

# **Barry Blackwell: Pioneers and Controversies in Psychopharmacology**

## **Chapter 7: Heinz Lehmann**

### **Preamble**

While chlorpromazine spread around the world it was largely ignored by academic psychiatry in America in thrall with psychoanalysis, a myopia that lasted more than another decade. Instead, it took root and flourished in the State Asylums and Veterans Administration hospitals.

In Canada the drug attracted the interest of Heinz Lehmann, a refugee from Nazi Germany in 1937. Heinz, like Joel Elkes in Britain, educated himself in an asylum setting living on the grounds with his wife, a nurse, and his young son at Verdun Protestant Hospital where he became Medical Director in 1947. He quickly established a reputation in biological research and in 1953 he read a paper in French about chlorpromazine. The following year, with a young colleague, he published the findings, the first in the English language, which earned him the Lasker Award in 1957.

Like the French before him, Heinz was convinced by chlorpromazine's effects on agitated psychotic patients, but he did not introduce the word "anti-psychotic" until three years later. Impressed though he was, Lehmann, like Delay, rejected a simplistic view that drugs alone were adequate treatment, a viewpoint confirmed in the 1960s by the modest results for life in the community after what became known as deinstitutionalization.

In 1961, Lehmann's work attracted the attention of the NIMH in America and he became a lead member of the Early Clinical Drug Evaluation Units (ECDEU) funded by the Federal Government and largely composed of State Hospital and VA Hospital programs. He was joined by Tom Ban, a newly arrived migrant from Communist Hungary and together they embarked on a highly productive collaboration lasting 18 years, publishing 211 scientific articles on almost all of the new drugs discovered by the pharmaceutical industry in that era.

In 1964, Heinz attended a meeting in Europe where he heard Roland Kuhn describe his discovery of the antidepressant effects of imipramine, the first of the tricyclic compounds that would replace the monoamine oxidase inhibitors. Proud of his clinical judgement and clear cut results Kuhn shunned doing a controlled study. Returning to Canada and reading the results in German, Heinz fulfilled that need and, as with chlorpromazine, published the first results in North America.

Like Delay, Lehmann experienced a Marxist anti-psychiatric movement in Montreal during the early 1970s, contemporary with the Scientologists in America, which, unlike Delay, he adroitly managed and survived. He continued his productive career until mandatory retirement in 1976 after which he continued to work voluntarily until he became Deputy Commissioner for Research in Mental Health for New York City. Responsible for a budget of \$30 million and two research units he was paid a dollar a year, work he continued until his death, mourned by colleagues throughout Canada and the United States.

## **Heinz Edgar Lehmann**

**by**

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Heinz Lehmann is the third member of a triumvirate of pioneers whose early work with chlorpromazine set the world stage for an end to centuries of asylum care for people suffering severe and persistent mental illness. In France, Jean Delay's team reported its beneficial effects in "*des etats d'excitation et d'agitation*" (Delay, Deniker and Harl 1952). This effect was confirmed in Britain two years later by Joel Elkes and his wife in an early controlled double blind study on "*chronically active psychotic patients*" (Elkes and Elkes 1954). Canadian psychiatrist Heinz Lehmann provided the first independent confirmation in North America as "*a new inhibiting agent for psychomotor excitation and manic states.*" (Lehmann and Hanrahan 1954).

This brief biography of Heinz Lehmann, compiled from multiple personal and published sources, sets the stage by describing the beginnings of the revolution in psychopharmacology, followed by an account of Heinz's early life and persona, leading to an overview of his entire life and career accomplishments as a clinician, educator, researcher and a reluctant but talented administrator.

### **In the beginning ...**

In 1937, at age 26, a refugee from Nazi Germany, Heinz Lehmann spent a year at the Montreal Children's Hospital, Canada where he perfected his English before becoming a junior psychiatrist at Verdun Protestant Hospital in Montreal, Canada on the eve of World War II; one of four fellow physicians who provided the medical, surgical and psychiatric care to 1500 patients, on call every third night. In 1947, he became Clinical Director and by 1954, he had a well-established reputation in biological research with over twenty publications in leading medical and psychiatric journals.

Throughout this time, he lived on the grounds of the hospital, in close proximity to his patients, with his wife Annette, a nurse at the hospital and their young son, François, born in 1944. The only treatments available were largely ineffective; François, in first grade and on his way to school, could look toward the women's pavilion where naked and disturbed patients cavorted in large poorly furnished rooms, walls smeared with feces.

Heinz kept up to date with the research literature by reading journals on Sundays in his hot bathtub; one Sunday, his interest was attracted by a paper in French, dropped off at his office by a pharmaceutical drug representative. It described the effects of a new drug on excited and agitated mental hospital patients. Already a cautious scientist, he noted that pre-clinical animal work by Rhone Poulenc pharmacologists reported a calming effect without excessive sedation and wondered if this is what translated to patients. Reading his journal pages above the water line, this was definitely not an Archimedes-like "*Eureka*" moment.

