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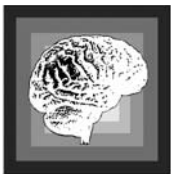

Kraepelin's 'lost biological psychiatry'? Autointoxication, organotherapy and surgery for dementia praecox

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Kraepelin believed that a chronic metabolic autointoxication, perhaps arising from the sex glands, eventually caused chemical damage to the brain and led to the symptoms of dementia praecox. The evolution of Kraepelin's autointoxication theory of dementia praecox is traced through the 5th to 8th (1895 to 1913) editions of his textbook, Psychiatrie. *The historical context of autointoxication theory in medicine is explored in depth to enable the understanding of Kraepelin's aetiological assumption and his application of a rational treatment based on it – organotherapy. A brief account of the North American reception of Kraepelin's concept of dementia praecox, its autotoxic basis, and the preferred American style of rational treatment – surgery – concludes the discussion.*

Keywords*: autointoxication theory; dementia praecox; Emil Kraepelin; focal infection theory; history; organotherapy; psychiatry; surgical treatments; USA*

Although historians of psychiatry continue to debate the interpretation of a variety of aspects of the life and work of Emil Kraepelin (1856–1926), they tend to agree on one major point: his primary contribution to psychiatry is often regarded to be his vigorous enactment of the logic of the methods of clinical psychopathology first proposed by Karl Kahlbaum (Berrios and Hauser, 1988; Shorter, 1997, 2005). Kraepelin is remembered for his empirical demonstration that mental disorders could be taxonomized into several principal types, that they have several different courses and outcomes, and that their essences could be discerned through the systematic study

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of large numbers of cases. Of the multitude of mental illnesses and their subtypes identified and modified by Kraepelin over the course of his career, it is fair to say that until recently only dementia praecox was routinely invoked by historians of psychiatry as the paramount exemplum of how Kraepelin put theory into practice. Scholars are now devoting increasing attention to Kraepelin's changing clinical taxonomy of his other major insanity, manic-depressive illness (Angst, 2002; Marneros and Goodwin, 2005).

Viewing Kraepelin's dementia praecox through the lens of the development of his psychopathological method has placed a deserved emphasis on its changing diagnostic criteria, courses and outcomes throughout Kraepelin's career. The multiple changes Kraepelin made in his own definition of the forms and courses of dementia praecox in the last thirty years of his life were matched by equally creative contributions from Eugen Bleuler (1857–1939) and others, leading to the conclusion of some scholars (which I happen to share) that dementia praecox or schizophrenia 'is not the result of one definition and one object of inquiry successively studied by various psychiatric groups but a patchwork made out of clinical features plucked from different definitions' (Berrios, Luque and Villagran, 2003: 111). Despite the value of such conceptual histories, these discussions – of which there are many – have obscured an interesting but neglected aspect of Kraepelin's medical cognition: his speculation as to the aetiology of dementia praecox.

Kraepelin first proposed the term dementia praecox to identify a psychotic disorder in the 1893 fourth edition of his textbook, *Psychiatrie*, providing a fuller (indeed, the first) clinical description in the fifth edition of 1896. He may have borrowed the term from Arnold Pick (1851–1924), Professor of Psychiatry at the German university in Prague, who had used the Latin form 'dementia praecox' to label a hebephrenia-like psychotic disorder just a few years earlier (Pick, 1891). Until 1899 dementia praecox was essentially identical with the psychotic disorder Ewald Hecker (1843–1909) had identified decades earlier as 'hebephrenia' (Hecker, 1871). However, it was through (in part) the continuing analysis of his vast collection of data cards on individual patients that he was able to introduce, in the 1899 sixth edition of his textbook, the now classic clinical description of dementia praecox as the heterogeneous disease comprised of at least three subtypes (the hebephrenic, catatonic and paranoid), each with its own identifiable clinical psychopathology. Kraepelin devoted very few pages to the issue of aetiology in the various editions of his textbook and focused instead on an increasingly complex picture of its clinical presentation, expanding the number of essential forms or subtypes from the classic three of 1899 to at least ten by the eighth edition of *Psychiatrie* in 1913.

Kraepelin, however, was not completely silent on the issue of the causes of dementia praecox. Heredity, of course, was acknowledged as an important aetiological factor. However, in my opinion, the importance of heredity as the singular cause of dementia praecox has been grossly overestimated by some

scholars. These scholars tend to place Kraepelin's hereditarian views within the context of degeneration theory, which he did in fact believe to be true (Engstrom, Burgmair and Weber, 2002). This has led to a monocausal misinterpretation of Kraepelin's views. His views of heredity were more nuanced, more probabilistic and significantly more congruent with the assumptions of the behavioural genetics of today than with the tenets of nineteenth-century degeneration theory. His statements on the role of heredity in the aetiology of dementia praecox attest to this.

What is missing in the current scholarship on Kraepelin is a discussion of a key component of his medical cognition: the belief that dementia praecox was due to an endogenous process of chronic *autointoxication* which led to a 'self-poisoning (*Selbstvergiftung*)' of the body and, eventually, its brain. Scholars who continue to cite only the fatalism of heredity or degeneration keep missing the point: in Kraepelin's view, the true origin of dementia praecox was not to be found in the cells of the central nervous system, nor (entirely) in the shadowy ancestral chambers of the germ plasm, *but active and alive elsewhere in the present body.* Furthermore, if dementia praecox was directly caused by proximal rather than distal biological processes, it was a potentially *preventable* and *treatable* disease. Kraepelin held out no hope for complete cures, but, at least for some time, he believed that the prevention of dementia praecox and the development of rational therapies were possible if only the mysterious mechanisms of the self-poisoning process could be discovered.

