

REVIEW OF NATURAL HEALTH PHILOSOPHY IN SUPPORT OF  
UNDERSTANDING OPTIMAL HEALTH

By

Teresa A. Duda

A Dissertation Submitted in Fulfillment of the  
Requirements for the Degree of

Doctor of Philosophy

In Natural Health Sciences

University of Natural Medicine

Santa Fe, New Mexico, USA  
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## ABSTRACT

Taken in its full context, the original philosophy of natural health and wellness espoused by the European, American and other pioneers in Naturopathy can offer benefits to today's society at large. In the light of vastly increasing costs of medical care, destruction of precious natural resources of the earth and recent man-made natural disasters in the U.S. Gulf of Mexico, it seems of paramount importance to revisit history, philosophy and evidenced based research in understanding natural health.

The author reviewed literature and research to identify central components that provide foundations for optimum health. These include: an emphasis on close relationship between environment and optimal health, the use of natural resources and taking personal responsibilities for well being with focus on natural resources as a foundational concept of daily living. This paper provides a basis for understanding natural health and the concept of optimum health so that a consulting practitioner could effectively apply these principles in teaching to clients.

With an understanding that healing will occur naturally in the human body, if it's given what it truly needs, including fresh air, sunlight, proper diet, pure water, exercise and rest, and insight into how people currently relate to this idea; a practitioner can tailor an integrated system of optimum health for a client by incorporating the important elements of natural health and mind and body connection, borrowing freely from appropriate remedies and modalities of other cultures.

## DEDICATION AND ACKNOWLEDGEMENTS

To my family: Henry, Monica and Roger, who make everything worth doing.

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## CHAPTER ONE

### INTRODUCTION-BACKGROUND AND HISTORY

Naturopathy is a philosophy which encompasses a view of life, a model for living a full life. The word *naturopathy* is a Latin-Greek hybrid which can be defined as “being close to or benefiting from nature” (Mitchell, 1998 ).

Over the past several decades, natural health and traditional naturopathy have received much attention in scientific literature and the popular press, yet people of all ages still struggle to understand how nature provides us with an abundance of opportunities to maintain optimal health. Health is wholeness and balance, an inner resilience that enables us to meet the demands of living without being overwhelmed. Optimal health also brings a sense of strength and joy rather than just an absence of disease. Health is a dynamic and temporary state of equilibrium, destined to break down as conditions change, but most breakdowns need not be major and can be prevented (Weil, 1997).

In light of quickly increasing medical care costs and the destruction of the earth’s precious natural resources, it seems of paramount importance to revisit the history, philosophy, and standing of traditional naturopathy in understanding optimum health. Although the term *naturopathy* originated in the late 19th century, the art and philosophy can be traced back through Germany into Greece, to Hippocrates himself, and even beyond. There have always been people who understood that healing will occur naturally in the human body if it is given what it truly needs—that is, proper diet, pure water, fresh air, sunlight, exercise, and rest. According to Lindlahr (1975), “the point to remember is

that in fact natural health and healing are and must be ‘natural’ in the sense that they must work in accordance with natural law” (p. 4). As a specific discipline, natural health and naturopathy are related to the European nature cure, which evolved during the late 19th century.

Benedict Lust, a German immigrant who is recognized as the father of American naturopathy, first came to the U.S. in 1892 at age 20 (Kirchfeld & Boyle, 1994). Lust initiated a movement focused on the importance of prevention in health care and concern for patient rights.

Congruent with the philosophy of traditional naturopathy, the symptoms of an ailment can be understood as nothing more than a signal that something is wrong. According to naturopathic belief, when a symptom alone is eliminated, it is likely being suppressed. Unless the original cause has been eliminated, the symptom may return later in chronic form. Hence, many medical conditions are referred to and treated as chronic and lifetime issues.

Traditional naturopathy follows a number of basic principles. Among these are the requirements to do no harm, to find and eliminate the cause of illness, to teach health, to honor the total person, and to prevent “dis-ease.”

“Do no harm” (*Primum non nocere*) is a part of the Hippocratic Oath. Traditional naturopathy does not use harmful substances or pharmaceuticals and does not rely on dangerous procedures such as surgery. The basic tenet of traditional naturopathy is a recognition of the healing power of nature and an understanding that human life is governed by the same self-regulating, self-repairing forces that care for all living things and that the body has an innate capacity for self-healing. Naturopathy primarily focuses

on providing education and guidance to set up the proper external and internal environment for healing.

The instruction to find and eliminate the cause arises from the premise that all disease has some kind of cause. Self-healing can occur when the cause is eliminated. Traditional naturopathy helps to evaluate lifestyle, identify the probable cause of the problem, and assist in taking corrective action.

Traditional naturopathy teaches health, educating patients on how to recognize, achieve, and maintain optimum health. Traditional naturopathy also honors the total person, recognizing that people are physical, mental, and spiritual beings and that one disease affects all areas of life. Finally, traditional naturopathy works to prevent disease by teaching the skills necessary to achieve a healthy, strong, and independent future.

Traditional naturopathy remains committed to ending the destructive, dualistic perspective of mind and body and presents a collaborative and well-coordinated approach to disease. It also can offer guidance to using and preserving the earth's limited natural resources, to relying on the body's natural healing potential through various natural health modalities, and to adopting a preventive approach based on water, sunlight, nutrition, exercise, and rest.

To achieve balance and maintain optimal health, we have a moral obligation to preserve a clean environment for future generations by taking an active role and by vocalizing how maximizing the influence of industrialization has minimized the human being. Understanding the concept of health and the precise relationship of health to wholeness and the body is related to knowing who we are and how we are connected with the world around us.

Health is the state of optimal well-being. Knowledge of natural health promotes wellness and strives to elevate human health and wellness by analyzing each aspect of the controllable factors that determine the state of health: fresh air, sunlight, water, nutrition, exercise, and rest.

Tracing the history and philosophy of traditional naturopathy, and questioning our identity and our responsibilities, stimulates more questions than answers. This is encouraging because, as Aristotle philosophized, wisdom begins with wondering (as cited in Dossey, 2006).

## CHAPTER TWO

### REVIEW OF RELATED LITERATURE

Naturopathic medicine has a rich history in Europe, specifically in Germany. Its roots are deep in the nature cure tradition, which used natural agents such as water, sunlight, fresh air, nutrition, rest, and exercise to promote optimal health and cure many conditions in patients. In Germany in the 1800s, many of the nature cure doctors had no formal medical training.

#### Vincent Priessnitz

Vincent Priessnitz was born a peasant and never went to medical school, yet he set in motion forces leading to the establishment of hydrotherapy as a legitimate medical entity, enabling the simple methods of natural healing to evolve into naturopathic medicine of today.

Priessnitz was born October 4, 1799, at Grafenberg, a small village in the Sudetes Mountains of southern Silesia, now the Czech Republic. Grafenberg Mountain is a part of the Hirschbad Kamm or Stag's Bath Ridge of the Sudetes, abounding in freshwater springs, one of which has carried the Priessnitz family name for the past 200 years.

As a young boy, Priessnitz was credited with curing his father's hidebound, feverish cow through the application of cold water. Priessnitz noticed that one of his father's stags hobbled to a mountain spring and placed its injured thigh in the cold flowing water. Each day the stag returned to the mountain spring and placed its limb in the water. According to Metcalfe (1898), "Great was [Priessnitz's] joy to observe the animal improve day by day, till it finally got well" (p. 12).