On Monday morning, he asked his resident, Hanrahan, "Do you want to try this fancy new drug? It seems to be incredible, what they claim for it." (Lehmann 1994). Receiving an affirmative reply, Heinz obtained free samples from Rhone Poulenc. First, he confirmed chlorpromazine's unique dissociation between a calming effect and deeper sedation by giving it to eight volunteer

nurses before beginning an uncontrolled trial in a heterogeneous group of 72 agitated psychotic patients with twelve different diagnoses that included schizophrenics, depressed, manic and organic states. It did not do well in the organic states and nor did it help anxious patients. Later in life, he described his skeptical reaction to the dramatic results in the following way; “Within days, some of the patients had stopped hallucinating and within two weeks a few were in remission and ready to leave the hospital. I assumed we were seeing flukes, perhaps resulting from an extremely strange selection in the sample. It seemed almost as improbable as winning one million dollars twice in a lottery. Much as I wanted to believe what I was seeing, I didn’t for a long time... we thought it might be a new modification of some sedating and inhibiting action, but we did not label the drugs antipsychotic. In 1956, when I was addressing the Canadian Medical Association, I introduced the term ‘antipsychotic’ apologetically, and more as a metaphor than a designation” (Lehmann 1993).

Heinz also noted the circumstances surrounding his discovery, “No IRB’s, no informed consent, no Food and Drug Administration (FDA) regulations, nothing; also, no money whatsoever” (Lehmann 1994). Nor was it easy to publish the results. He submitted them in August to *The Archives of Neurology and Psychiatry*. “Since I hadn’t heard anything by December, it seemed that something was fishy. So, I wrote them that I wanted the paper back, and I’ll get it to somewhere else. Then, they immediately published it. It came out in March of next year (Lehmann and Hanrahan 1954). I think what happened is that we were in Canada, and the Americans that were working with it, I think Winkelman, wanted to be first one out. His paper came a month later. He had worked with chlorpromazine in neurotic patients.”

Viewed through the eyes of 11-year-old François, things looked better and simpler. Three months after his father’s experiment, François recalls seeing the same woman’s pavilion, quiet, clean and orderly, now populated by fully clothed patients (personal communication).

History rightly records these events as revolutionary, but to those who experienced them, they may have seemed evolutionary and improbable at the time.

## **Early Life and Persona**

Heinz Edgar Lehmann was born under the sign of Cancer on July 17, 1911 in the Mitte district of East Berlin, a place he would revisit with François in the 1970’s shortly before the fall

of the Berlin Wall. He was descended from a line of physicians, his father a surgeon and ENT physician was Jewish and his mother a Christian.

Heinz's childhood was disrupted at age 14 when, around puberty, he lost the capacity to concentrate on the rigorous demands of the Gymnasium to study Greek, Latin and Mathematics. Teachers told his parents he would never be able to graduate: "I just wasn't made for it and I should learn a trade." Heinz's mother "didn't believe it and used her good judgment to get me a tutor" (Lehmann 1994). Later in life, he would self-diagnose this as a childhood depression, a condition not recognized at the time and which lasted about nine months, the natural history for an untreated episode. His tutor came daily, recognized his disability and did all his homework for him. Interested in psychology, the tutor also gave him Freud's works and, by age 15, Heinz had read them all, at which time he made up his mind to become a psychiatrist (Cahn 2015).

Fully recovered, he graduated from the Gymnasium and began his medical training in the German fashion, attending "as many universities as your father could afford." First was Freiburg, his father's alma mater, followed by Marburg, where he studied Kretschmer's work, then Vienna to meet Julius Wagner-Jauregg, at that time the only psychiatrist to win a Nobel Prize. Reminiscing about his time as a medical student, "he remembered more about existentialism and Heidegger than any courses in medicine." (Ban 2015a). Eventually, he received his M.D, from the University of Berlin in 1935, at age 24.

Heinz's father "chafed at his son's choice of medical fields". Heinz himself recalled that psychiatry "in 1930 was a rather derelict career. People only went there if they couldn't do anything else – or were alcoholic." (Tone 2004).

After graduating, Heinz did a customary rotating internship in medicine, surgery and neurology at the Martin Luther Hospital and the outpatient clinic of the Jewish Hospital in Berlin.

Life was not all work and no play. By the time Heinz was 18, he was an accomplished cross-country skier; with friends he would traverse one mountain top after another in the Alps. On one such occasion, a less expert skier became too exhausted to continue so Heinz volunteered to stay behind until others returned the next day with help. Conditions were so harsh and bleak the companion froze to death in his arms during the night (François, personal communication).

In understanding the young man that Heinz became, it is important to remember that his growing up years were during the Weimar Republic (1919-1933), a time of political freedom and cultural creativity he enjoyed from ages eight to 22. A photo at this time shows a handsome young man with blond hair, twinkling blue eyes, sporting a pipe.

By the time Heinz was a fully-fledged physician, the “Weimer Republic had been wiped out by Hitler and the Nuremburg Law was in effect for the protection of German blood.” Germany was no longer a place where Heinz Lehmann could live or thrive. But, like so many Jewish citizens, the Gestapo did not want Heinz to leave and America did not want to welcome him. Faced with this dilemma, he arranged for a Canadian friend to invite him for a short ski vacation, arriving in Halifax on New Year’s Day, 1937. All he possessed was a camera and a suitcase packed with personal belongings underneath a complete magician’s set of tricks. A puzzled Customs Officer asked, “Why the hell does a skier need all this?” Heinz, who then hardly spoke any English replied, “A man’s got to have a hobby” (Ban 2015a).

Whatever other traits Heinz Lehmann brought with him to Canada, they clearly included “intrepid,” fearless and adventurous. Later on, his father would also escape Nazi Germany to practice in America as an ENT physician for many years but his mother remained behind, dying just before the end of the War.