Historians of psychiatry continue to ignore the subtleties of the early twentieth-century discussions on the aetiological heterogeneity of dementia praecox and its successor, schizophrenia. Many biological psychiatrists of Kraepelin's era, like the biological psychiatrists of today who research schizophrenia (Hirsch and Weinberger, 2003), understood that the disease could not be explained by heredity or genetics alone. To fully understand Kraepelin's view of dementia praecox we must first understand the context of the medical world in which he lived and worked, an era energized by the 'laboratory revolution in medicine' (Cunningham and Williams, 1992) and the resulting rise of bacteriology in the 1870s, endocrinology in the 1890s and serology and immunology in the first decade of the 1900s. All these new medical sciences played a role in framing the various autointoxication theories of Kraepelin's era – and by extension, what I refer to as the 'lost biological psychiatry' of a century ago.

The two variants of autointoxication theory

Among the learned elites of medicine, if not among the majority of practising physicians, by 1880 the germ theory of disease and the new medical science of bacteriology offered a novel and potentially fruitful paradigm for comprehending illness. Following the replicable laboratory demonstration

that bacteria or microbes were involved in processes such as putrefaction, fermentation and infection, it was a natural cognitive leap to hypothesize that they were involved in the aetiology and pathophysiology of many – if not most – diseases. The applicability of the germ theory of disease to the study of the insanities was suggested as early as 1874 in the *American Journal of Insanity* by Theodore Deecke, the pathologist of the New York State Lunatic Asylum (Deecke, 1874). By the late 1880s it was argued that diseases were not caused by the bacterial organisms acting directly, but instead by the toxins they produced. Poisonous ptomaines (the products of proteins formed in putrefaction) or 'toxalbumins' were formed that could be circulated through the body's bloodstream and produce a wide variety of diseases affecting almost every organ. In the original, classical form of autointoxication theory, the intestines were most often cited as the locus of this systemic self-poisoning process, with the kidneys and liver assuming lesser importance in theoretical speculation. The term *intestinal* or *gastrointestinal autointoxication* was most often used in the literature of that era. In later years, this variant of autointoxication theory would be termed *focal infection* or *focal sepsis* (Billings, 1916). Beginning in the year 1900 the teeth, gums and tonsils were most often cited as the original source of pathogens that would spread throughout the body and infect various organs and tissues (Scull, 2005).

A second variant of autointoxication theory arose in the 1890s when endocrinology began to emerge out of physiology as a distinct discipline of clinical and research medicine. The French physiologist and neurologist C.-E. Brown-Sequard (1817–94) and his assistant Arsene d'Arsonval (1851–1940) published an article in April 1891 in which it was first proposed that disease could result from the lack of production of 'internal secretions' in animal tissues, and this newly posited pathogenic mechanism was incorporated into autointoxication theory (Borrell, 1976). The work of British physiologist George Redmayne Murray (1865–1939), who discovered the cure of myxoedema by subcutaneous injection of thyroid extract in 1891, particularly intrigued Kraepelin. By 1900 the over- or under-production of 'internal secretions' in the glands of the body were posited as the cause of a wide variety of diseases, both physical and mental. It was this *interstitial* or *metabolic autointoxication* theory that influenced most biological psychiatrists in the first three decades of the twentieth century.

Gastrointestinal autointoxication

The disease theory of autointoxication first appeared in the German medical literature. Hermann Senator (1834–1911), a clinical professor at Berlin University, had speculated as early as 1868 that 'self-infection' arising in the intestines could be a source of disease elsewhere in the body (Senator, 1868). Later he argued that mental disturbances could be caused by to this process,

claiming that the acute delirium of diabetic coma may have its origin in '*Selbstinfektion*' (Senator, 1884).

However, it was the work of French physicians that fuelled the rapid expansion of this theory to all categories of disease, including mental disorders. Autointoxication theory rose to international prominence in medicine after the 1887 publication of *Leçons sur les auto-intoxications dans les maladies* by Charles Jacques Bouchard (1837–1915), an early student of Charcot and an eminent Professor of Pathology at the University of Paris (Bouchard, 1887; Conrepois, 2002). For both Senator and Bouchard – the founders of autointoxication theory – the disease-causing poisons were the products of putrefactive processes in the intestines. Although a normal part of the digestive process, under certain conditions (such as faecal stasis) the overproduction of these toxins could not be filtered by the liver or kidneys and, as they entered other organs, disease would result. Bouchard's vision of the inner life of the human body is dramatic:

> I have said that the organism, in its normal, as in its pathological state, is a receptacle and a laboratory of poisons … Man is in this way constantly living under the chance of being poisoned; he is always working towards his own destruction; he makes continual attempts at suicide by intoxication. (Bouchard, 1894: 14)