Priessnitz spent many hours working the farm and he accidentally injured himself several times. This gave him the opportunity to use cold water to heal his injuries. For example, when he was 13 years of age Priessnitz injured his wrist; he realized that his wrist felt much better when placed under a cold stream of water. When he returned to his chores, he wrapped his wrist in a wet bandage, which he rewetted when it dried. From this act, the Priessnitz compress was born. The compress found its way into medical practice and remains an entry in medical dictionaries (Kirchfeld & Boyle, 1994). Priessnitz recommended cold water treatments to anyone with a sprain, bruise, or other external injury.

Young Priessnitz became well known in eastern Europe, and at the tender age of 19 he was invited to Bohemia and Moravia to give treatments. Throughout this time he relied only on sponge ablutions and he came to be known as the *Schwamm* (sponge) doctor. Priessnitz also attached great importance to the value of fresh air. As “an absolute air fanatic” (Schonenberger, 1931, p. 138) his convictions become a cornerstone in the development of the air bath of the later back-to-nature movement.

Priessnitz died at Graffenberg, in 1852, of failure of the left lung, liver, and kidneys—most likely the direct or indirect result of the accidental injuries he had suffered as a teenager that helped set him on his course as a healer. The suggestion that Priessnitz’s “premature” death at 52 “potentially discredited” his system (Cayleff, 1987, p. 27) ignores the fact that he probably would not have survived into adulthood without the water treatment he faithfully administered to himself after serious crush injuries to his chest. Moreover, the autopsy report suggested that decades of impingement on the vital organs by the improperly corrected chest injuries prematurely shortened his life. This

could be interpreted as evidence that the water treatments gave Priessnitz 35 additional years of life and enabled him to accomplish all that makes him worthy of our attention today.

Vincent Priessnitz's death was reported all over the world and he was mourned by many. As citizens of Grafenberg recalled, during the solemn funeral procession "no sound was audible save the rushing of water from the springs which seemed to send their farewell to him who had drawn them forth from their quiet to minister to the health of Europe" (as cited by Kirchfeld & Boyle, 1994, p. 74).

Today, monuments in honor of Vincent Priessnitz have been built by grateful patients, and the remnants of the former grandeur of sanatorium can be found in the town of Jeseník (Freiwaldau) and Lázně Jeseník (Bad Grafenberg), 2 km above Freiwaldau. But Priessnitz's legacy goes far beyond the remains of Grafenberg. Not only did he make natural treatments so well known that his name became a household word throughout Europe, but also hundreds of water cure institutions based on his water cure principles were established throughout Europe, America, and the British Isles. His American patients and students brought their knowledge of natural treatment back to Grafenberg and helped launch a health reform movement. This set the stage for the nature cure movement to make its way from Europe to America 50 years later.

Although Priessnitz's lacked scientific training, he was a successful doctor. He "pierced the secrets of nature." Through experimentation and observation, Priessnitz "brought to light facts which the science of centuries had been unable to discover" (as cited in Kirchfeld & Boyle, 1994, p. 34).

Priessnitz has always been considered the father of hydrotherapy, but he rarely is acknowledged as the progenitor of naturopathic medicine. Nonetheless, Priessnitz is important to the history of naturopathic medicine as the first person to whom the term *Naturarzt* (nature doctor) can be applied. He was the first to systematize and promote a natural method of healing that was composed of pure water, fresh air, simple diet, exercise, and rest. This has proven a solid foundation for naturopathic medicine.

Perhaps the soundest assessment of Priessnitz came from Baruch (as cited in Kierchfeld & Boyle, 1994), a medical doctor a generation removed from Priessnitz who advocated scientific hydrotherapy and despised the empirical tradition personified by Priessnitz. However, Baruch was grateful to Priessnitz for bringing water treatment to the attention of established medicine. According to Baruch, Priessnitz invented various technical modifications of water treatment which were later employed by the profession and are currently in use (as cited in Kierchfeld & Boyle, 1994, p. 9). Priessnitz was not only the simple, rustic character that has filtered down through history, but also a gifted healer and a man of great compassion, keen intellect, and towering moral strength, a model for nature doctors of all times.

#### Johann Schroth

Johann Schroth was born in Lindewiese (now located in the Czech Republic) on February 11, 1798. He was 7 years old when his father died and his mother remarried shortly after. From closely observing nature and treating his own injuries, Schroth developed his healing concepts. Schroth worked as a cavalryman and orderly to a veterinarian, and he demonstrated a gift for treating animals. He used this expertise to set bones and treat fractures.

In 1817, Schroth's right kneecap was broken when he was kicked by a horse. The medical treatment left the joint inflamed and as a result, Schroth could not bend his knee. One day, Schroth met a traveling monk who suggested he wash his injured knee with cold water several times a day. Instead Schroth attached a wet bandage to his knee and renewed the bandage at specific intervals. The inside of the bandage was pleasantly moist and warm. Soon the swelling disappeared and after 10 weeks the injured leg was healed. Schroth's cure encouraged him to use wet bandages for injuries, sprains, dislocations, swelling, and stiffening of the joints (as cited in Kirckfeld & Boyle, 1994).

Schroth sought to learn why these moist compresses brought about such remarkable results, and he looked for the answer in nature. While tilling the fields, he realized that seeds need warm, humid soil for growth, much as a developing infant requires a warm, humid environment inside its mother's womb. He concluded that moist warmth is the most important condition for development of plants and animals and that diseases were caused by its deficiency. Therefore, he reasoned, disease could be cured by application of wet heat. He also observed that horses who were given much water sweated more and tired out sooner than those kept without water, and that animals wounded by shooting recovered by fasting and refusing drink while maintaining absolute rest.

Schroth never claimed that his method was a universal remedy or equally effective for all diseases. Nonetheless, he was expelled from several communities where he went to treat the sick, was accused of being a sorcerer, was brought to court and charged with quackery, and was even thrown in jail. When Schroth's name was

mentioned, he was described as an old cavalryman who always drank and who deceived his patients with magnetism and hunger cures.

In his course of healing, Schroth advocated that patients adhere to a salt- and fat-free, dry diet without any milk or meat. He hoped to rediscover the age-old healing method of fasting and to employ it as a supplement to the water cure. In the beginning, Schroth had his patients drink magnetized water, later brandy, and finally wine to spur on the healing forces of the organism and as a stimulant for weakened nerves.

Modern Schroth cure practitioners hypothesized that unadulterated wine, sparingly used, has a stimulating effect on the heart and circulation and on the nervous system. According to Meyer-Camberg (1977), “the patient becomes more energetic in every respect” (p. 263). Recently, Schroth’s use of wine received some posthumous vindication in the newest findings of epidemiologists, who were puzzled about the low mortality rate from coronary heart disease in France and attributed it in part to high wine consumption (Renaud, 1992). However, the use of alcoholic beverages as therapy remains controversial within naturopathic circles.

People who knew and respected Schroth characterized him as a true healer with a warm, charming, and confidence-inspiring personality. Schroth did not leave a written description of his method. However, numerous books and articles about the Schroth cure were published by his successors in Lindewiese and by doctors who introduced the Schroth cure in their own sanitariums. They developed and improved it while giving it a theoretical foundation.

Lindewiese lost its significance as a Schroth cure center when the Germans were driven out after World War II. According to a modern travel guide to Czechoslovakia, Lindewiese did not completely disappear from the map as a spa:

Pleasant and old-fashioned is the tiny spa of Lipova-Laznie (Lindewiese), 4 km West of Jeseník (Freiwaldau), cozily set between trees and lush rolling meadows, founded in 1830 by a man called Schroth, its waters have been used since then for treatment of obesity and rheumatism. (Jacobs, 1992, p. 251)

Dr. Hermann Brosig saved the cure, bringing it to West Germany in 1949 and making Oberstaufen in the Bavarian Alps the new Lindewiese. Today, many thousands of patients visit Oberstaufen each year. A Schroth Federation, with its own magazine, keeps Schroth's memory alive and propagates his cure.