### **Clinician and Teacher**

Like all refugees, Heinz had to report regularly to the Royal Canadian Mounted Police but he was able to obtain a temporary medical license and worked for 12 months at the Montreal Children’s Hospital. He would not become a naturalized citizen until 1948 but, once acclimatized to the culture and mastering English, he moved on to join the staff at Verdun Protestant Hospital on the City outskirts (later renamed the Douglas Hospital). It was a 1,500-bed inpatient facility affiliated with McGill University. Heinz would work there for the remaining 62 years of his life; a tenure he proudly claimed outlasted any other psychiatrist in the nation (Cahn 2015).

As Heinz explains it, there was no formal postgraduate training in psychiatry but in any case, he had not time or money to afford it. His role models were Jaspers and Kraepelin, so there was “no particular person I could consider a mentor” (Cahn 2015). Later in life, he would explain that instead “I learned it the right way, working from 8.30 in the morning until about 12.30 at night.

I had up to 600 patients during the war. We didn't have interns; we didn't have residents. I had one trained nurse, the others were untrained attendants. So, I did learn a lot. I taught myself and the patients taught me." Asked if he read, Heinz replied, "That's what I did after 11 o'clock in the hospital library." He also courted his future wife Annette, who told him of a rumor circulating among the staff suggesting he was "probably a heroin addict because nobody would walk around the hospital library at 3 o'clock in the morning" (Lehmann 1994). Heinz's assimilation into the culture and marriage to a French-Canadian wife ensured he was fluent in English, French and German, enabling him to read scientific articles in their original language.

His intense immersion in patient care and diligent reading convinced Heinz that "psychoses such as schizophrenia and the affective disorders had some sort of a very strong physical component." So, he began to try large doses of caffeine and chemicals to induce changes in plasma pH, "hoping and dreaming about some drug that would eventually do something about the psychoses" (Lehmann 1994).

Here was a psychiatrist who also, "read history, philosophy and theology, played chess and cards with the patients and believed empathy was as important as neuroscience to the practice of psychiatry" (Tone 2004). Spending time with patients was crucial and he lived in close proximity to them on the grounds of the hospital. Every Christmas, Heinz and François would tour the entire facility, greeting and wishing each patient well (eight miles, measured with a pedometer). Historian Andrea Tone also credits Heinz with recording these events and preserving mementoes of his patients in the International Archives of Neuropsychopharmacology (IANP) at Vanderbilt University. The collection includes letters, postcards, watercolor paintings, poems and a silk tapestry. One patient scribbled, "I am sorry for the way I am" around the rudimentary sketch of a hand drawn horse (Tone 2004).

This is the portrait of a man who was not a single minded or avid biological psychiatrist. Underlying his empathic approach to patients was an intellectual conviction that pharmacological treatment needed to be "supplemented with psychotherapy and social support." In his comprehensive approach to psychiatry, he combined the best of American and European traditions. With his lifelong preference for evidence over experience, however, he was also constantly striving to replace old beliefs with verified knowledge about mental illness." (Ban 2015b).

This nuanced view of the causes and treatment of mental illness meant that while he experienced the futility of psychoanalytic treatment for psychosis, he espoused the essential need for psychiatric trainees to understand the workings of the human mind. This mindset is illustrated in the anecdote of an event occurring two years before Heinz's acquaintance with chlorpromazine. "In 1952, during one of his rounds at Verdun, Lehmann and a group of students were looking at two schizophrenic patients who were gesturing excitedly toward the ceiling from where they were hearing frightening voices. Concerned about what he saw, one of the students asked: "will we ever get a pill to help these people?" Lehmann smiled and replied: "unfortunately, it would never be as simple as a pill" (Ban 2015b).

In 1948, Heinz Lehmann obtained his Teaching License from the College of Physicians and Surgeons of Quebec and became a Lecturer in Psychiatry at McGill University, supervising residents and medical students on their clinical rotations at the Douglas Hospital, work he continued for a lifetime, long after official retirement, until shortly before his death. As Heinz's career and reputation expanded, he moved rapidly up the academic ladder achieving Full Professor of Psychiatry at McGill in 1965.

His clinical and teaching skills were soon in high demand throughout North America, where he had forged relationships and friendships with other pioneers; among them, Nate Kline in New York, Frank Ayd in Baltimore and Doug Goldman in Cincinnati. In the early days of psychopharmacology, he was in great demand as a speaker and visiting lecturer, occasionally even teaching by telephone.

Back home at the Douglas hospital, the academic affiliation with McGill, 10 kilometers away, continued to flourish. In 1970-71, 25 residents rotated through the hospital, along with medical students and postgraduate students from around the world attending a diploma course. As if this was not enough, his teaching and clinical skills earned him a part-time consultant role at three other Canadian hospitals (two in Montreal).

## **Research**

Heinz Lehmann's prolific research contributions are recorded in 382 journal publications between 1939 and 1986 (see INHN Archives). He was first or only author on 50% of these articles and also edited six books (five with Tom Ban and one with Nathan Kline), and eight book chapters



(seven as single author and one with Nathan Kline). His research productivity can be divided into three periods.

### **1. Pre-chlorpromazine: 1938-1954**

Most, if not all, of this early research was carried out as part of his job as a clinician without external support. Throughout his life, he was “a fervent adept of what he called “bootstrap research”; unpretentious clinical research carried out with limited means without publicity and usually by small numbers of like-minded collaborators. Late in life, he was puzzled by the large numbers of co-authors (as many as 30) one sees on neuroscience papers today” (Dongier 1999).