It was not until 1893, however, that we find the first indications that autointoxication theory was being seriously discussed as a possible aetiology for mental disorders. On 1 August of that year, at the Fourth Session of the French Congress of Psychological Medicine held in La Rochelle, 'Rapporteurs' Francois-Andre Chevalier-Lavaure, a physician from Aix-en-Provence, and Emmanuel Regis, a physician from Bordeaux, drew attention to the value of autointoxication as a possible organic cause of madness, by organizing and leading a panel on 'Auto-intoxication in Mental Disease'. This topic had been the subject of Chevalier-Lavaure's doctoral dissertation in 1890, the first substantive treatment of this issue in the history of psychiatry (Chevalier-Lavaure, 1890). In their joint presentation they argued that it was difficult to distinguish between cases of autointoxication and those of infection from sources outside the body, but that a clear diagnostic distinction should be made between 'infectious' insanity (mental disturbances following acute infectious diseases, such as meningio-encephalitis) and 'visceral insanity', which is 'associated with disease of the internal organs' and is 'also very probably due to autointoxication' (Regis and Chevalier-Lavaure, 1893).

Senator (1884) had already proposed that such self-infection would have profound effects on the nervous system and the brain. When Bouchard's book first appeared in English in January 1894, Thomas Oliver (1894: xi) noted in his translator's preface that, 'The part played by auto-intoxication in mental diseases is attracting attention.' In 1895 systematic extensions of autointoxication theory to psychiatry were offered in the German medical

literature by D. E. Jacobson of Copenhagen and in the American medical literature by Albert E. Sterne of Indianapolis (Jacobson, 1895; Sterne, 1895). Even Julius von Wagner-Jauregg (1857–1940), who would later win a Nobel Prize for his therapy for neurosyphilis, speculated that disturbed mental states may be caused by the influence of intestinal toxins on brain cells (Wagner-Jauregg, 1896). In psychiatric circles the gastrointestinal tract continued to be the most often cited aetiologic locus of 'autointoxication psychoses' (Jahn, 1975).

Poisoning by internal secretions

The rise of the bacteriological paradigm after 1880 had initiated and fuelled autointoxication theory. Between 1890 and 1905 – the year Ernest Starling first proposed the modern concept of the 'hormone' – advances in the understanding of metabolic processes and the endocrine system added a new endogenous aetiological hypothesis: metabolic or 'interstitial autointoxication' (Ewald, 1900) due to the over- or under-production of internal secretions in the glands with ducts (liver, pancreas and kidney), those without ducts (thyroid, adrenals, pituitary), and especially the sex glands (gonads). Prior to World War I there was considerable confusion in the emerging discipline of endocrinology regarding the nature of hormones and their similarities to enzymes, general metabolites, toxins, antitoxins and vitamins. Some researchers proposed that several of these latter substances, when imbalanced in the body, could be the agents of autointoxication.

With the rising influence of focal infection theories after 1900, some theorists sought to combine the classical form of autointoxication theory with the new focus on the possible poisoning effects of an over- or under-production of internal secretions. Perhaps the pathology of the glands (which could affect the brain if the glandular disease was chronic) was secondary to infections arising from the intestines, the mouth or other areas of focal infection. The proposed causal path from focal infection (somewhere in the body) to gland to brain added a level of complexity to an already vague and relatively unsupported theory. This extended model of the mechanisms underlying nervous and mental disorders was rejected by the American psychiatrist Francis X. Dercum (1856–1931), a forceful proponent of autointoxication theory in psychiatry and a fiercely sceptical opponent of the psychogenic theories of dementia praecox of the followers of Adolf Meyer (1866–1950) and psychoanalysts such as Sigmund Freud (1858–1939) and Carl Gustav Jung (1875–1961) that were ascendant in US psychiatry by the time of World War I. According to Dercum (1917: 907), '… on the whole, it may be safely said that when there are present marked or persistent nervous symptoms, we have to deal with a coexistent and probably primary interstitial or endogenous poisoning.' Others, including Kraepelin, were inclined to agree.

Kraepelin's autotoxic aetiology of dementia praecox

In his *History of Psychiatry*, Edward Shorter (1997) made the case that Kraepelin's clinical psychopathological method led to functional definitions of mental disorders which replaced attempts by neurologists to found psychiatry on the clinical-anatomical methods of neuropathology, thus bringing to an end what Shorter termed 'the first biological psychiatry'. This is accurate if 'biological psychiatry' is understood as encompassing only neuropathology and theories of heredity/degeneration. Whereas neuropathology in psychiatry may have run its course by the 1890s (and even this is debatable), it was at this time that degeneration theory was inflaming both physicians and the general public with a hectic flush of paranoia concerning heredity. It was also during this decade of the *fin de siècle* that the rising medical disciplines of bacteriology, endocrinology and immunology became sources for the generation of new organic hypotheses in biological psychiatry. Kraepelin and his creation, dementia praecox, cannot be comprehended if we remain in the limiting context of Shorter's (1997) 'first biological psychiatry'. If, instead, Kraepelin and his ideas are examined within the cognitive categories of the 'lost biological psychiatry' of a century ago, a new image emerges.