One can only speculate about why the Schroth cure never became popular in America. Certainly, the lack of a well-established tradition of health spa attendance and lack of insurance coverage for such methods played a role. In addition, the fast pace of American life is not conducive to taking one or two months for a complete body overhaul.

The basic elements of the Schroth cure are wet sheet packs, periodic alternation of dry and drinking days, and the Schroth diet. The effect of alternating dry and drinking days is compared to the effect of a sponge, which is cleansed by being repeatedly filled with water and then squeezed out until it is clean (Fenn, 1982). The Schroth cure requires extraordinary willpower and self-discipline. Schroth's own motto was "Without battle no victory, without deprivation no enjoyment, and without cleansing no healing" (Mader, 1926, p. 532).

Whereas Priessnitz focused his efforts on the generation of the skin crisis to detoxify the body of poisonous substances, the skin played a less important role in Schroth's program. Schroth's experiences convinced him that the urinary and intestinal crisis played more important roles, and that true healing comes only from curative stimulation of the digestive system and the kidneys. When Schroth became Priessnitz's competitor, progress from the water cure to nature cure methods was made.

Although it seems Schroth and Priessnitz rejected each other's methods, they always spoke about each other with respect. According to report published in *Naturopath* in 1926:

There was a keen rivalry for over 100 years between Johann Schroth School and Vincent Priessnitz School. Here you have two masters, they are using Nature's agents but each one uses it in a different way, and both arrive at the same end. Their principles constitute Basic Naturopathy. (as cited in Kirchfeld & Boyle, 1994, p. 272)

Schroth was a tall, gaunt man with kind, benevolent face. However, the heavy burden of tending his farm while taking care of his patients, all while warding off persecutions, wore him down so much that he finally became extremely emaciated and exhausted. Schroth died from an organic heart ailment at the age of 58, on March 26, 1856.

#### J. H. Rausse

J. H. Rausse was born August 18, 1805, in Gustrow (Mecklenburg). His real name was Heinrich F. Francke, but his fellow university students nicknamed him Rausse, the

French equivalent of the German word *Ross*, meaning “horse,” due to his animal strength and wild temperament.

Rousse, who grew up with 10 brothers and sisters, was a strong and healthy baby and the family physician predicted that he would become a Samson. When he was 3 years old, however, he was afflicted with diarrhea, which was treated with constipating drugs and a bland diet. As a result he fell ill with constipation, which was treated with strong doses of purgatives for the next 2 years. The physician himself was astonished that the young boy could tolerate such high doses, which were normally given only to robust farmhands. Even so, the powerful overdoses made the boy so weak and frail that the physicians did not know what else to do but to use the strongest drug tonics. Incredibly, at the age of 10 Rousse weighed no more than he had in his first year. When the doctors gave up on him and finally stopped medication altogether, he slowly, but never completely, recovered.

Rousse never forgave his mother for allowing him to be poisoned as a child. His sometimes unbearable suffering in the later years of his life was a constant reminder of this treatment.

After a number of years as a student at the local gymnasium, Rousse was sent to the university to follow in his father’s footsteps and study theology. During his university years, Rousse was the center of attention wherever he went because of his quick-wittedness and originality, and he was well liked due to his abilities in drinking and fencing.

A great change occurred in Rousse’s life after he discovered the works of Swiss-born political philosopher Jean-Jacques Rousseau. Young Rousse devoted himself

entirely to the observation of nature and studied plants and trees, the origins of springs and rivers, the formation of weather patterns, and the behavior of animals. Following Rousseau's call to return to nature, Rausse spent almost a year among the Osage Indians in North America, living as a hunter until he fell ill with yellow fever.

Worn out and tired of living in America, and of existence in general, he returned to Germany to die in his homeland. The sea journey, however, had a beneficial effect on his health, and back in Europe he regained sufficient strength to resume working. However, his health once again started to deteriorate. Because of his deep aversion to any regular medical attention, Rausse decided to try Priessnitz's water cure, which was becoming prominent. Its simplicity and closeness to nature reminded him of the truths he had discovered in Rousseau, and he began to ponder the principles underlying the water cure that Priessnitz had followed by intuition.

Because of limited funds, Rausse had to interrupt his treatment before he was completely well. For Rausse instinct was everything. It represented the safest and most important guide for the preservation of health and the cure of disease. He wrote,

The inclinations and antipathies of instinct are the lead-strings by which Nature directs man and beast on the road to happiness and health. Man is not ordained for emancipation from the bonds of Nature; every digression from the voice of nature is a revolt and outbreak, and the consequences are misery and afflictions. (as cited in Kirshfeld & Boyle, 1994, p. 46)

Rausse fought against what he considered wrong healing methods with passionate, polemical fervor. He felt allopathic medicine was harmful because it used strong drugs to force the body to give up its struggle for health. The result was not a

restoration of health but often a chronic condition and long-term debility. He understood that the power to heal was located within the body and that curative treatments ought to stimulate that healing power rather than suppressing it. He believed disease was caused by foreign material that had to be removed from the body by cure. Therefore, he was strong advocate of the healing crisis as practiced by Priessnitz.

Rousse considered Priessnitz the discoverer of the water cure but looked upon himself as its master and perfecter. He rightly credited Priessnitz with discovering that cold water draws blood, strength, and warmth to the body parts it contacts; that cold water is curative only after the skin is warm, or even better, sweating; that, contrary to the prevailing medical opinion of his time, the sudden change from heat pack to cold bath does no harm but rather increases the beneficial reaction of the entire organism; and that chronic diseases must be transformed by cold water treatment into acute diseases before they can be cured. Rousse also advocated treating the whole person rather than an isolated body part or organ, because he recognized that all body functions are interrelated. He rejected any disease classification, arguing that nature knows no genus or species but only individuals.

Because no two patients are alike, even if they have the same disease, Rousse's water cure concentrated on symptoms and emphasized the art of individualization. The nature cure movement would later take its battle cry, "treat the patient, not the disease," from this postulate. These and other essential concepts intuited by Priessnitz and articulated and developed by Rousse dominated nature cure philosophy thereafter.

Nature cure historians suggest that Rousse was a gifted writer, a "passionate fighter with quill and word," and was possessed of a "demonic nature," full of inner

tensions and subject to changing moods (Kierfeld & Boyle, 1994, p. 123). He emphasized the importance of life close to nature. According to Kierfeld and Boyle, Brauchle referred to Rausse as a Rousseau of the water\_cure because Rausse's belief in the water cure had much in common with Rousseau's dictum to return to nature.

Rausse was neither a scientific thinker nor widely read in medicine; however, he was a genius and a true water promoter who with fervent eloquence spread the message about the blessings of unspoiled nature. His accomplishments in the development of the nature cure are immortal.

Rausse is mostly unknown and unappreciated in naturopathic circles today. This is unfortunate because his contribution to the understanding of the principles underlying the nature cure, which he articulated with such force and clarity, still define the philosophy of naturopathic medicine. The radical approach of his doctrine is both refreshing and shocking. The art of healing does not lie before us in the gray mysteries and doctrines of the future, but far behind us, in the past of the green, original life of nature. "Return" is the motto of the true healing art, not "forward" (Rothschuh, 1983).