Research in this beginning era includes 23 publications on a wide range of topics including therapeutic, diagnostic and clinical issues, often as the only author, sometimes with colleagues.

Therapy included: Metrazole convulsions in psychoses (Dancey and Lehmann 1939); Nicotinic acid in confusional states (Lehmann 1944); Niacin therapy in psychotic states (Lehmann 1952a); Nitrous oxide treatment in depression (Lehmann and Bos 1947); A new preparation for sedation in organic brain disease (Lehmann 1949); and Electroshock therapy (Lehmann 1954).

Diagnostic issues included: Psychoses with somatic disease (Lehmann 1946); Device for the objective measurement of the negative afterimage phenomenon (Lehmann 1950); Stress dynamics in psychiatric perspective (Lehmann 1952b); The clinical application of the Verdun projective battery (Lehmann and Dorkin 1952); and the use of finger paintings in the clinical evaluation of psychotic conditions (Lehmann and Risquez 1953).

Other clinical issues included: The iron content of CSF in psychoses (Lehmann and Kral 1951), Kral and Lehmann 1952); The eosinophil level in psychiatric conditions (Mann and Lehmann 1952); and Socio-psychiatric observations on displaced persons (Lehmann 1953).

For someone with no formal training in research, carrying an enormous clinical and educational load, this is a remarkably productive and diverse output over a 15-year time span, well before psychiatry was viewed as a scientific domain within medicine.

### **2. Start of a New Era: 1954- 1961**

This seven-year period began with Lehmann and Hanrahan's seminal article on chlorpromazine and moved on to include 23 publications on new experimental drugs, other therapeutic procedures, evaluative topics and drug reviews.

The drugs included: Chlorpromazine: New inhibiting drug for psychomotor excitement and manic states (Lehmann and Hanrahan 1954); Therapeutic results with chlorpromazine (Lehmann 1955); Neurophysiologic activity of chlorpromazine (Lehmann 1956a); A dynamic concept of the action of chlorpromazine at physiological and psychological levels (Lehmann 1956b); A therapeutic trial of Marsilid in depressed and apathetic patients (DeVerteuil and Lehmann 1958); Psychophysiological testing with a new phrenotropic drug (trifluoperazine) (Lehmann and Knight 1958); The treatment of depressive conditions with imipramine (Lehmann, Cahn and DeVerteuil 1958); and Combined pharmaco-fever treatment with imipramine and typhoid vaccine in the management of depressive conditions (Lehmann 1960c).

Other therapeutic procedures were: Experimental sleep deprivation in schizophrenic patients (Koranyi and Lehmann 1960); and Placebo proneness and placebo resistance of different psychological functions (Lehmann and Knight 1960).

Evaluative topics were: The problems of evaluating psychotic art at three levels, objective, interpretive and intuitive (Lehmann 1957); Differential screening of phrenotypic agents in man (Lehmann and Csank 1957); Developmental norms on four psychophysiological measures in the evaluation of psychotic disorders (Csank and Lehmann 1958); Methods of evaluation of drug effects on the human nervous system (Lehmann 1959a); Concepts, Rationale and Research (Lehmann 1959b); Psychotropic drugs and their influence on the dynamics of working capacity. (Lehmann 1960b); The place and purpose of objective methods in psychopharmacology (Lehmann 1960a); and Measurement of changes in human behavior under the effects of psychotropic drugs (Lehmann and Knight 1961).

Drug reviews were: Tranquilizers and other psychotropic drugs in clinical practice (Lehmann 1958); Psychiatric concepts of depression (Lehmann 1959c); and New drugs in psychiatric therapy (Lehmann 1961).

This body of work is informative in several ways. Early on, Heinz was involved in evaluating several of the newly appearing categories of drugs, the first MAO inhibitor

antidepressant, the newly appearing antipsychotics, trifluoperazine and perphenazine and, most importantly, imipramine, in 1958. In 1957, Heinz attended the second International Congress of Psychiatry in Zurich, Switzerland. The Swiss psychiatrist, Roland Kuhn presented a paper on a new drug, supposedly with antidepressant properties, tested in 40 patients with “vital” (endogenous) depression (Kuhn 1957). So skeptical were the conference attendees that “barely a dozen” attended the presentation (Kuhn 1971). Heinz Lehmann was not among them but read the paper in its original German on the flight back to America. Impressed by the results, he contacted Geigy for supplies of imipramine and, with two colleagues, embarked on a controlled study in an 8-week trial of 84 patients, of whom 60% recovered or were much improved (Lehmann, Cahn and DeVerteuil 1958). This study replicated the earlier chlorpromazine one – it was the first North American confirmatory work published on a novel drug.

The initial publication in this new era, on chlorpromazine, was the first in the English language but was also published in German, Heinz’s native language. It attracted immediate attention in North America and throughout the English-speaking world, resulting in the prestigious Lasker Award to Heinz Lehmann in 1957, America’s leading prize for medical research. The citation accompanying the award states, *“In his first publication on this subject, Dr. Lehmann was able to outline the clinical guidelines so clearly, describe the results so accurately and evaluate the dangers so frankly that with this paper alone, any other psychiatrist was in a position to apply this medication with confidence and safety.”* It might also be said that this singular research provided a solid foothold for psychiatry as a medical discipline, initiating a category of psychotropic medications that would become widely used by physicians of all disciplines over the coming decades.

