localization. But what? "According to our theory," Claparède replies, "an object is recognized because it evokes a feeling of 'me-ness' to which it is tied by virtue of its previous presentations to the subject's consciousness" (1911/1951, pp. 61–62). Objects and events are recognized for what they are by virtue of a feeling that they are familiar.

Of course, two different senses of recognition are at risk of being confused here: perceptual recognition, the identification of an object as something that is known, is not the same as episodic recognition, the identification of an event as something that has occurred before. Claparède cites his patient as evidence that the feeling of me-ness, underlying the feeling of familiarity, can be selectively destroyed. Her problem is not merely that she cannot localize events in the past, which indeed she cannot, but rather that she cannot connect past events to herself. Thus, Claparède distinguished between two sorts of associations in the mind: between different representations, and between representations and the self, viewed as a particular representation of the personality. It is the feeling of me-ness, mediated by associations of the latter type, which turns a mental representation into a memory. The first idea that interests us, then, is the proposal that the self is a mental structure that plays a role in cognitive processing (for elaborations of this idea, see Kihlstrom & Cantor, 1984; Kihlstrom, Cantor, Albright, Chew, Klein, & Niedenthal, 1988; Kihlstrom & Klein, 1994).

Furthermore, Claparède invokes images of Newtonian mechanics to articulate a specific theory of the involvement of mental representations of the self in two different forms of conscious recollection, recall and recognition. Recognition, he argues, is centripetal, with the action tending toward the center: perception of the cue subsequently evokes the feeling of me-ness. By contrast, recall is centrifugal: the action moves from the self to the mental representation of the event. The imagery depends, of course, on a critical assumption: the self, the mental representation of the personality, lies at the center of consciousness. This mechanical image provides the basis of a theory of recall and recognition that can be implemented in computer simulation models of memory, such as ACT* (Anderson, 1983). When subjects study a wordlist, for example, we might propose that they form an association between a mental representation of each word and a mental representation of the self. At the time of test, the query for free recall ("What items do you remember from the list?") initially activates a mental representation of the self, from which the subject must search to retrieve words associated with that representation. In the case of recognition, the query ("Was CAT an item on the list?") initially activates a mental representation

of the target word, from which the subject must search to find an association with the self. Thus, episodic remembering begins and ends with the self.

From Claparède's point of view, amnesics cannot recall or recognize the past because the connection to the self was not made at the time of encoding, was not retained in storage, or cannot be completed at retrieval. Without the connection to the self, traces of past experience can only pass through the mind as implicit memories. But does explicit memory actually require the feeling of me-ness? Perhaps not. Recent analyses suggest that remembering takes several different forms, only some of which depend on the feeling of me-ness. For example, Mandler (1980, 1989) and Jacoby (Jacoby & Dallas, 1981; Jacoby, Kelley, & Dywan, 1989) have argued that there are two different bases for recognition memory: in Mandler's terms, we recognize an event either because we feel it is familiar or because we retrieve the past circumstances in which it occurred. Claparède suggests that familiarity is mediated by the feeling of me-ness, but Mandler and Jacoby have suggested that familiarity might be mediated solely by the activation of knowledge structures stored in memory, without any involvement of the self at all. This activation supports priming and other implicit memory effects; but all things being equal, subjects who base their recognition judgments on the feeling of familiarity will be right more often than they are wrong. Reliance on the feeling of familiarity may explain why some amnesic patients perform relatively well on recognition tasks (Hirst, Johnson, Kim, Phelps, Risse, & Volpe, 1986; Hirst, Johnson, Phelps, & Volpe, 1988).

Of course, even if Claparède were right about familiarity, the other form of recognition requires yet another element, which he called localization. But the mental representation of self provides no basis for this process. The implication is that Claparède miscounted and that there are *three* sorts of mental connections in episodic memory, not just two: representations of events are linked to each other, and to a representation of the self, but they are also linked to representations of the spatiotemporal context in which they occurred. This situation affords three different modes of explicit recognition: remembering, inferring and knowing.

If the subject is able to retrieve the representation of spatiotemporal context, localization is possible, and what Mandler might term *recognition-by-retrieval* occurs. If localization is not possible, recognition must rely on other processes. One of these is recognition-by-familiarity, as characterized by Mandler and Jacoby. As Bartlett (1932) argued, and as Mandler (1980) reminds us, remembering is an act of problem-solving, in which the subject must reconstruct what happened in the past. Based on the feeling of familiarity (regardless of whether that feeling is mediated by the feeling of me-ness or merely by priming) one may infer that an event occurred in the past. All things being equal, these informed guesses will be right more often than wrong.

