Thomas A. Ban: Neuropsychopharmacology in Historical Perspective. Dementia Differential Diagnosis

Conceptual Development

The origin of the term "dementia" is in the Latin word demens, i.e., out of one's mind. It first appeared in the third book of *De Re Medicina* of Aurelius Cornelius Celsus, who used the term to describe the disorder which may follow fever-induced, transient delirium (Berrios 1981). By recognizing that not all cases of delirium were followed by "insanity," but only those in which "a continuous dementia begins," Celsus - during the reign of Tiberius (AD 14-31) - set the stage for the development which culminated in the separation of chronic organic (neuropsychiatric) disorders from acute organic (psychotic) states.

The origin of current diagnostic concepts relevant to dementing illness is in the work of Bayle (1826). Stimulated by Mortgagni's (1789) attempt to correlate postmortem findings in the brain with clinical manifestations, Bayle (1822) recognized that chronic arachnoiditis (arachnitis) leads to dementia in the terminal stage of its development.

Bayle's (1822) recognition that chronic arachnoiditis leads to dementia triggered interest in the study of clinical neuropathologic correlations. It was in the course of this research that several dementing diseases with distinctive neuropathologic changes were identified. Included among them are Huntington's chorea (discovered in 1872), Pick's disease (identified in 1892), Binswanger's disease (separated in 1894), Alzheimer's disease (described in 1907) and Creutzfeldt-Jakob's disease (recognized in 1920). The common characteristic of all these disorders is an irreversible-progressive course.

Simultaneously with this development, the dysmnesia disorders characterized by severe memory impairment with selective disorientation to time and place without global personality deterioration – such as Kahlbaum's (1863) presbyophrenia (or paraphrenia senilis) and Korsakoff's (1887) amnestic psychosis (or amnestic syndrome) -- were separated from the dementias (Wernicke 1900); the term "Vesanic dementia" was replaced by the term "pseudodementia" (Wernicke 1884); the diagnostic concept of pseudodementia, a reversible cognitive impairment in the absence of neuropathologic changes was differentiated from real (true) dementia; and the diagnostic concept of exogenous psychosis, displayed in delirium, was distinguished from the organic psychosis, displayed by dementia (Bonhoeffer 1909).

Considering that delirium is one of the two main conditions associated with pseudodementia, with the introduction of the diagnostic concept of exogenous psychosis, Celsus' original distinction between transient delirium and irreversible dementia has become of diagnostic significance.

It was in 1898 that Binswanger introduced the term "presenile dementia" for "degenerative disorders of the nervous system which give rise to dementia during middle age." The concept was adopted and further elaborated by Kraepelin (1909), who perceived presenile dementia as a malignant form of senile dementia, which begins at an earlier than senile age (Mayer-Gross, Slater and Roth 1960). In spite of this and the rapidly increasing number of disorders with prevalent dementia identified, the diagnostic significance of the dementia syndrome had remained hidden in the classifications of Kraepelin (1883-1909). It was only in Eugen Bleuler's (1918) classification where the use of the term dementia was restricted for the first time to the "acquired psychoses with coarse brain disease" (Table 1).

At present, there are at least 10 different classes of disorders (Cummings 1981) (Table 2), and more than 150 different illnesses (Koranyi 1988) which lead to dementia ln their terminal stage. Nevertheless, it ls generally acknowledged that among all the dementias by far the most frequently encountered are the degenerative and the vascular dementias of old age (Table 3).

Table 1

Huntington's Chorea	1872
Pick's Disease	1892
Binswanger's Disease	1898
Alzheimer's Disease	1907
Creutzfeldt-Jakob's Disease	1920
Kahlbaum’s Presbyophrenia	1863
Korsakoff's Amnestic Psychosis	1887
Wernicke's Pseudodementia	1894
Binswanger's Presenile Dementia	1898
Kraepelin's Senile Dementia	1909
Bonhoeffer's Exogenous Psychosis	1909

Bleuler's Acquired Psychoses with Coarse Brain Disease 1918

Development of concepts relevant to dementia and to the differentiation of the dementia syndrome from other syndromes.

Table 2

1. Degenerative	6. Hydrocephalic
2. Vascular	7. Inflatory
3. Myelinoclastic	8. Infection related
4. Traumatic	9. Toxic
5. Neoplastic	10. Metabolic

Ten etiologically different classes of disorders which may lead to dementia in the terminal stage of their development. (Based on Cummings: Dementia Syndromes: Neurobehavioral and neuropsychiatric features. J Clin Psychiatry 1987;48 Suppl:3-8).

Table 3

	Prevalence in General Population	Contribution to Dementia Syndrome
Alzheimer's Disease	+ + +	+ + +
Pick's disease	+	+
Huntington's disease	+	+
Progressive Supranuclear palsy	+	+
Vascular		
- Postanoxic	+	+
- Multi-infarct	+ +	+ + +
- Arteritis	+	+
Parkinson's disease	+ +	+ +
Brain tumor	+	+

Head trauma		+	+			+		
Normal pressure hydrocephalus		+				+		
Drug toxicity		+	+	+		+	+	
Alcohol abuse		+	+	+		+	+	
Depression		+	+	+		+	+	
Sensory deprivation		+	+	+		+		
Metabolic disorders								
- Thyroid	or	+	+			+		
- Sodium	or	+	+	+		+		
- Calcium	or	+	+			+		
- Glucose	or	+	+	+		+		
- Hepatic failure		+	+			+		
- Renal failure		+	+			+		
- Adrenal		+				+		
Nutritional								
- Thiamine		+				+		
- Folate		+				+		
- Ascorbic Acid		+				+		
Infections								
- HIV		+				+		
- Neurosyphilis		+				+		
Neurotoxic Metals								
- Aluminum		+				+		
- Heavy metals, e.g., lead, tin, manganese, mercury		+				+		
Carcinoma <remote effects>		+	+			+		
Miscellaneous conditions		+				+		

+ = low; + + = intermediate; +++ = high

Prevalence of different conditions which may cause dementia in the general population and their contribution to the development of the dementia syndrome. (Based on Canadian Consensus Conference on the Assessment of Dementia, S-6 October 1989).

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