Following long suffering, J. H. Rausse died on July 12, 1848. He died as lonely as he had lived. At the end of his life, he locked himself in his room, and those who found him had to climb through a window to get in. Rausse's autopsy revealed pyloric stenosis and a hardened pancreas, suggesting that he died either from stomach ulcer or stomach cancer.

#### Theodor Hahn

Theodor Hahn was born May 19, 1824, in Ludwigslust, Mecklenburg, Germany. As a reaction to his first vaccination, he developed a rash that did not disappear until he

was 6 years old, despite continuous treatment with different skin lotions. At age 4 he began to suffer from serious asthma that could not be controlled by any drugs. Asthmatic attacks troubled him so much that he frequently interrupted his schooling. Despite the use of all conventional drugs of his time, nothing helped his condition. According to Brauchle (1951), “Like so many nature doctors, Hahn’s own suffering and disappointment with conventional medicine served as the starting point for his calling as a healer” (p. 165).

Originally, Hahn wanted to become a physician, but he felt too weak to endure the long and strenuous education. Therefore, he became an apprentice in a pharmacy, where he tried the different medicines on himself—without any success. Disillusioned with the drug practice, he discovered Rausse’s writings, which inspired him to experiment with the water cure. At the same time, he was influenced by the story of the pharmacist Schreiber “who was cured at Grafenberg after many futile attempts with drug therapies and who sold his pharmacy, his ‘poison dump’ as he called it, to become an advocate for the water cure” (Brauchle, 1951, p. 165).

It was Hahn, along with the Bavarian military physician Lorenz Gleich (1798–1865) who first used the term *Naturheilkunde* (“nature cure”). Both suggested dropping such old terms as *hydropath* and *water cure*, which were no longer adequate to describe the increasing variety of methods and their practitioners, and to replace them with such terms as *Naturheilkunde*, *Natureheilmethoden* (“nature cure methods”), *Naturheilanstalt* (“nature cure establishment”), and *Naturheilarzt* (“naturopathic physician”) or *Naturarzt*. Today, these terms are widely known and understood in Germany but remain poorly recognized in the U.S.

Hahn attended the University of Leipzig for a short time, and established himself as a practitioner in 1849. During this time, he delved into many medical and dietetic writings and was especially drawn to macrobiotics, which convinced him of the bad effects of meat consumption. In his practice he began prescribing a vegetarian diet for some of his patients; later, all of his patients were required to adhere to a strict vegetarian regimen. Hahn wrote various vegetarian cookbooks and pamphlets in defense of vegetarianism. In his most important work on the subject, *The Paradise of Health Lost and Regained*, Hahn attempted to prove that a meatless diet was the diet nature provided for humans (as cited in Kierfeld & Boyle, 1994). He felt a pure vegetarian diet stimulated the activity of the colon and promoted detoxification. Meat, on the other hand, over-acidified the organism and left uric acid in the body, thus contributing to rheumatism, gout, and stones in the bladder.

Based on the structure of humans' teeth and digestive tract, Hahn believed that humans were originally fruitarians and that they switched to meat only after the influence of environmental catastrophes. Hahn also objected to meat eating on moral grounds. If everyone had to kill the animal which he eats, Hahn argued, many people would become vegetarians to avoid the horror of animal slaughter. Hahn also argued that the production of vegetarian food was much cheaper than flesh food and that a given amount of acreage could support many more vegetarians than meat eaters. In short, Hahn anticipated all the arguments of modern vegetarianism.

In his treatment methods, Hahn preferred mild applications such as ablutions, sitz baths, and half baths over the stronger full-body baths. He placed great value on gardening activities and recommended gardening to all of his patients, pointing out that

garden work distracts a patient from his or her illness while strengthening the body and mind. Hahn was a serious, reserved, and scholarly person who liked to be alone in his study or to stroll through the beautiful park of his sanitarium, where he had planted the trees and shrubs with great love and care.

Hahn's contribution is "that he considered a vegetarian diet as equally important as water for the treatment of the sick" (Brauchle, 1951, p. 173). Therefore, he was more than a water cure doctor; he was a nature doctor and dietician. He felt that the nature cure required principles and methods of the utmost clarity and simplicity, and he rejected any complicated medicines, methods, or technical apparatus. He believed that the true means of nature could easily be obtained from nature, anywhere and anytime. Hahn held the very modern belief that the nature doctor should be an educator who brings the knowledge of healthful living and natural treatments to the people so they may realize they are responsible for their own health.

Hahn became the leading proponent of natural health and natural healing methods in the second half of the 19<sup>th</sup> century. He started out exclusively with the water cure, but with his addition of dietetics and vegetarianism to the nature cure, he pushed his influence into the beginning of the health- and life-changes movement. Hahn helped establish *nature cure* as a term and concept, and he refined the philosophy of the nature cure and expanded its practice to include dietetics.

Though little known, Hahn deserves recognition for the important role he played in the development of naturopathic medicine. Theodor Hahn died of colon cancer on March 3, 1883, at the age of 59.

Arnold Rikli

Arnold Rikli was born February 13, 1823 in Bern, Switzerland. Rikli was educated in private institutions in Switzerland and Germany until the age of 17. Although talented and eager for knowledge, he revolted against the rigid educational system and his despotic teachers, seeking escape in the intensive exploration of nature. Even as a young child he was drawn to nature. Rikli was brought up to believe that exposing the body to the open air was dangerous, so even his first experiments with sun and air baths required a form of rebellion.

Rikli never studied physics or chemistry at a university. At the age of 20, on educational trip, he discovered Carl Munde's 1844 *Memoirs of a Water Doctor* and Luigi Cornaros' famous Renaissance classic about longevity, *Discorsi de la sobria (Discourses on a Sober and Temperate Life)*, first published in 1558. From then on, Rikli obtained as many works as possible about water cure and tested the different applications they described on himself.

There is disagreement about whether Rikli converted to the nature cure after it saved his life. According to Turner (1967) Rikli, dying of dysentery, saved his own life with the aid of hydropathic applications.

In addition to a business venture he started with his brother at the age of 25, Rikli also sought fulfillment in another area. His new career was nothing other than the one toward which he felt an irresistible inner call—the water cure or, in a broader sense, the nature cure. Rikli began to explore everything about this new science and started to treat sick workers employed in his factory with hydriatic applications. His early success soon made it evident that Rikli was a born nature healer. His reputation grew quickly and attracted other sick people, who entrusted even the most serious illnesses to his care.

Rikli went bathing in the river year round and constantly tried new treatments on himself. His self-experimentation with frequent applications of icy mountain water may have gone too far because he developed a nervous insomnia that he was only able to cure with warm baths. This led to his realization of the importance of the principle of contrast, which played a crucial role in his healing system. Rikli used the contrasting weather cycles to explain it, saying, “Atmospheric variations are of profound significance for any understanding of natural law” (as cited in Detmar, 1951, p. 31). He searched for a suitable way to use heat along with cold water for the cure of the sick and found steam to be the best method for treating colds and other diseases that ran their course without fever. After experiencing steam baths, he invented the bed steam bath in 1847. Rikli (1861) justified the use of heat along with the cold water cure as follows:

We imitated the chilling stage of the acute healing process of nature by making the different cold applications to produce varying degrees of reactionary warmth. It is rare, however, that we achieve increased fever temperature. We are therefore justified in imitating nature in its contrast stage by producing an acute artificial heat. The cold procedures are more effective when employed with steam and sunbath, because the contrasting applications lift each other up and achieve much faster results in most cases. So-called cold water establishments which only apply the principle of cold are irrational, because the true water cure encompasses all degrees of temperature which can be tolerated by the human organism. This includes the steam and sunbath. Therefore, we call it simply the water cure, not the cold water cure. (p. 87)

Rikli's spectacular success as a healer convinced him to devote himself to treatment of the sick. He fell ill with pleurisy in 1852 but cured himself with natural treatments and on the advice of friends, went to Veldes in Slovenia for his convalescence. Veldes' magnificent location on a beautiful lake, its mild climate and pure alpine air, inspired him to establish a nature cure sanitarium there. In 1854, he moved with his family to Veldes, where he practiced the healing art for the next 50 years.