The third mode of recognition draws on the distinction between *remembering* and *knowing* (Gardiner, 1988; Tulving, 1985). On a recognition test, subjects can distinguish between remembering an item and merely knowing that an item appeared on a study list. Remembering requires conscious recollection of the study episode, but knowing does not. Knowing could be shorthand for Mandler's judgment of prior occurrence, based only on familiarity; or it could reflect the retrieval of contextual information, but not self-reference information. Perhaps knowing, as well as inferring, underlies successful recognition in amnesia (Hirst et al., 1986, 1988). Remem-

bering, knowing, and inferring are all forms of explicit memory, but as Rajaram (1993) has noted, remembering is the purest expression of conscious recollection. Ultimately, full-fledged conscious recollection requires retrieval of the event, of the spatiotemporal context in which the episode occurred, and of the self as the agent or experimenter of the event (Kihlstrom, 1993).

In the final analysis, then, the importance of Claparède's (1911/1951) paper does not lie in its anticipation of the contemporary distinction between explicit and implicit memory. Instead, its lasting relevance, and worth, comes from its provocative analysis of conscious recollection. Claparède reminds us that consciousness remains the great mystery in psychology and that the self plays a crucial role in consciousness. In this way, as Rapaport (1951) recognized, Claparède's paper shows how cognitive and social psychologists, studying both clinical patients and normal subjects, can work together to achieve a truly integrative science of the mind.

ACKNOWLEDGMENTS

Invited commentary on *Recognition et Moitié* by Edouard Claparède, excerpts of which are reprinted in *Consciousness and Cognition* (1994). The role of the self in consciousness is further elaborated in Kihlstrom (1993). The point of view represented in this paper is based on research supported by Grant MH-35856 from the National Institute of Mental Health. I thank Lawrence Couture, Jennifer Dorfman, Martha Glisky, Victor Shames, and Susan Valdisseri for their comments; Susan Valdisseri also did bibliographic detective work.

REFERENCES

- Anderson, J. R. (1983). *The architecture of cognition*. Cambridge, MA: Harvard Univ. Press.
- Bartlett, F. C. (1932). *Remembering: A study in experimental and social psychology*. Cambridge: Cambridge Univ. Press.
- Claparède, E. (1907). Scéance du 28.2.1907 Société Médicale du Genève. *Revue Médical de la Suisse Romande*, **27**, 301–303.
- Claparède, E. (1911). Recognition et moitié. *Archives de Psychologie*, **11**, 79–90. [Translated by D. Rapaport; published in D. Rapaport (Ed.) (1951). *Organization and pathology of thought: Selected sources* (pp. 58–75). New York: Columbia Univ. Press.]
- Claparède, E. (1930). Edouard Claparède. In C. A. Murchison (Ed.), *The history of psychology in autobiography* (Vol. 1, pp. 63–97).
- Gardiner, J. M. (1988). Functional aspects of recollective experience. *Memory and Cognition*, **16**, 309–313.
- Graf, P., & Masson, M. E. J. (Eds.) (1993). *Implicit memory: New directions in cognition, development, and neuropsychology*. New York: Academic Press.
- Hirst, W., Johnson, M. K., Kim, J. K., Phelps, E. A., Risse, G., & Volpe, B. T. (1986). Recognition and recall in amnesics. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, **12**, 445–451.
- Hirst, W., Johnson, M. K., Phelps, E. A., & Volpe, B. T. (1988). More on recognition and recall in amnesia. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, **14**, 758–762.
- James, W. (1890). *Principles of psychology*. New York: Holt.
- Jacoby, L. L., & Dallas, M. (1981). On the relationship between autobiographical memory and perceptual learning. *Journal of Experimental Psychology: General*, **110**, 306–340.
- Jacoby, L. L., Kelley, C. M., & Dywan, J. (1989). Memory attributions. In H. L. Roediger & F. I. M. Craik (Eds.), *Varieties of memory and consciousness: Essays in honor of Endel Tulving* (pp. 201–233). Hillsdale, NJ: Erlbaum.
- Katzaroff, D. (1911). Contribution a l'étude de la rëcognition. *Archives de Psychologie*, **11**, 2–78.