Impressed with recent advances in the understanding of metabolic disorders and with the plausibility of autointoxication theory, Kraepelin positioned his new diagnostic entity of dementia praecox squarely within the context of these new medical paradigms. In the general discussion of the causes of the insanities that opens the 1896 fifth edition of his *Psychiatrie*, Kraepelin (1896: 36–7) notes that many of the characteristic signs of glandular or metabolic disorders appear during the development of mental deterioration, especially in dementia praecox. Later in this book, in his very first detailed description of dementia praecox in a chapter on metabolic disorders (*Die Stoffwechselerkrankungen*), Kraepelin (1896: 439; 1987: 23) states that he has 'serious objections' to the point of view that dementia praecox is caused by 'inadequate constitutional faculties' or 'hereditary degeneration (*erblischen Entartung*)'. Instead, he offers an alternative hypothesis: 'I consider it more likely that what we have here is a tangible morbid process in the brain (*einen greifbaren Krankheitsvorgang im Gehirne*). Only in this way does the quick descent into severe dementia become at all comprehensible.' He admits the failure of neuropathological studies to find any characteristic cellular pathology in dementia praecox, but attributes this to an inadequate effort to search for such morbid changes.

What then causes this 'tangible morbid process in the brain' if it is not heredity? Kraepelin (1987: 23) is clear on this point: 'In light of our current experience, I would assume that we are dealing here with an autointoxication (*Selbstvergiftung*), whose immediate causes lie somewhere in the body.' Kraepelin, however, makes a major departure from classic autointoxication

theory by rejecting the intestines as the source of toxins. Instead, Kraepelin posits the *locus morbi* in the gonads:

> If we consider the tendency for the illness to strike at the age when sexual development is still taking place, then it is not out of the question for there to be a connection between the illness and some processes taking place in the sexual organs. These are, of course, only provisional and very indefinite hypotheses.

Kraepelin's metabolic autointoxication theory of dementia praecox was not uniformly welcomed by psychiatrists. Perhaps the most direct attack on this thesis came from Meyer, soon to become one of the most prominent psychiatrists in the USA. In his review of the 1896 fifth edition of Kraepelin's textbook, Meyer (1896: 302) was prescient: 'As long as chemistry can not furnish more accurate data and methods, the theory of intoxication and autointoxication so often resorted to by Kraepelin will be a *terminus technicus* for our ignorance'. At about this time Meyer, a pathologist familiar with the autopsy suites of asylums, was beginning the process of losing faith in psychiatric neuropathology and was wary of converting to the simplistic salvation offered by believers in a new medical creed. By 1903 Meyer would no longer be among the 'brain spot men' at war with the 'mind-twist men', as the Boston neuropathologist E. E. Southard (1876–1920) termed the two emerging factions in psychiatry (Southard, 1914). Instead, Meyer would essentially switch sides and prepare the path for the insurgency of the Freudians in North America and Great Britain with his 'dynamic psychiatry' and its focus on psychosocial forces such as 'habit-deterioration' and 'reactions'.

But critics of the autointoxication theory of dementia praecox such as Meyer were in the minority. Kraepelin remained convinced. In the 1899 sixth edition of his textbook, he continued to make the argument that the sex glands are the source of the toxins that poison the brain and produce dementia praecox. In this edition, however, his claims were more textured:

> In view of the close connection for the disease with the developmental age, with menstrual disorders and reproduction, and in view of the absence of any recognizable external cause, the most obvious thing to think of is probably an *autointoxication* which could possibly be in some close or distant connection with processes in the genital organs. (Kraepelin, 1990: 154; original italics)

To support this speculation, Kraepelin referenced the review article on this subject by Jacobson (1895). However, Kraepelin tempered his earlier dismissal of the role of heredity in the cause of dementia praecox, adopting a view that presages modern vulnerability models of the aetiology of schizophrenia (Zubin and Spring, 1977): 'The frequency of hereditary disposition to mental disturbances and their physical and mental symptoms would only signify a lowered resistance to the actual cause of the disease.' Future scholars who

examine Kraepelin's views of heredity should reflect the evolving sophistication of his views.

Kraepelin's dementia praecox was increasingly cited in the German medical literature, with at least twenty such references by the year 1900. However, although some accepted autointoxication as the probable cause of the disease, most diverged from Kraepelin by insisting that the intestines were the true locus of the 'self-infection' and not the sex glands. Metabolic autointoxication as a possible cause of dementia praecox was a hypothesis that intrigued Kraepelin for at least two decades. In the third volume of the final, eighth edition of his *Psychiatrie*, Kraepelin (1913, III/II: 931) cautiously asserted that it was still too early to draw an aetiological conclusion about dementia praecox, but that it might generally be said that, 'a number of facts (*eine Reihe von Tatsachen*)' about dementia praecox suggest 'an autointoxication as a result of a metabolic disturbance might be probable to a certain extent (*einer Selbstvergiftung infolge einer Stoffwechselstorung bis zu einem gewissen Grade wahrscheinlich*).'