Rikli endured considerable harassment and persecution from the medical profession. In his 50 years, he appeared in court seven times to defend himself against charges of quackery. Even in later years, Rikli's patients were called "Rikli nuts" and Rikli himself was called the "king of fools." It took decades for his cure to receive any attention from a sophisticated public.

By 1865, Rikli began looking for alternatives to the harsh water applications. He started experimenting on himself by exposing his body to the air, winds, and storms in all possible temperatures and weather conditions. Rikli introduced air baths in 1865, after he was satisfied they were beneficial. He prescribed that patients take them each morning in lieu of cold ablutions. In 1869, he began building a colony of air huts and created large light-and-air parks.

Rikli emphasized the importance of walking barefoot; however, he cautioned against constantly walking barefoot in the dew. Only a portion of his parks were maintained as lawn, the rest being covered with dry sand. He considered it necessary in air bathing for the bare feet to touch the ground, to achieve a sufficient "drainage" effect. Rikli endorsed the balance of circulation between the head and the feet and between the

intestines and the skin as the most important principle for the preservation and restoration of health.

Rikli's aversion to fanaticism, his flexibility, and his moderation were exemplified in his attitude toward vegetarianism. When he was 38 years old, he converted to a vegetarian diet. He felt much healthier and lived happily on the regimen for the next 12 years, often eloquently expressing his enthusiasm for the diet in his writings. However, after he had been a vegetarian for 15 years, his health deteriorated. Because he had bragged so much about the benefits of the vegetarian lifestyle, change was painful. However, he was finally forced to give in to his cravings for meat and stimulants, and he returned to a mixed diet eating a daily, small portion of meat and partaking of wine, beer, coffee, and tea again. After 2 years on this diet, all his problems disappeared.

Fearless of the consequences, Rikli left the Vegetarian Association in 1878, causing uproar in the vegetarian and nature cure press. He was called a traitor to the sacred cause, torn to shreds editorially, and expelled from their ranks. We cannot know whether Rikli's health problems were due to vegetarianism in general, but we can admire his readiness to change a long-held conviction in the face of new evidence, even at the cost of his reputation.

Rikli exhorted his colleagues to include light, air, and sunshine in their treatment programs and challenged people in general to get rid of their prudish, suffocating clothing and to open the windows of their musty rooms. Some contemporaries suggested that Rikli's light-air-sun ideology may have been a precursor to the 20<sup>th</sup>-century leisure cult of

nudism, but he used light-, air-, and sun baths only for therapeutic purposes. He also avoided the excess of latter-day sunbathing fanatics and the danger of skin cancer.

Rikli used the sunbath to complement the cooling light-air bath he considered too one-sided. His sunbathing started in the morning and consisted of a direct sunbath for approximately 40 minutes and an indirect light-warmth-bath of 20 minutes. Each sunbath was concluded with a mildly cool half bath or an ablution of 22 °C to 27 °C, lasting 5 minutes.

Rikli believed that the treatment of a sick person had to be individualized and that a diseased organ could only be influenced by treating the entire organism. The principle of contrast was Rikli's most original contribution to nature cure philosophy. Monotony in treatment methods meant agony, stagnation, and death. Without variety, Rikli believed, there could be no enlivening, strengthening, or development. For him, polarity influenced every phenomena of life—the polarities of cold and warmth, night and day, rain and sunshine, and summer and winter.

Even representatives of the medical profession grudgingly acknowledged the pioneering role of the lay healer Rikli as a light and sun therapist. Physicians currently interested in the therapeutic use of light have not forgotten Rikli. For example, Hans Meffert and H. P. Scherf of the Charite Humboldt University in Berlin won the 1991 Arnold Rikli Award for research on the biopositive systemic effects of optic rays on humans (*Naturheilpraxis*, 1991).

None of the later great cure developments and achievements would have been possible without Rikli's model in Veldes and without his motto "Water is good, air is better, but light is the best of all" (as cited in Kirchfeld & Wade, 1994, p. 72).

## Sebastian Kneipp

Sebastian Kneipp was born May 17, 1824, in Bavaria. He was the son of a weaver and grew up in tremendous poverty. From the earliest age, he desired to become a priest, but his family could not afford to provide him with the necessary education. If God had wanted him to become a priest, his parents told him, he would have provided money for Kneipp's training.

Young Kneipp took up weaving at the age of 11; by age 12 he could make 5 yards of linen daily. He continued to seek every opportunity to gain the priesthood but was repeatedly rebuffed. A sympathetic chaplain, Matthias Merkle, finally agreed to prepare Kneipp for seminary entrance exams. Due to lack of funds, Kneipp's diet during his student days was poor. His body had already been weakened by tuberculosis, contracted from working long hours in his father's damp weaving room.

His desire for knowledge made young Kneipp a voracious reader. By chance, he found in the Court Library in Munich Oertel's 1833 edition of a book written by Johann Hahn, *Lectures on the Wonderful Healing Power of Fresh Water*. Too poor to afford further professional medical help, Kneipp treated himself with cold water according to this book. Although the prescriptions were most exceedingly violent and severe, he endured 6 months of self-treatment. He noticed no dramatic change for the better but was encouraged that his disease had not gotten worse.

During the winter of 1849, two or three times a week, he sought out a lonely spot at the Danube River and bathed in icy water for few minutes. Again, he found no harm in this water treatment; in fact, he noted some small benefit. The following year he helped cure a fellow student who was refused holy orders for health reasons. Taking the cold

treatments together, they both improved significantly. Of course, their nude nocturnal river bathing in the dead of winter was open to misinterpretation by the townspeople, and Kneipp's superiors ordered him to stop. Nonetheless, he snuck out nightly through a basement window to spray himself with a watering can, and eventually his recovery was complete.

In 1852, Sebastian Kneipp was ordained as a priest and assigned to various parishes. Moved by the misery of his ill parishioners, he treated them with a modified cold water system, less harsh than the treatment he had endured. In 1854, Kneipp became known as the "cholera vicar" because of the many lives saved by his treatments during an epidemic in the village. Following his next move as a vicar, he founded a school and orphanage for poor children, renovated the church, and showed the local farmers new, more productive agricultural methods.

Kneipp was confident he could help his sick parishioners back to health because he firmly believed that God, in nature, had provided remedies for nearly every human ailment. He believed that disease originated in deranged blood—either that which circulated imperfectly or that which contained poisonous elements. He believed that water healed by dissolving and removing toxins from the blood, restoring normal circulation, and strengthening the entire system. It acted "like oil on the wheel of a rusty machine" and removed "unhealthy secretion, as a winnowing machine removes the chaff" (Kneipp, 1893, p. 153). This seemingly outdated humoral concept of disease is not so far from the view of a modern holistic physician who wrote, "Blood is the principal carrier of healing energy" (Weil, 1988, p. 61).