The other publications during this seven-year period further illustrate the broad scope of Heinz’s research interests, both in treatment and innovative methods of evaluation, backed up by the psychophysiological laboratory he set up and the Verdun projective battery he co-developed with psychologist Herbert Dorkin. He also worked with occupational therapist Mary Cato to develop a method of scoring finger painting to measure progress in treatment.

Finally, it is interesting to note his use of the term *“phrenotropic”* (Lehmann and Csank 1957), describing the chlorpromazine like agents, even though he had coined the term “antipsychotic” two years earlier. Derived from Greek roots, this innovative nomenclature implies

stimulating the mind but it never caught on and, after 1958, Heinz reverted to the earlier and still current term “antipsychotic.”

### **3. The Lehmann-Ban Era: 1961- 1977**

This highly productive period of collaboration between Tom and Heinz lasted 16 years, and their friendship a lifetime. Its roots lay in several connections that generated ample resources and abundant talent to create a program second to none in North America, located at the Douglas Hospital and affiliated academically with McGill University.

A newly arrived immigrant from Hungary, Tom Ban met Heinz Lehmann on July 1<sup>st</sup> 1958, the first day of Tom’s first year of residency. “He took me together with the other new residents around the hospital that day and, while walking through the wards, he pointed out a few patients posturing, some roaming around naked, and one happily fishing for his stool in the toilet bowl. When he talked about chlorpromazine he referred to it as a ‘tranquilizer.’ We understood that with the introduction of the new drugs a major change for the better had taken place in hospitals like Verdun” (Ban 2015b).

A few months later, Tom was invited to assist Lehmann in a project on Sernyl (phencyclidine), the outcome of which would become their first published collaboration, with Ban as first author (Ban, Lorenz and Lehmann 1961).

Between 1958 and 1960, Tom assisted Heinz in a number of projects but the most unusual and memorable were studies on the effect of early psychotropics on the enzymes and biological systems of plants, predominantly the ubiquitous dandelion weed, with its unique survival capacity. Heinz presented these findings at the 10<sup>th</sup> Symposium of the Galesburg State Research Hospital in 1960, explaining that there was a plenitude of animal research on these new drugs but none on more primitive life forms devoid of a brain. Harold Himwich commented favorably on this novel evolutionary approach.

The next major step solidifying the Lehmann-Ban collaboration was serendipitous, a product of the Zeitgeist. All of the early research by Lehmann was conducted entirely without financial support, absorbed by existing salaries and service operations at Verdun. Simultaneously, in the United States, there was growing concern that psychopharmacology studies were sparsely

funded by industry, poorly designed and conducted in often ill-equipped mental hospitals. The Psychopharmacology Research Center (PRC), under the direction of Johnathan Cole, developed Federal funding to support a dozen centers of excellence, the Early Clinical Drug Evaluation Units (ECDEU).

In 1961, the year Tom Ban completed his residency, the Verdun Project received a major grant from the U.S. Public Health Service to become a founding member and later a lead component of this consortium. ECDEU went on to develop common procedures in validated rating scales and trial design to allow comparison and consolidation of results between the programs. Heinz Lehmann and Tom Ban became Co-Principal Investigators at Verdun and published their first report of its activities in 1964 (Lehmann and Ban 1964a,b). Together, they also recorded the startup of the entire ECDEU network (Lehmann 2013). The history of the ECDEU (later NCDEU) until its demise in 1976 is recorded by Tom (Ban 2015c).

Additional funding for the Verdun Unit came from the Canadian Medical Research Council for conditioning studies on psychotropics, a particular interest of Ban's. The scope, quality and volume of their research also invited unrestricted support from the pharmaceutical industry, without strings attached to specific projects or outcomes. This combined economic endowment also enabled the recruitment of WHO fellows as well as support for residents and post-doctoral fellows from McGill.

The prodigious output of ideas and research generated by this level of support and the experience, energy and organizational skills of Ban and Lehmann is difficult to summarize. In less than two decades, the Verdun Project studied a total of 70 compounds, including marketed drugs in early development, experimental drugs (with code numbers), along with methyldopa, thyrotropic releasing hormone, anabolic agents and placebos. These were studied alone or in combination in every category of severe psychiatric disorder, including depression, schizophrenia, bipolar disorder, alcoholism, memory loss, Parkinson's disease, epilepsy, geriatrics and psychiatric emergencies.

In addition to clinical outcomes and rating scales were conditioning and reflex responses, psychophysiological and psychophysical measures, rapid eye movement, blood levels, dexamethasone suppression, sexual function and gender differences.

Numerous side effects were recorded and described, some for the first time, including skin pigmentation, adynamic ileus, EKG abnormalities, toxic psychoses, extrapyramidal effects, jaundice, urinary incontinence, leukopenia, teratogenicity and systemic lupus.

These were documented in 211 articles over 18 years, reaching an apogee in a two-year period, when together they collaborated with other team members in publishing 34 scientific papers in 1970 and 23 in 1971. As they accumulated this data, they analyzed and disseminated the knowledge and wisdom it yielded to practicing psychiatrists worldwide, in reviews, books, book chapters and conference presentations. A selected few of these, based on their general relevance to the field, are cited below and fully referenced at the end.