Kraepelin's autotoxic aetiology of dementia praecox commandingly framed the cognitive categories of his peers, a fact also forgotten by historians. For example, several prominent German and Swiss psychiatrists who made contributions to the understanding of dementia praecox in the early twentieth century also suspected an 'autotoxin' might be its cause. William Weygandt (1870–1939), an associate of Kraepelin who is best remembered for his monograph on the nature of 'mixed states' in manic-depressive insanity, wrote in 1907 that:

> Dementia praecox, in particular, is more and more regarded as an illness based on some metabolic disturbance. … I should like to put forward a tentative explanation of dementia praecox of my own. … I would suggest that so far as the organic side is concerned the most plausible concept is one of autotoxic damage affecting genetically predisposed brains. (Weygandt, 1907; 1987: 47–8)

In this same article Weygandt was critical of the illogic of the chimeric psychoanalytic/autointoxication theory of dementia praecox put forth by Jung in his famous 1907 monograph on the subject, *Uber die Psychologie der Dementia Praecox: Ein Versuch.* Jung (1936: 89) proposed that a 'complex' created by an intensely emotional event might lead to the production of a biological 'hypothetic X, metabolic toxin (?)'. The persistence of the complex – which could be removed through psychoanalysis – produced a chronic autointoxication which acted on the brain to produce dementia praecox. However, even Jung admitted in his monograph that the autotoxic process might be primary and unaffected by psychotherapy. Jung's chief, Bleuler, also (for a time) held to this same chimeric theory of the aetiology of dementia praecox. Despite his short-lived infatuation with Freud and his disagreement with Kraepelin on issues such as prognosis, Bleuler made it clear in his classic

Dementia Praecox, oder die Gruppe der Schizophrenien, published in 1911, how influential Kraepelin's aetiological hypothesis remained in his thinking: 'As long as the real disease process is unknown to us, we cannot exclude the possibility that various types of auto-intoxication or infections may lead to the same symptomatic picture.' (Bleuler, 1950: 279).

Dementia praecox as a disease arising secondarily from metabolic disorders causing autointoxication remained a central (if unsupported) aetiological hypothesis for its first 40 years (see, for example, Lewis, 1936). Kraepelin apparently held to this view of the cause of dementia praecox to the end of his life. And although he believed dementia praecox was probably not curable, he believed for a time that it was potentially preventable and might be diluted or delayed by a rational therapy based on the autointoxication theory of it aetiology. The evidence in support of this assertion is that Kraepelin himself tried out numerous experimental therapies derived rationally from autointoxication theory.

Kraepelin's rational treatment for dementia praecox: organotherapy

There were many symptoms that Kraepelin had noticed in dementia praecox patients that paralleled those he had observed in persons with metabolic disorders, especially cases of myxoedema. One of the consequences of chronic hypothyroidism is what is now termed 'myxedematous psychosis' (Heinrich and Grahm, 2003), and it includes progressive dementia, delirium, hallucinations and delusions. Besides these psychological similarities to many cases of dementia praecox, Kraepelin also (incorrectly) believed there were identical physical stigmata: the enlargement of the thyroid gland, bradycardia and tachycardia, skin changes, tremors, changes in pupil size and exopthalmos. By 1896 he had conceptually linked dementia praecox to the 'myxoedematous insanity' caused by thyroid disease. Discussions of dementia praecox immediately follow those of thyroid autointoxication diseases such as myxoedema and cretinism in both the fifth and sixth editions of *Psychiatrie* in 1896 and 1899, respectively. Myxoedema was arguably the inspirational source of an analogical transfer Kraepelin made to dementia praecox when trying to discern its essence, a cognitive process that Paul Thagard (1999: 134–47) argues is typical in the explanation of new diseases.

Kraepelin was aware of the fact that the British physiologist Murray had found a cure for myxoedema in 1891. Murray's technique – the hypodermic injection of thyroid extract into myxoedematous patients – became the basis for a new and widely-applied medical treatment, soon called 'organotherapy' (Borrell, 1976). A major proponent of thyroid organotherapy in the early twentieth century, Philadelphia physician Charles Eucharist de Medici Sajous (1852–1929), had worked with Brown-Sequard in Paris from 1892 to 1897 and was singularly responsible for popularizing this treatment in

North America (Tattersall, 1999; Wilson, 2007). Like many proponents of thyroid organotherapy, Sajous praised its effects in terms worthy of only the most miraculous panacea. Not only did it cure conditions caused by hypothyroidism, but it had systemic rejuvenating effects of the entire body by eliminating sources of autointoxication:

> It renders the phosphorous of all tissues, and all free substances, such as bacteria, wastes, toxins, etc., containing phosphorous, more inflammable or insensitive to the action of oxygen in the blood. … this applies particularly to nerves and nerve-centers (all of which are especially rich in phosphorous) … This is not all, however … the functions of all organs are enhanced by this process … [which] are the active destroyers of pathogenic organisms, toxins and other poisons … It counteracts *premature senility* in all its phases … (Sajous, 1921: 708–9; original italics)

Organotherapy, particularly thyroid organotherapy, was applied as a treatment for insanity by numerous physicians of several nationalities by the late 1890s with mixed results (for a review of this literature, see Sajous, 1921: 711–16). At some point, probably in the mid-1890s, Kraepelin had also tried such experiments on his patients. In 1913 Kraepelin wrote:

> Many years ago I endeavored for a long time to acquire influence on dementia praecox by the introduction of preparations of every possible organ, of the thyroid, of the testes, of the ovaries and so on, unfortunately without any effect. (Kraepelin, 1919: 278)

Organotherapy, a treatment rationally derived from his presumed aetiology of autointoxication, was eventually abandoned by Kraepelin. He offered no suggestions for other rational treatments for autointoxication. Instead of suggestions for prevention or treatment of the causes of dementia praecox (which were unknown), Kraepelin emphasized custodial care in his writings. In the pre-antibiotics era there was one additional rational therapy for autointoxication that Kraepelin was not willing to explore: surgery. But there were others, particularly in the USA, who were not so cautious.