Kneipp's treatment methods were distinguished by two things: individualization and gentleness. He would keenly observe the patient's complexion, weight, posture, and demeanor, assess for toxicity, anemia, nervousness, and so forth, and adjust the treatments accordingly. If the patient was weak, anemic, or nervous, only one part of the body was treated with water. Kneipp utilized wraps, compresses, packs, baths, and steam, but his major contribution to hydrotherapy was his discovery of the healing power of the cold gush, or pour. This was an affusion to a specific part of the anatomy (for instance, the knee), often administered from a watering can or open hose. He made these applications gentle by keeping them very short. Kneipp experienced harsh cold water applications during his earlier self-experimentation and felt that such treatment would only bring the cold water cure into discredit. It attests to his greatness as a healer that he was always willing to learn from his experiences and refine his methods.

Kneipp's mother was an experienced herbalist, and when he was a child she took him with her to the meadows and taught him the herbs to use to treat various conditions. Under this influence, Kneipp became the first to introduce herbalism into the nature cure. This is one of his greatest contributions to naturopathic medicine.

Kneipp used herbs as he used water, and with the same aim: to dissolve morbid matters in the interior, to evacuate them, and to strengthen the organism. Moreover, he used herbs externally in the baths he administered, with oat straw being a favorite. He introduced the internal use of herbs for patients who did not like or could not tolerate the water treatments.

Kneipp's most specific influence in the U.S. was on naturopathic medicine. Hydrotherapy was central to Kneipp's healing system, but he augmented it with four

other categories of therapy that might be described as holistic. These included exercise therapy in the form of walking, running, gymnastics, and light sport, supplemented by various forms of massage; diet therapy in the form of a wide variety of wholesome natural foods, without one-sidedness or fanaticism; and herb therapy in the form of tinctures, teas, and bathing lotions. He also endorsed regulative therapy in the form of a proper organization of daily life, with due regard for biological rhythms; a balance between work and leisure, stress and relaxation; and harmony among mental, emotional, physical, social, and ecological planes. In short, “he asked for different lifestyle, not for better pills; he asked for the active patient and rejected the passive one” (Schaefer, 1982, p. 680).

Despite Kneipp’s successful career as a healer, he was first and foremost a priest and wanted to devote his life to the salvation of immortal souls.

Kneipp died June 17, 1897, at the age of 76. Alfred Baumgarten, his close associate, detected a large tumor in the lower abdomen, but Kneipp rejected Baumgarten’s recommendations to call a surgeon. Instead, he tried to cure himself with wraps and cold sitz baths. Kaiser (1975), a prominent modern Kneipp physician, commented, “The tragedy was that he did not see or did not want to see the limits of nature cure” (p. 26). Still, no one can definitely say whether he was wrong in adhering to his principles and whether the crude surgery of his time would have extended his life or only prolonged his suffering.

Louis Kuhne

Louis Kuhne was born March 14, 1835, in Saxony, Germany, where he grew up and attended school. When he was 14 years old, he started apprenticing in carpentry and eventually set up his own tool making business.

Like many other nature doctors before him, Kuhne felt special affinity for nature early in life. It was the inability to find medical help for his own poor health that led him to the nature cure. Kuhne's father died of stomach cancer and his mother, ailing for many years, repeatedly warned him against "the doctors," whom she blamed for her own difficulties. At 20, Kuhne began experiencing headaches and pains in his lungs. He read about the local nature cure society and began attending meetings, especially after a compress, which one member recommended, had an immediate beneficial result. When Kuhne's brother became so ill that the simple prescriptions of the Nature Cure Society could not help him, Louis Kuhne invented whole new system of nature cure. In 1894, he published *The New Science of Healing*, in which he promoted a science of facial expression as a new method of diagnosing and treatment.

Kuhne's book even influenced Mahatma Gandhi, an ardent advocate of nature cure methods, which he used on himself and strongly recommended to his contemporaries. Gandhi founded the Nature Cure Centre in India in 1946. Gandhi stated,

Hydrotherapy is a well-known and ancient form of therapy. Many books have been written on the subject but in my opinion the form of hydrotherapy suggested by Kuhn is simple and effective. Kuhne's book on nature cure is very popular in India. It has been translated into several Indian dialects. (Gandhi, 1954, p. 10)

Kuhne believed his system was so unique that he called it the "new science of healing without drugs and without operations" to distinguish it from allopathy,

homeopathy, and earlier nature cure methods. He was ever critical of allopathy, and his judgment about homeopathy was milder but not completely positive. Kuhne criticized previous nature cure practitioners for their lack of insight into the true nature of disease and their bewildering array of superfluous water applications. Kuhne also criticized their recommended diet, which seemed to him to be unregulated and without any guiding principle. He favored a low-sodium, vegetarian diet and considered raw food to be the most digestible and nutritious. He also preferred unripe fruits to ripe ones because of their cleansing effect.

Because even a healthy stomach can digest only a certain quantity of food, he believed excess intake creates toxins that, if not excreted, would be subject to fermentation, and that such fermentation increases the temperature of the blood and results in fever. According to Kuhne, bacilli are the product of fermentation and will disappear when fermentation ceases and the system is restored to health. Kuhne based his new system of diagnosis on the premise that diseases reveal themselves by changes in the body and are most easily discernible in the face and neck, where the morbid encumbrances are most evident. Kuhne claimed that his system made other methods of diagnosis superfluous and allowed him to foretell future illnesses.

Kuhne's facial diagnosis was an attempt to diagnose health problems by simple, noninvasive methods and to detect a predisposition to disease before it manifested pathologically. However, Kuhne's method of diagnosis and its value were not verified by other nature cure doctors. For instance, Brauchle (1951) believed the expert could gain some valuable clues from Kuhne's facial diagnosis, but that it could never replace a careful physical examination.

Kuhne's therapeutic interventions were of striking simplicity. They comprised steam baths and sun baths to enhance elimination of poisonous substances from the body. These measures might not be the cure-alls that he claimed them to be, but they have powerful, stimulating effects and are still used by nature cure practitioners around the world. Gandhi (1954) considered these methods, "the most important of Kuhne's contributions to the hydrotherapy" (p. 11).

Kuhne needed a strong character to survive the attacks from the medical profession. Kuhne himself used the open attacks from medical profession as an opportunity to defend his theories in public. The attacks on his methods increased his fame and made him a martyr for the nature cure cause, but the stress from these attacks may have ruined his health and caused his untimely death. The news of his sudden death on April 3, 1901, shocked everyone because he had been in perfect health in spite of his 66 years.

During his lifetime, it was impossible to judge Kuhne objectively because the medical profession rallied against him and he generated controversy within the nature cure movement. In-fighting between different nature cure groups was not unusual, given so many strong personalities and their enthusiastic followers.

Maybe Kuhne was a mixture of genius and charlatan, but his simple, convincing methods converted many people to the nature cure and inspired generations of nature doctors, whereas most of his critics have been forgotten. The greatest praise Kuhne ever received was from Rosendorff (1964), who ran a successful practice based on Kuhne's principles for 50 years: "It is astonishing with what intelligence and strict logic he

established a healing system a hundred years ago which still has its value today and which will probably have it for all future time” (p. 49).

### Adolf Just

Adolf Just was born in Luthorst in northern Germany on August 8, 1859. He was the oldest of 12 siblings, 5 of whom died in childhood. His father was an innkeeper and farmer and struggled to support his large family. Adolf grew up in the isolation of a simple country setting and attended the village school. Prepared by the village pastor, he was a great nature enthusiast and follower of Rousseau. Just attended secondary school in Goslar.