Together, Tom and Heinz published their notes, *From the log-book of the Verdun Research Unit* (Lehmann and Ban 1964a,b); Heinz summarized their experience with the placebo response in double-blind studies (Lehmann 1964) on the pharmacotherapy of depression, (Lehmann 1965), schizophrenia (Lehmann 1966), and the psychotic geriatric patient (Lehmann and Ban 1967); as well as their overall experience with psychotropic drugs (Lehmann 1967a). The 1967 *Textbook of Psychiatry* (Freedman and Kaplan) contained three chapters by Lehmann on aspects of schizophrenia (Lehmann 1967 b,c,d). Heinz also worked on side effects of lithium (Vacaflor, Lehmann, Ban 1970) and prophylactic use (Vacaflor et al. 1973).

During this time period, Heinz Lehmann also carried out a major task with wide societal implications. He was appointed by the Canadian Government Commission of Enquiry into *Non-Medical Use of Drugs* to work with two other scientists on the role of Cannabis (Le Dain, Lehmann and Stein 1972). Their major prescient conclusion was that while law enforcement should prohibit trafficking, simple possession should not be a crime.

### **Changing Circumstances**

This decade of research collaboration overlapped with the so-called “*Quiet Revolution*” in Quebec (1960-1970). It began when an elected Liberal provincial government usurped control from the Roman Catholic Church in health care and education, establishing Ministries of Health and Education and triggering a period of intense social, political and cultural change that essentially secularized society and created a welfare state. The civil service was unionized, electricity production was nationalized and a province-wide pension plan set up.

These events had a profound impact on McGill University and its affiliated hospitals. “There was a lot of unrest and a lot of psychiatrists and university teachers were leaving ...the department was almost falling apart at that time.” The Dean of the School of Medicine, clearly seeking a calm and highly respected clinician, teacher and researcher, offered Heinz the Chairmanship of the Department of Psychiatry. “I didn’t want to have anything to do with administration. I hated anything to do with administration. I told the Dean I needed it like a hole in the head.” But the Dean was insistent and, in 1970, Heinz reluctantly acquiesced; “Because I was from there and I knew about holding things together.” (Lehmann 1994)

But political unrest persisted after 1970; emboldened by the existing changes and a visit by General De Gaulle, who gave a speech in Montreal proclaiming, “*Vive le Quebec libre!*” A small Marxist faction began a push for political sovereignty. Part of that agenda must have included a more general assault on the alleged evils of totalitarian government that infected and radicalized youth, including a psychiatric resident or two, protesting the use of medications as “mind control” in schizophrenia. This fed into a broader North American movement in the mid 1970’s led by the Scientologists, including psychiatrist Peter Breggin, stirred up by public concerns over the CIA’s MK ULTRA funded research program with alleged human abuses by several eminent psychiatric researchers, including Ewen Cameron, Heinz’s early predecessor as Chairman at McGill. In 1972 and 1973, the President of the *Citizens Commission on Mental Health* toured 70 major psychiatric facilities in Canada, allegedly interviewed thousands of patients and compiled a catalogue of harmful psychotropic drug side effects. These findings were published in the Scientology magazine, *Freedom*, including a photo on its front page of Verdun Hospital with the caption, “Some of Lehmann’s experiments at Verdun (now Douglas) hospital were fatal, yet have gone virtually without comment.”

These allegations, long since discredited, are still posted on Google ([www.Freedommag.org/English/vol1134ilO8.htm](http://www.Freedommag.org/English/vol1134ilO8.htm)). Heinz Lehmann’s response came in the form of a public debate when the distinguished philosopher Herbert Marcuse spoke for the motion, “*Psychiatry is an Agent of the Establishment*” while Heinz spoke against. Heinz probably relished the encounter. Marcuse, who must have been in his late 70’s at the time, was a German Jew who, like Heinz, studied at Freiburg, graduated from Berlin University and fled Nazi Germany before World War II. Fiercely opposed to totalitarian regimes, his early work combined theories of Marx

and Freud; in America, he taught political theory at several major universities, including Harvard and Brandeis and became known as the “The Father of the New Left.” He believed that many aspects of the modern state, particularly technology, amounted to social control of the individual. Presumably this ideology fit with the notion that use of psychotropic drugs was repressive or abusive and, although his writings do not proclaim this, it may account for why he was invited to defend the motion. It was a position Heinz was well equipped to negate. So, while getting the better of the argument, Heinz was attacked by a psychiatric resident who came prepared with a spray can and covered the professor in whipped cream. Without missing a beat Heinz calmly wiped the foam from his face and continued the debate, widely viewed by the audience as the winner (Personal communications, Francois Lehmann and Thomas Ban 2015).

During his brief chairmanship (1970-1974), Heinz continued work on the Douglas Unit in collaboration with Tom Ban, producing another 50 publications. After stepping down as Chair, he became Director of the Division of Psychopharmacology at McGill until mandatory retirement at age 65, in 1976, producing another 80 publications until, in that same year, Tom Ban moved to Vanderbilt University to become Professor of Psychiatry and Director of the Clinical Research Service at the Tennessee Neuropsychiatric Unit. This ended their collaboration at McGill but Heinz and Tom remained friends for the remainder of Heinz’s life and published their last paper together in 1997, when Heinz was 88. It is a 20-page review of the History of Psychopharmacology of Schizophrenia with 120 references (Lehmann and Ban 1997).

### **Work without Pay**

Heinz Lehman was a person for whom material things mattered little. Retirement was an arbitrary concept that terminated work he could be paid for but not what he chose to do. That was determined by philosophical and moral imperatives. “Retirement is a bureaucratic arrangement, not a state of mind” (Ban 2015a).