The reception of dementia praecox in America

Following the publication of the sixth edition of Kraepelin's *Psychiatrie* in 1899, dementia praecox gradually became an accepted diagnostic entity in Britain (Ion and Beer, 2002*a*, 2002*b*) and America, where the first medical publications on dementia praecox began to appear in 1900 (Brownrigg, 1900; Gershom, 1900; Noble, 1900; Noll, 2004). In these first American notices of 1900, the importance of Kraepelin's new scientific nomenclature is uniformly lauded, with heredity mentioned as the most probable cause of the disorder. Autointoxication is not mentioned. This would change as the literature on dementia praecox increased, with autointoxication growing in

prominence as an organic aetiology, reaching its height in American medicine during World War I. According to Bayard Taylor Holmes (1852–1924) – a Professor of Surgical Pathology and Bacteriology at the College of Physicians and Surgeons in Chicago who published the most extensive bibliography documenting the autointoxication hypothesis of dementia praecox (Holmes, 1920) – the medical literature on dementia praecox evolved in the following way:

> Beginning about 1904 the literature on dementia praecox is of two sorts, one stream following the ideas of Freud, Jung and Bleuler, who attribute the origin of the disease to psychogenetic factors, and the other maintaining the steady course of mechanistic pathology. The French and the English schools have generally held to the physical basis of the disease, while the German and American faculties have been divided into two irreconcilable factions. In the early part of the present decade the mystics and the psychogenists held the field and the programs of the annual meeting of Alienists and Neurologists in America are significant of the fact that Freudianism is on the decline and rational materialistic or mechanistic studies of the disease are in a growing ascendancy. (Holmes, 1916: 391)

The reception of dementia praecox in American popular culture began about the year 1907. It was in this year that the term made its first appearance in *The New York Times* (as a point of comparison, the word 'schizophrenia' did not appear in this newspaper until 1925). 'Dementia praecox' first came to the attention of the American public in nationwide newspaper articles in March 1907 reporting the testimony of alienists on the mental health of New York millionaire Harry Thaw (1871–1947) during his trial for murder.[1]

On the night of 25 June 1906, Thaw fired three shots into the face and shoulder of the famous American architect Stanford White (1853–1906), killing him instantly. The murder occurred during a rooftop theatre garden event at Madison Square Garden, a building that White had designed and in which he maintained a 'tower apartment' where he would entertain friends and young women, some of whom were encouraged (after champagne or absinthe) to remove their clothes and soar, to-and-fro, almost to the ceiling, on a red velvet swing. Thaw's wife, Evelyn Nesbit (1885–1967), a beautiful model and actress, had previously been White's mistress. She had once been one of the girls on the red velvet swing. But sexual jealousy was not the exclusive factor in this very public and violent act. A smouldering madness had inflamed Thaw's brain since puberty. Thaw was judged insane the following year during what was then called the 'trial of the century'. He was sent to an asylum for the criminally insane. The trial inspired numerous books, both fiction and nonfiction, and the story appeared in film in the 1981 motion picture *Ragtime* (based on the novel by E. L. Doctorow).

US newspapers provided daily coverage of the testimony of the numerous prominent American alienists concerning the proper medical diagnosis of Thaw's 'brainstorm' (as some alienists termed it). Dr Charles G. Wagner, the Superintendent of the Binghamton Asylum in New York, testified that one of Thaw's possible diagnoses was 'dementia praecox' – a term ridiculed during the closing statements in the trial. This dreadful-sounding insanity had never before been uttered in a US courtroom, nor had it ever appeared in the pages of the USA's major newspapers, and the introduction of this previously unknown illness during the Thaw trial induced as much mystery as fear in the fascinated public.

After the press coverage of the Thaw trial, the term 'dementia praecox' was lodged firmly into the collective consciousness of Americans. Practising physicians as well as average citizens knew the term – and the sound of it! The heavy, dark effect on the emotions of listeners when they heard it spoken matched its commonly understood meaning: chronic incurable insanity. American alienists and neurologists living in an era increasingly marked by an attitude of pragmatism and progressivism were not happy with Kraepelin's term, its literal meaning or its fatalistic prognosis. 'Perhaps no more unfortunate term than dementia praecox has yet been devised for an important group of psychopathic patients,' complained Southard and Jarrett (1922: 298–9). Some suggested that American psychiatrists should invent their own diagnostic term and criteria. A few did just that, but none of the American alternatives stuck: the Thaw trial of 1907 made dementia praecox a household word. It was not until 1918 or so that an alternative term – schizophrenia – began to gain currency among some American physicians.[2] But it too was a foreign import, from Switzerland, and although the prognosis was better, and its wider circle of 'latent schizophrenics' made its treatment theoretically possible through mental hygiene efforts, it also had an ominous ring to it and meant the same thing: chronic incurable insanity.

