Chapter 1

The “First” Case

The initial recognition of the disease that was later named after him was made by a German psychiatrist, Dr Alois Alzheimer, at the beginning of the twentieth century. The case he described was Auguste Deter, or Auguste D. (Figure 1.1), who was admitted at age 51 to the insane asylum in Frankfurt am Main on November 25, 1901 and placed under the care of Dr Alzheimer (Maurer, Volk, & Gerbaldo, 1997). Auguste D.’s presentation included both psychiatric and cognitive symptoms. From the initial symptom of jealousy of her husband, she was observed to progressively lose her memory and become disoriented in her home, misplacing and hiding items and becoming paranoid that someone was going to kill her. In the asylum, she exhibited signs of confusion interspersed with times of rationality, and would become delirious, aggressive, and sometimes suffer from auditory hallucinations. Dr Alzheimer reported that she often screamed for many hours, and that she was unable to understand her situation (Stelzmann, Schnitzlein, & Murtagh, 1995). At times, it was impossible to examine her due to her erratic behavior. Over time, her memory became seriously impaired, and while she could still name objects shown to her, she forgot them as soon as they were removed from view. She developed problems reading and writing and called things by their wrong name, such as “milk-pourer” instead of “cup.” She could not understand questions or follow a conversation. Although her gait and reflexes were normal, her cognition continued to decline as her illness progressed. In the end, Auguste D. “was lying in bed in a fetal position completely pathetic, incontinent. In spite of all nursing care, she had developed bedsores” (Stelzmann, Schnitzlein, & Murtagh, 1995). Auguste D. lived for 4½ years after her first symptoms began. Her causes of death included septicemia due to bedsores and pneumonia.

Alois Alzheimer was born in 1864 near Würzburg, Germany. In 1888, he was a medical resident at the Hospital for the Mentally Ill and Epileptics in Frankfurt am Main and later became a senior physician there. His interests were wide-ranging, from dementia of degenerative and vascular origins to epilepsy, forensic psychiatry, and psychoses (Maurer, Volk, & Gerbaldo, 1997). In 1903, Alzheimer moved to Munich, where he worked with Dr Emil Kraepelin, the founder of modern scientific psychiatry who proposed that the origins of psychiatric disease were biological changes in the brain. Dr Franz Nissl, the leading
neuropathologist of his day, taught Alzheimer new histopathologic techniques to study disorders of the nervous system. These two influences were key to Alzheimer’s discovery and description of the disease that would bear his name.

Alzheimer continued to follow Auguste D.’s case until her death on April 8, 1906 and subsequently studied the neuropathology of her disease using brain autopsy tissue. On November 4, 1906, Dr Alzheimer gave a lecture describing Auguste D.’s case. In the first case report published in 1907 (Alzheimer, 1907), he described the histopathologic findings of peculiar changes in the neurofibrils (neurofibrillary tangles) and neuritic (amyloid) plaques. Using Bielschowsky’s silver method of staining, he reported that inside a cell that appeared normal were one or more fibrils that were unusually thick. Many fibrils that were adjacent to one another had similar changes. These appeared as thick bundles or clumps. Sometimes, bundles of fibrils occurred outside cells, at locations of once healthy neurons that had degenerated. He called these fibrils “neurofibrillary degeneration.” Alzheimer also described minute “miliary foci” distributed throughout the cortex now known as amyloid plaques that were caused by the deposition of a “special substance in the cortex.” He reported that the plaques were extremely numerous and that almost one-third of the cortical cells had degenerated and died. Accompanying these findings were observations that the

FIGURE 1.1 Auguste Deter. Dr Alzheimer’s first case, described in 1906. Photograph dated 1902.
brain had significantly atrophied (shrunk) and that the larger vascular tissues showed arteriosclerotic changes (Stelzmann, Schnitzlein, & Murtagh, 1995). In recognition of his pioneering work, his colleague Dr Kraepelin suggested the disease be named after Dr Alzheimer. By 1911, there were several case series published of cases similar to Auguste D.’s (Kraepelin, 1910; Perusini, 1909).

Auguste D.’s case is remarkable for her young age at onset and her rapid decline. Some have debated whether her case was really Alzheimer’s disease (AD) or another illness, such as Pick’s disease (known today as frontotemporal dementia). However, most experts agree that Auguste D. displayed the hallmarks of AD and that her disease was correctly diagnosed. The neuropathologic findings supporting the diagnosis of AD were important at the time because they showed that mental disorders could have an organic substrate. Prior to this time they were considered functional disorders. The findings fit well with Kraepelin’s view that psychiatric diseases have a biological basis.

Auguste D. was certainly not the “first” case of the disease. By the early 1900s, senile dementia (meaning losing one’s mental faculties in advanced age) was a recognized clinical entity. What was new was the relatively young age at which Auguste D. presented with clinical symptoms. Kraepelin described the newly named “Alzheimer’s disease” as a “particularly serious form of senile dementia…that sometimes starts as early as in the late forties” (Kraepelin, 1910). In fact, we know today that familial forms of AD can lead to extremely early disease presentations with some beginning as early as the 20s (Wisniewski et al., 1998). However, these cases are very rare as we shall discuss in Chapter 10. AD is predominantly a disease of old age.

The initial description of AD as a presenile dementia to be distinguished from senile dementia persisted until the late 1960s, when pioneering neuropathologic studies of normal and demented individuals (Tomlinson, Blessed, & Roth, 1968, 1970) led to the recognition that the same disease was responsible for much of the more common form of dementia occurring in later life as well. While early-onset cases are of interest, this book focuses primarily on the more common later-onset cases of AD and the potential for preventing them.