By the time Heinz was required to retire, what he had always known to be true became abundantly clear. A pill was not enough; people with severe mental illness were everywhere homeless on the streets. Both the first and second generation antipsychotic drugs (chlorpromazine, Clozaril and their analogues) stifled the hallucinations, delusions, paranoia and excitement that had mandated asylum care for the insane but they did little to improve the intellectual, social,



motivational or psychological deficits that deprived them of work, shelter and economic wellbeing living in community. The remedy for this lay beyond medication alone and resided in social policy, economics, research and politics, all the domain of administration, “The thing I’ve always hated in my life” (Lehman 1994).

Perhaps, above all else in life, Heinz had always responded to a desire to be useful to others with little regard for his own needs. So, in 1981, Heinz Lehmann decided to donate two days each week to become the Deputy Commissioner of Research for the New York State Office of Mental Health in return for the nominal salary of one dollar a year, which he never received. He had many psychiatric friends in New York and commuted back and forth to Montreal where he continued to teach residents and medical students at Douglas and McGill until the very end of his life. His bibliography of research publications ends in 1986 at age 75 but the demands of his new administrative position were considerable.

He had a budget of \$37 million and administered two research institutes, one of them named after his friend, former colleague and co-author, the Nathan Kline Institute. “I have to sign off on all research protocols; I have to make sure every IRB is working all right. I have to deal with all the political infighting about the various jobs in the various hospitals and research institutes. I have to fight about budgets and try to outwit people, get around and manipulate people... I do all the things administrators do” (Lehmann 1994). And clearly Heinz Lehmann did them all well.

### **Accomplishments, Accolades and Awards**

Heinz Lehmann had accomplishments other than clinician, educator, researcher and administrator. In addition to serving as President of the world’s two leading psychopharmacology organizations, the ACNP (1965) and the CINP (1970), Heinz was a Life Member of the American Psychiatric Association, a Fellow of the American Association for the Advancement of Science and a Foundation Member of the Royal College of Psychiatrists. He was also a Member of the American Psychopathological Association, Association des Médecins de Langue Française du Canada, the Canadian Psychiatric Association, the Quebec Psychiatric Association, the Canadian Medical Association and the Montreal Medico-Chirurgical Society. He was an honorary member of psychopharmacology organizations in Turkey and Germany.

In 1976, Heinz Lehmann was made an Officer of the Order of Canada; in 1970, he became a Fellow of the Royal Society of Canada; and in 1988, he was inducted into the Canadian Medical Hall of Fame in the distinguished company of William Osler and Norman Bethune. *“He was a humble and affable man who made the world a better place.”*

Heinz was a member of four editorial boards: The Canadian Psychiatry Association, L’Encéphale; Revue de Psychiatrie Biologique et Thérapeutique, the Executive Editorial board of Progress in Neuropsychopharmacology and Focus on Psychiatric Practice.

Over a lifetime, Heinz Lehmann garnered many awards, none sought after. His early work earned him four awards: from the Newspaper Guild of New York (Page One Award, 1956), the Albert Lasker Award (1957), the Annual Award of Merit of the Canadian Mental Health Association (1957) and the Stratton Award from the American Psychopathological Association (1962).

His research during the Lehmann-Ban era earned him three McNeil Awards from the Canadian Psychiatric Association (1969, 1970 and 1974) and contributed to receiving the Taylor Manor Award (1978).

His lifetime accomplishments include the Psychiatric Outpatient-Centers of America Award (1980), the Leonard Cammer Memorial Award (1981), the Silvano Arieti Award from the American Academy of Psychoanalysis (1988), the Outstanding Citizen Award from Montreal Citizen Council (1991), the Van Gieson Award from the New York Psychiatric Institute and the Prix de L’Oeuvre Scientifique from L’Association des Médecins de Langue Française du Canada (1992). At the 21<sup>st</sup> Congress of the CINP in Glasgow, he received the Pioneer in Psychopharmacology Award (1998).

Heinz Lehmann’s teaching skills made him the first recipient of the McGill Psychiatry Resident’s Association Award for Outstanding Teaching (1985) and the Distinguished Scholar Award from the Harlem Valley Psychiatric Center (1998).

For an educator and researcher there is no greater honor than to have an endowed award named in your honor and to be its first recipient. They are the Heinz Lehmann Award for Excellence in Psychiatry by the Quebec Psychiatric Association (1986), the Heinz E Lehmann

Research Award by the New York State office of Mental Health and the Heinz Lehmann Award for outstanding contributions by a single individual in the field of research in Neuropsychopharmacology by the Canadian College of Neuropsychopharmacology (1999).

### **Portrait of the person**

A remarkably consistent portrait of Heinz Lehmann emerges from multiple sources, mostly substantiating what one has learned from his early upbringing and professional life and only occasionally surprising.

Tom Ban, who knew him for just over 40 years, as student, colleague and friend has much to say. Even into his eighties, Heinz was full of youthful vitality and energy, whose curiosity and probing extended to all different aspects of life. He had compassion, insight and charm, coupled with a fair minded and even-handed approach. This must have endeared him to patients and students but it also was an important cohesive force as an administrator and committee member.