- Kihlstrom, J. F. (1993). Consciousness and me-ness. In J. Cohen & J. Schooler (Eds.), *Scientific approaches to the question of consciousness*. Hillsdale, NJ: Erlbaum.
- Kihlstrom, J. F., & Cantor, N. (1984). Mental representations of the self. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (Vol. 17). New York: Academic Press.
- Kihlstrom, J. F., Cantor, N., Albright, J. S., Chew, B. R., Klein, S. B., & Niedenthal, P. M. (1988). Information processing and the study of the self. In L. Berkowitz (Ed.), *Advances in Experimental Social Psychology*. (Vol 21, pp. 145–177). San Diego: Academic Press.
- Kihlstrom, J. F., & Klein, S. B. (1994). The self as a knowledge structure. In R. S. Wyer & T. K. Srull (Eds.), *Handbook of social cognition* (2nd ed., Vol. 1, pp. 153–208). Hillsdale, NJ: Erlbaum.
- Korsakoff, S. S. (1889a). Etude médico-psychologique sur une forme des maladies de la mémoire. *Rèvue Philosophique*, **28**, 501–530.
- Korsakoff, S. S. (1889b). Über eine besondere Form psychischer Störung, kombiniert mit multiplen Neuritis. *Archiv für Psychiatrie und Nervenkrankheiten*, **21**, 669–704. [Translation by M. Victor & P. I. Yakovlev; published in *Neurology*, 1955, **5**, 394–406.]
- Lewandowsky, S., Dunn, J. C., & Kirsner, K. (Eds.). (1989). *Implicit memory: Theoretical issues*. Hillsdale, NJ: Erlbaum.
- Lerner, E. (1941). Edouard Claparède. *American Journal of Psychology*, **54**, 296–299.
- Mandler, G. (1980). Recognizing: The judgment of previous occurrence. *Psychological Review*, **87**, 252–271.
- Mandler, G. (1989). Memory: Conscious and unconscious. In P. R. Solomon, G. R. Goethals, C. M. Kelley, & B. R. Stephens (Eds.), *Memory: Interdisciplinary approaches* (pp. 84–106). New York: Springer-Verlag.
- Peiro, J. M. (1991). [The presence of the works of E. Claparède in the psychology of Jean Piaget.] *Revista de Historia de la Psicología*, **12**, 87–121.
- Piaget, J. (1968). Claparède, Edouard. *International Encyclopedia of the Social Sciences* (Vol. 2, pp. 501–502). New York: Macmillan.
- Pillsbury, W. B. (1941). Edouard Claparède. *Psychological Review*, **48**, 271–278.
- Rajaram, S. (1993). Remembering and knowing: Two means of access to the personal past. *Memory and Cognition*, **21**, 89–102.
- Rapaport, D. (Ed.). (1951). *Organization and pathology of thought: Selected sources*. New York: Columbia Univ. Press.
- Roediger, H. L. (1990a). Implicit memory: A commentary. *Bulletin of the Psychonomic Society*, **28**, 373–380.
- Roediger, H. L. (1990b). Implicit memory: Retention without remembering. *American Psychologist*, **45**, 1043–1056.
- Schacter, D. L. (1987). Implicit memory: History and current status. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, **11**, 501–518.
- Schacter, D. L., Chiu, C.-Y. P., & Ochsner, K. N. (1993). Implicit memory: A selective review. *Annual Review of Neuroscience*, **16**, 159–182.
- Schacter, D. L., & Tulving, E. (1982). Amnesia and memory research. In L. S. Cermak (Ed.), *Human memory and amnesia* (pp. 1–32). Hillsdale, NJ: Erlbaum.
- Squire, L. R., Knowlton, B., & Musen, G. (1993). The structure and organization of memory. *Annual Review of Psychology*, **44**, 453–495.
- Tulving, E. (1983). *Elements of episodic memory*. Oxford: Oxford Univ. Press.
- Tulving, E. (1985). Memory and consciousness. *Canadian Psychologist*, **26**, 1–12.
- Winograd, T. (1975). Frame representations and the procedural-declarative controversy. In D. Bobrow & A. Collins (Eds.), *Representation and understanding: Studies in cognitive science* (pp. 185–210). New York: Academic Press.

Received March 4, 1994