Just was a lively, imaginative child, full of love for nature, but he was also beset by inner struggles. When he was older, his oversensitive nature led to attacks of neurasthenia and possible episodes of psychosis with religious hallucinations. According to Brauchle (1951),

If the career of most nature cure practitioners is determined by the experience of physical illness, then the driving force behind Just’s return to nature was psychic distress. The predominance of his own psychic difficulties gives his nature cure system quite special flavor. (p. 297)

In his young adulthood, Just experienced numerous bouts of neurasthenia. Medicine proved useless, and a weight-gaining diet and daily warm baths made his condition worse. Just was determined to create his own curative system and concluded that he could only recover through direct and intimate contact with nature. Thus, he built his first light-and-air hut, where he spent many nights. He also went on long barefoot hikes in the mountains, taking his special bath in a babbling creek.

Just was a keen observer of people, animals, and plants. He loved the silence and solitude of the forests. Just drew quite few conclusions from animal behavior for the treatment of his own illness. The wonderful results of his return to nature elated him.

His recovery inspired him to write *Return to Nature!* and to establish a sanatorium in the Hartz Mountains, which he called Jungborn, after the legendary fountain of youth (Just, 1910). The main attraction at Jungborn was the large, magnificent light-and-air park with light-and-air huts and cottages where the patients lived. Built according to Just's design, either without walls or with lattice walls, they offered free access to light and air with protection against the rain.

He published the first edition of *Return to Nature!* in celebration of this event. The book was a guide to the nature cure methods practiced by Just and, at the same time, it was an indictment of modern science and its alienation from nature and a manifesto advocating the return to nature as the only salvation from the ills of modern civilization. *Return to Nature!* was the last nature cure best seller with worldwide success. It went through many editions and, according to Lust (1936), was translated into English, French, Spanish, Italian, Hungarian, and Polish. According to Lust, "It has brought to millions of people throughout the world a message of health and happiness, and has prolonged the life of thousands" (p. 69).

Unlike nature doctors before him, Just was concerned not only with health reform but also with the reform of other aspects of human life, which he wanted to bring into harmony with nature. Just condemned everything that was not in accordance with a natural life: polluting automobiles, closed-in modern housing, deforming styles of dress,

and modern chemical agriculture. For every problem of life, Just tried to find a natural, simple solution.

Just's greatest contempt was directed against medical science, especially vivisection and vaccination. He also rejected any form of examination and diagnosis, because these might instill a state of unrest and excitement in the patient. Even the old nature cure method and homeopathy did not escape Just's criticism, as these methods used the forces of nature only as drugs. Just rejected warm baths, vapor baths, electric light baths, and massages. Even gymnastics did not meet with his approval.

Despite his criticism of the nature cure methods, Just's philosophy of health embraced the doctrine of the unity of disease and cure. According to Just (1903), disease is caused by the introduction of unnatural food into the body. Negative emotional influences also can cause disease by disturbing the nervous and digestive functions and thus contributing to the formation of foreign matter in the body. So firm was Just's confidence in the benevolence of nature that he believed acute diseases are favorable healing events that become dangerous only when a patient is shut off from fresh air and treated with suppressive medicine.

Just claimed that watching wild animals cool their bodies in the mud or water had provided a clue to his natural bath. He boldly stated that the natural bath united most of the natural cure methods of his day, such as barefoot walking, light-and-air baths, abdominal compresses, douches, and massage.

#### Emanuel Felke

Emanuel Felke was born in Altmark, Germany, on February 7, 1856. His father treated the illnesses of the family's nine children with simple homeopathic remedies and

herbal teas, which made a strong impression on Emanuel. Early in life he showed an intense interest in plants, especially in those used for healing. He also watched farmers treat injured domestic animals with loam poultices.

Felke first gained a reputation as a healer in Cronenberg. During a severe diphtheria epidemic in 1894, he gave sick children the homeopathic remedy *mercurius cyanatus*, with the result that none of the children died. Felke wanted to be nothing but a priest, but his reputation as a diagnostician and therapist followed him, and the sick besieged his parsonage. Ongoing success increased Felke's interest in the nature cure. He sought to detect diseases and their causes in the earliest stages and became a master of facial and iris diagnosis.

Felke believed that prescribing herbal teas, homeopathic remedies, diet, and water applications was not sufficient. He envisioned a therapeutic setting close to nature, where patients could escape their accustomed environments and enjoy the benefits of light, air, sun, and healthy food.

The medical profession caused Felke problems, and numerous lawsuits were brought against him, alleging quackery. Instead of harming him, these legal proceedings enhanced Felke's reputation as many of his patients testified in court on his behalf.

Felke believed that every chronic ailment is a disease of the total person, never of only a single organ. Thus, the total illness must be approached with a total treatment, especially with respect to such natural factors as light, air, earth, water, diet, and gymnastics.

Felke was one of the few European nature cure doctors who visited America. The number of patients who consulted Felke is estimated at nearly half a million. The only

work he published was about the Songs of Solomon and Psalm 27. The only written document left by Felke is the topographical drawing of an iris.

According to Finger (1927), Felke ignored his own pain and discomfort when he was ill and his only thought was to use of what was left of his life to help others. Felke died from a stomach ailment on August 16, 1926. It was not just the perfection of the earth cure that distinguished Felke from the other great European nature doctors, but also the fact that he did not limit himself to the classic nature cure of water, light, air, and diet.

### Heinrich Lahmann

Heinrich Lahmann was born on March 30, 1860, in Bremen, Germany. His rich relatives supported him through high school and college. Even as a student, Lahmann's main interests were dietetics and disease prevention. Dissatisfied with the theories and results of scientific medicine, he delved deeply into the nature cure literature. Lahmann's scientifically trained mind brought a refreshing breeze of systematic thinking to the field of nature cure, which was previously chaotic with speculation about the reasons for the success of differing methods.

Despite his relatively short life, Lahmann left rich legacy in diagnostic accomplishments. He had an astute diagnostic sense. The condition of the nails, skin, hair, eyes, and teeth, the shape of the chest, the temperature of the hands, and the odor of the body told him much about the disease from which his patient suffered. Although Lahmann's nutritional theories, formulated when nutritional research on vitamins, minerals, enzymes, and fibers was in its infancy, may have been replaced by scientific explanations, much of his dietary advice was in accordance with modern naturopathic views.

Despite his success, Lahmann only enjoyed name recognition in America. The details of his work were not well known. This is unfortunate for a doctor whom Brauchle (1951) called “the most comprehensive representative of nature cure of his time, the man with the most thorough scientific education, with the greatest gift for exact scientific research, achieving the most perfect harmony between intuitive insight and experimental proof” (p. 238).

### Ernst Schweningen

Ernst Schweningen, born June 15, 1850, in Freystadt, Germany, was the son of a respected country doctor. He began his medical studies when he was 16 years old and became a physician at the early age of 20. Schweningen started out in the field of pathology, but his faith in allopathic practice was undermined at the dissection table. He saw its failures first hand and became convinced that any cure was ultimately dependent on the healing power of nature. His interest in medical history led him to discover what physicians such as Hippocrates and Paracelsus thought about health and disease. According to Brauchle (1951), “he did not select nature cure so much as arrived at it through his own evaluation of the process of disease and cure” (p. 313).

In his treatment, Schweningen avoided surgery and medicine as much as possible, focusing mainly on physical-dietetic treatment such as sun, light, air, water, movement, rest, simple diet, and psychological influences. Schweningen (1926) advocated a generalized natural treatment directed toward the sick person’s vital forces. He argued that the doctor’s task at the bedside was to awaken and strengthen natural healing powers in the most natural way possible. To Schweningen, “being a physician is practicing an art, not exercising a science” (p. 46). He wanted to be a physician who combined “the

courage of a warrior, the mildness of the philosopher, the decisiveness of the statesman, the aggressiveness of the conqueror, the familiarity with death of the priest, the tenderness of a mother, and the clear wisdom of the elder” (p. 96).