Despite his preference for evidence over experience, Heinz was not unduly enamored by rapidly changing theories of neurochemical etiology and felt that some of the millions of dollars spent on neuroscience might be better used preventing emotional and mental problems in children by teaching parents on how to raise children or by addressing the problems of homelessness in people with mental illness. Heinz pioneered and taught a psychiatry that paid attention to the biology of illness integrated with the psychology and social situation of the person (Ban 2015b). His clearest enunciation of this ideology was among his last lectures titled, *Psychotherapy's empathy and intuition versus modern drug strategies and brain Investigation technology*. (Lehmann 1995).

His ultimate hope for mankind was that a “psychological revolution” would transform society from “money and power” to “constructive social action.” (Cahn 2015).

A former student and colleague noted he was a man of strong opinions who never shirked a challenge and knew exactly where he stood. In addition, he was a great idealist and inspiring teacher, innovative and open to new ideas, while questioning traditional wisdom (Paris 1999).

Heinz's domestic life was overseen in tranquility by his wife Annette, a kind and older spouse, who took good care of him, exhibiting benevolent judgment and wisdom, epitomizing

“encadrer,” as the French say. Only after her death, did the family learn her secret: she had altered her birth certificate to conceal the fact that she was 13 years older than Heinz.

Heinz was a medical and moral role model for his son François, who became a family physician and also an ordained deacon - their only disputes were over religion where perhaps faith contested with the skepticism and empiricism that governed his father’s ideology as an agnostic.

Heinz never again experienced the kind of major depressive illness that marred his childhood but he underwent less severe self-limiting episodes of sadness with which he mostly coped without disruption to his working life.

Personal life had its pleasures and pastimes. The family skied together and François’ parents were among the first to frequent the slopes of Mount Gabriel, from the days when they were too poor to visit the Lodge or buy a drink, while their 50th wedding anniversary was celebrated there in bountiful manner among family and friends.

Among his many skills, Heinz Lehmann was an accomplished amateur magician to the delight of his grandchildren, Hugo and Joel. He had a childlike sense of fun and playfulness that Tom Ban recalls in interactions with his own son, Christopher.

Heinz was also a scuba diver and a strong and vigorous swimmer, even off the New Brunswick coast where there were powerful tides and undertows but no life guards. On more than one occasion he rescued unwise and less powerful swimmers.

His main hobby was star gazing through a large telescope on the balcony of his home, an avocation reminiscent of his British contemporary’s recall of Emmanuel Kant’s words that inspired his fellow pioneer, “*Two things continue to astonish the mind, the more it dwells on them. One is the starry sky above me and the other is the moral law within me*” (Elkes 1997). Heinz also collected precious and semi-precious stones wherever he went, polished and cut them, so his wife could set them for friends and family. He had the unusual habit of fondling an emerald, the symbol of love, while listening to lectures at conferences (Ban 2015a).

Heinz owned a car in Germany but never drove one in Canada, where he had a lifelong preference for his bicycle. On longer trips, he used a Taxi and in later life had a driver, preferring work in the back seat to driving. Although he told friends this was his choice and they attributed

it to his modest habits, François believes his father was forbidden to own a car after early on driving his mother into a ditch on more than one occasion! It is a little-known fact that Heinz's aversion to driving was shared by his famous contemporaries in Britain (Aubrey Lewis) and France (Jean Delay).

Altogether, family life was convivial and calm with many shared activities and memorable annual holidays on Cape Cod, along with François and his wife Ghislaine, whom Heinz adored, and his two grandsons, Hugo and Joël.

### **Exiting Center Stage**

Heinz Lehmann died on April 7<sup>th</sup> 1999, suffering from a sickness not named in any of numerous obituaries. But Tom Ban presents a clear picture (Ban 2015a). In October 1998, they had been together when Heinz was inducted into the Canadian Medical Hall of Fame and he appeared well. In December, he attended the Eleventh Annual New York State Office of Mental Health Research Conference and presented the annual awards "with his usual wit and humor." Following this, they both attended the usual mid-December meeting of the ACNP in Puerto Rico.

He was now "visibly weak but attended sessions and enjoyed discussing what he learned. As usual he had his emerald in his hand while listening, but unlike before, when he got bored he just left the room." Although he was unsteady, was having memory problems, had no appetite and had lost weight, his only complaint was difficulty sleeping, for which none of the usual hypnotics had helped. Characteristically, he walked around the poster session, carefully reviewed every one that dealt with insomnia and "brought to the exhibitor's attention the need for a different kind of hypnotic." Together, Tom and Heinz visited the beach and Tom enjoyed watching him swim and the pleasure it gave Heinz, followed by a good sleep in the afternoon. That night they enjoyed a cocktail, ate dinner together and shared a main course.

Over the next three months, they were in frequent phone contact and Tom visited Heinz three days before his death. Heinz dwelt on his insomnia and relentless search for relief. A couple of nights before he was admitted to hospital for the last time, "he had a good sleep after taking a small dose of olanzapine and his restlessness had gone." This drug is an anti-psychotic, not normally used for insomnia. Heinz felt this should be looked into to help others with the same problem. Tom notes, "I did not look into it but he did." Heinz experimented on himself to find out

if the drug really worked or if it might be a placebo response. After stopping the drug, “All his symptoms recurred and promptly remitted with the resumption of olanzapine in a small dose.”

This must have been among their last conversations. Heinz, the incurable scientist, took the results of his final experiment with him, leaving behind a grieving family, his lifelong friend Tom and a worldwide audience of bereft fellow psychiatrists.

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