One additional factor may have led to the adoption of Bleuler's term: Kraepelin was an ardent German nationalist, and this was well known to many psychiatrists in the USA. With anti-German sentiment still running high after the end of World War I, personal resentment of Kraepelin's political views may have led to the gradual rejection of dementia praecox in favour of the term used by the politically benign Bleuler: schizophrenia.[3]

Dementia praecox, or the hybrid terms 'dementia praecox (schizophrenia)' or 'schizophrenia (dementia praecox)', remained in official use in the USA until 1952. In addition to its wide recognition among the American public following the 1907 Thaw trial, the term lived on due to its reification in the publications of the National Committee on Mental Hygiene (founded in 1909) and the Eugenics Records Office (1910). Although the diagnosis had first been applied in the USA by Adolf Meyer at the Worcester Lunatic Hospital in Massachusetts in the autumn of 1896, both dementia praecox (in its three classic forms) and 'manic-depressive psychosis' gained wider popularity in

the larger institutions in the eastern states after being included in the official nomenclature of diseases and conditions for record-keeping at Bellevue Hospital in New York City in 1903 (Board of Trustees …, 1903: 32). But perhaps the most important reason for the longevity of Kraepelin's term was its inclusion in 1918 as an official diagnostic category in the uniform system adopted for comparative statistical record-keeping in all US mental institutions, The *Statistical Manual for the Use of Institutions for the Insane* (American Medico-Psychological Association …, 1918). Its many revisions served as the official diagnostic classification scheme in the USA until 1952 when the first edition of the *Diagnostic and Statistical Manual of Mental Disorders,* or *DSM-I*, appeared (APA, 1952). Dementia praecox disappeared from official psychiatry with the publication of *DSM-I,* replaced by the Bleuler/Meyer hybridization 'schizophrenic reaction' within the category of 'psychogenic' disorders.

Although Kraepelin's term survived more than half a century in America, his aetiological hypothesis did not. Meyerian and Freudian insurgencies among alienists and neurologists in America tilted the balance towards environmental and psychogenic causes, although most of the 'mind-twist men' would admit that organic factors clearly played a role in the patho-physiology, if not the aetiology, of dementia praecox. However, among the remaining 'pure' biological psychiatrists and neurologists in the USA, the preferred biological theory of the aetiology of dementia praecox was Kraepelin's: autointoxication. According to neurologist Francis X. Dercum (1917: 908) of Philadelphia, 'a striking instance of a chronic intoxication of the nervous system and one that in addition is purely an autointoxication is that furnished by dementia praecox'. Following Kraepelin, Dercum believed dementia praecox was caused by 'a toxic hormone which gains entrance into the circulation from the sex glands'. However, Dercum's focus on the sex glands was rare among Americans. There were conflicting views as to which of the two varieties of autointoxication – intestinal or interstitial – was implicated, or whether there was some combination of the two (focal infection in the intestinal tract affecting the production of internal secretions, then lastly the brain).

Prevention, treatment and cure were the hopes held out by adhering to an autotoxic aetiology for dementia praecox. These were consistent with the progressivism and pragmatism at the core of American values so exemplified by the National Committee on Mental Hygiene and the Eugenics Records Office. Organotherapy and surgery became the two rational organic treatments applied to the fight against dementia praecox in America. Organotherapy yielded meagre results and was quickly discarded. Instead, surgery became the treatment of choice among biological psychiatrists. The thyroid, the intestinal tract and the mouth would become the three most commonly targeted areas of the body for the prevention, treatment and cure of dementia praecox.

Thyroid surgery

The first major American newspaper article to discuss dementia praecox in a medical context was published in *The New York Times* on 20 December 1907. The context was metabolic autointoxication, and the article summarized a surgical cure for this insanity. This news report is indicative of the pattern that the reception of Kraepelin's autointoxication theory of dementia praecox took in America: the rush to attempt radical treatments without waiting for conclusive scientific evidence of actual sources of self-poisoning in the body.

The surgery was performed by Newdigate Owensby (1882–1952), an alienist at the Bay View Asylum in Highlandtown (near Baltimore), Maryland. In his later career Owensby would become one of the first psychiatrists to practise in the southern state of Georgia, and he still maintains a certain notoriety for a 1940 study in which he used aggressive 'metrazol storm' treatments and electroshock therapy to cure homosexuality (Owensby, 1940). The brief newspaper report (Anon., 1907) is reproduced in full below. Note Owensby's congruence with Kraepelin's aetiological speculation about dementia praecox as the result of metabolic autointoxication (though positing the *locus morbi* in a different gland).

Cures dementia praecox

Surgeon discovers operation to relieve disease of mind

BALTIMORE, Md. Dec 19.—A cure for one of the most pitiable forms of insanity, hitherto considered by experts as 80 per cent incurable, has been found, it is hoped, in the use of the surgeon's knife by Dr. Newdigate M. Owensby, physician in chief at Bayview Insane Asylum. This form of insanity is known to the profession as dementia praecox.

It attacks persons generally between the ages of 15 and 30 years. It destroys the qualities of resistance, thought, and speech, rendering the victim little more than an idiot.

The disease resembles in certain symptoms the more familiar forms of cretinism and myxoedma, and it was this similarity that first led Dr. Owensby to conceive of an operation. The two latter diseases originate, it is thought, by a lack of secretion in the thyroid gland, located near the windpipe. A fairly effective cure was found in the administration of extract of thyroid glands taken from sheep.

