

Try, for example, to recall your first day at college. What do you remember about that day? Now ask yourself how you are able to recall any of these memories (if in fact you can). If you drew a total blank, why is that so? What exactly goes on when you try to recall? What makes some information memorable and other information hard to recall? (For example, can you describe what your cognitive psychology professor wore two lectures ago?)

Sometimes we fail to notice how extraordinary a particular ability is until we encounter someone who lacks it. Baddeley (1990) documented the tragic case of Clive Wearing, a musician and broadcaster who, because of brain damage caused by encephalitis, was left with severe amnesia. Although many people suffer from amnesia, Wearing's case is one of the most devastating on record. As Baddeley described it,

His amnesia was so dense that he could remember nothing from more than a few minutes before, a state that he attributed to having just recovered consciousness. Left to his own devices, he would often be found writing down a time, for example, 3:10, and the note, "I have just recovered consciousness," only to cross out the 3:10 and add 3:15, followed by 3:20, etc. If his wife left the room for a few minutes, when she returned he would greet her with great joy, declaring that he had not seen her for months and asking how long he had been unconscious. Experienced once, such an event could be intriguing and touching, but when it happens repeatedly, day in, day out, it rapidly loses its charm. (pp. 4–5)

Interestingly, a few of Wearing's memory abilities seemed to have been spared. He apparently conducted a choir through a complex piece of music and could still play the harpsichord and piano. These abilities were the exception rather than the rule, however. Wearing could not go out alone because he would quickly become lost and unable to find his way back. He could not recognize

much in photographs of familiar places, and his memories of his own life were quite sketchy.

In this chapter and the next three chapters, I will try to explain these phenomena. To do so, we will look in detail at the processes people use to form, store, and retrieve information. We will examine theoretical approaches to the study of memory, considering memory that lasts only briefly as well as memory that endures for hours, weeks, and even years. Much of the research described in this chapter and Chapter 6 comes from the laboratory, where experiment participants, often college student volunteers, are presented with lists or series of words, syllables, or pictures under highly controlled conditions. In some parts of Chapter 7, we will consider how well laboratory-based models apply to memory phenomena outside the laboratory, most often to memories of episodes from people's own life stories.

In this chapter, we will take up topics that have several deep connections to topics we have talked about in the last two chapters (perception and attention). We have already seen some previews, for example, that working memory capacity seems to be related to degree of attentional focus and control. Here, we will explore what this term *working memory* refers to. The important point for now is that some of the topics in the last chapter could quite easily have been put here; conversely, some of the topics in this chapter would have fit comfortably in Chapter 3 or 4. I hope, however, that when you are done reading both chapters carefully, all the interconnections will be clear.

A brief review of terminology is in order before we begin. We say that **encoding** occurs when information is first translated into a form that other cognitive processes can use. We call this the formation of a **memory trace**. This trace is held in **storage** in one form or another for later retrieval. We say that **forgetting** occurs when we cannot retrieve information.