Following this line of treatment in dementia praecox, Dr. Owensby found that instead of reducing the symptoms the treatment seemed to accentuate them. He concluded that instead of the disease arising from a lack of

> secretion, there was a likelihood of oversecretion, due to diseased blood vessels in the gland. This suggested using the knife to cut away the diseased portion, giving opportunity for new blood vessels to form.
>
> Dr. Owensby last July performed the operation on the worst case in the asylum. The case was kept under close observation for two months, without the slightest indication of a return of the symptoms. In October the case was dismissed. The man has secured employment and is doing intelligent work.
>
> Of four other cases operated upon, three showed the same return of intelligence.

Hyperthyroidism as the cause of dementia praecox was also assumed by endocrinologist Sajous (1921: 715) of Philadelphia: 'In dementia praecox we have the opposite condition, i.e., hyperthryoidia as the underlying cause.' Surgery to remove part of the thyroid was his recommended treatment. Kraepelin (1919: 278), 'with expectancy', followed the literature on the 'partial *excision of the thyroid gland*', but noted that most of the attempts to cure dementia praecox with surgery had ended in failure or mixed results. There is no evidence to date that Kraepelin experimented with this radical – but rational – form of treatment.

Intestinal and other forms of surgery

Other surgical solutions for dementia praecox were also based on autointoxication theory, but not the metabolic variant supported by Kraepelin. Instead, attempts to cure dementia praecox by the surgical removal of sites of focal infection in the intestines and elsewhere were attempted by Holmes of Chicago (Noll, 2006*a*, 2006*b*, 2006*c*) and Henry A Cotton (1876–1933) of the Trenton State Hospital in New Jersey (Scull, 2005). Sajous (1921: 716) believed that, 'The cause [of dementia praecox], whether tonsillar, dental, intestinal, etc., of the thyroid erethism [causing hyperthyroidism], must be removed. Bayard Holmes and also myself have cured severe cases by flushing the colon through an abdominal opening.' The metabolic autointoxication theory of dementia praecox continued to inspire a minority of researchers, including the noted N. D. C. Lewis (1889–1979), spawning a variety of endocrinological research studies and experimental organotherapy treatments, all of which led to blind alleys (Lewis, 1923; 1936). When autointoxication finally became a 'deceased disease' by 1936 (Riesman, 1936), so did the linkage of dementia praecox to either of its metabolic or intestinal variants. Heredity, however, remained throughout the twentieth century as an aetiological alternative supported by genetics studies, and it continues to be so today. With the ascendancy of Meyerian psychobiological and Freudian psychoanalytic perspectives that increasingly turned attention away from the biological basis of dementia praecox (schizophrenia), Kraepelin's autointoxication theory slid further

into oblivion. Perhaps this is why Kraepelin's views on the probable cause of dementia praecox have been so incomplete in the literature on the history of psychiatry.

Notes

1. The Thaw trial and the negotiations among American alienists and neurologists regarding the reception of Kraepelin's dementia praecox concept will be detailed in my forthcoming book, *The New Peril: Dementia Praecox in America, 1896–1936*, which is scheduled to be published by Harvard University Press in 2008.
2. According to Lunbeck (1994: 373), schizophrenia was first used as a diagnostic term at the Boston Psychopathic Hospital in 1919. E. E. Southard, who was the medical director of that hospital, wrote to several colleagues about this time to ask their opinion on the comparative desirability of the two terms. He summarized them in notes attached to his unpublished typescript, 'Non-Dementia Non-Praecox: Note on the Advantages to Mental Hygiene of Extirpating a Term' (held among his *Nachlass* at the Countway Library of Medicine at Harvard Medical School). The unpublished paper was the basis of a lecture he delivered to the Boston Society of Psychiatry and Neurology on 20 February 1919. To cite two examples: the Swiss-American psychiatrist August Hoch (1868–1919) agreed with Southard that the term dementia praecox was problematic. However, he added: 'I am not especially pleased with schizophrenia. It is a rather uncouth term, and I remember, when it first came out, how I balked at it and how, when I read my review of Bleuler's schizophrenia at the New York Psychiatrical Society, all of them made a lot of fun of the term. But it is remarkable what one can get used to.' Another Swiss-American psychiatrist, the eminent Adolf Meyer, also detested the term, telling Southard, 'I hope that the elimination of the term schizophrenia will follow.' However, he began using it formally in public as early as 1921, paving the way for its official acceptance in the USA. (Meyer, 1921–1922)'. See E. E. Southard papers, Box 8 [GA 81], Countway Library of Medicine, Harvard Medical School.
3. Kraepelin's fixation on political issues was apparent to many Americans who came in contact with him after the war. His persistent German nationalism repelled many of the US psychiatrists whom he approached for help in convincing US philanthropists, such as the Rockefellers, for financial backing to support his psychiatric research institute in Munich. Reports of such unappealing encounters with Kraepelin can be found in the correspondence of Adolf Meyer with several colleagues (especially David K. Henderson and George H. Kirby), held in the Adolf Meyer Collection, the Alan M. Chesney Medical Archives, Johns Hopkins University, Baltimore Maryland.

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