Schweninger’s achievements were original and substantial, but the history books did not mark them with golden letters. Schweninger strictly adhered to his own natural health principles, but he was troubled in his last years by a fracture he suffered in an elevator accident. He died at the age of 74 in Munich, on January 14, 1924.

#### Franz Schonenberger

Franz Schonenberger was born on November 21, 1865, in Kiechlinsbergen, Germany. He became an elementary school teacher, but his special talent for taking care of the sick soon came to light. Schonenberger was converted to the nature cure after reading about Voigt’s use of nature cure. He treated sick schoolchildren and his parents and soon became convinced that he was born to be a physician rather than a teacher.

He attended some medical lectures and then gave up his teaching job and trained with Voigt as a bath attendant and nature cure practitioner. However, his desire for additional knowledge made him interrupt his nature cure practice to study medicine. Entering the University of Berlin as medical student in 1894, Schonenberger immediately established ties with nature cure associations. He set up a general practice in Bremen. Although he had the same legitimate medical degree as his associates, they shunned the “water doctor” like a leper.

Optimistic by nature, Schonenberger was not easily discouraged. He gave public lectures and wrote innumerable articles about the nature cure, which appeared in the magazine *Der Naturarzt (The Nature Doctor)*. In 1920, Schonenberger was appointed

professor and head of the Hydrotherapeutic University Institute in Berlin. In accordance with his new vision for the institute, Schonenberger changed its name to the University Clinic for Natural Living and Healing. Its focus on prevention and nature cure methods was quite revolutionary, never before seen in a university setting. Those who knew Schonenberger confirmed that he was not a fanatic but an amiable, cheerful man who always had a joke on his lips. He tried to avoid conflicts and if they occurred, he immediately arranged for compromise or reconciliation. This approach helped him to survive the hostile early years at the university before he gained the respect of his colleagues (Groh, 1968). Schonenberger died on June 7, 1933.

#### Alfred Brauchle

Alfred Brauchle was born in Baden, Germany, on March 22, 1898. He completed his medical studies after the interruption of World War I. During his residency program at the University Hospital in Berlin, he met Schonenberger, who introduced him to nature cure methods. Thereafter, Brauchle became one of the nature cure's most ardent, talented, and eloquent defenders among the medical doctors who converted to the cure. He studied with Emile Coue in France, from whom he learned the method of autosuggestion. Brauchle (1951) was deeply impressed by the success of Coue's methods and came to believe that hypnotic suggestion could help unlock inner healing power and speed recovery from all kinds of illness. He stated, "I consider nature cure without psychological guidance incomplete. Therefore, I always placed a special emphasis on the development of a psychological nature cure, or naturopathic psychotherapy" (p. 342).

One of the fruits of his work was the *Handbook of Nature Cure on a Scientific Basis* (1933), one of the first nature cure textbooks written especially for physicians. It

was divided into two parts. The first part dealt with the nature cure in general—its theory, methods, and history. The second, larger clinical section covered the etiology and natural treatment of various diseases, including nervous and mental disorders.

Like other nature doctors, Brauchle also was a teacher who tried to reach the masses through a number of popular books on natural healing. *The Great Book of Nature Cure* (1957) contained extensive chapters on the history and theory of the nature cure. Despite all his writing and teaching, however, Brauchle's main interest was in bedside care of the sick. He analyzed with great understanding all discernible harmful factors in a patient's inner and external life. Brauchle argued that "natural stimuli, such as air, light, water, movement, breathing, diet, fasting, etc., are capable of much greater healing than orthodox medicine wants to believe" (as cited in Grote, 1935, p. 14).

The constant public engagements and professional challenges did not agree with his true nature, and his own body was not spared the suffering of illness. His was often quoted saying "Only those whose lives are threatened take up nature" seemed to be applicable to himself (Brauchle, 1979, p. 4). Alfred Brauchle died on November 21, 1964. Despite the early promise of Brauchle's accomplishments, the dream of a nature cure hospital in every large city or a nature cure department in every large hospital still awaits fulfillment in Germany and the rest of the world.

#### Benedict Lust

Benedict Lust was born in Michelbach, Germany, on February 3, 1872, and came to U.S. in 1892. He developed a serious case of tuberculosis, and despite the best efforts of homeopathy and allopathy, he wasted away to 45 kg. He decided to return to Germany to die in his homeland and managed to travel to see Sebastian Kneipp. Immediately upon

starting the Kneipp cure, B. Lust's health began to improve, and in 8 months he completely regained his health. This was the turning point in his life. He came back to America in 1896 to be Kneipp's official representative. This was the start of naturopathy in America.

When B. Lust arrived back in America in 1896, he was full of hopes of sharing his nature cure findings, but he was shocked to find his message of natural health opposed by medical authorities. According to Kirchfeld and Boyle (1994), Lust was arrested for practicing medicine without a license after giving a bath and massage to an agent of the County Medical Association. Although he was found not guilty, Lust paid \$800 in fines and fees.

In spite of the open hostility, B. Lust headed a naturopathic sanatorium with numerous faithful patients, a naturopathic college with a growing number of students, and a naturopathic magazine with thousands of readers. He sought to defuse some of the hostility by studying medicine, but it did not work. When his publishing office burned down, his fellow students asked him why he hadn't cured the flames with hydrotherapy.

This period of persecution was the crucible in which the fighting spirit of Lust and the other early American naturopaths was forged. It also gave rise to the adoption of the term *naturopathy* to designate the emerging science of natural healing in America, a term originally coined in 1892 by Scheel, who combined the terms *nature cure* and *homeopathy* (Faulkner, 1934).

B. Lust was a skillful practitioner, famous with his contemporaries for applying water in a thousand different ways. It was not as practitioner, however, but as an educator, promoter, and organizer of naturopathy that Lust had his greatest effect. He

believed that “the human body was created to be perfect—to be well at all times” and that within each person is “a certain mysterious power which regulates his health and strength” (B. Lust, 1944, p. 8).

B. Lust was a sincere idealist and his youthful enthusiasm often tended toward overexuberance. One zealous aspect of Lust’s philosophy was his insistence on the necessity of changing people’s lives through naturopathy. He insisted on a multilateral approach to natural healing. He defined naturopathy as “a distinct school of healing, employing the beneficent agency of Nature’s forces of water, air, sunlight, earth power, electricity, magnetism, exercise, rest, proper diet, various kinds of mechanical treatments, such as massage, osteopathy, and chiropractic, mental and moral science” (B. Lust, 1918, p. 1175). Lust anticipated by decades the growing importance of prevention in health care.

B. Lust also was ahead of his time in his concern for patients’ rights. His “new conception of health” was embodied in three terms: “people’s health, people’s doctors, and people’s health institutions” (B. Lust, 1938, p. 266).

The most tangible of B. Lust’s accomplishments was the legal status naturopathy received as a result of his efforts. Given the medico-political climate in America in the 20<sup>th</sup> century, licensure for naturopathy was its only hope for survival. Without Lust’s efforts, there would be no licensure of naturopathy and without licensure there would be no naturopathic medicine as we know it today in the U.S.

B. Lust was even influential in the introduction of yoga to America. Yogendra Mastamini visited the U.S. from 1919 to 1922 and met Lust during this time. A recent writer noted, “This was a watershed meeting because in the next decades Hatha yoga

would be introduced to America largely as an adjunct to the multiplicity of alternative healing techniques advocated by naturopathy” (as cited in Kirchfeld & Boyle, 1994, p. 44).

After overcoming his early medical problems, B. Lust’s personal health was always good. Lust kept up his demanding schedule of writing, teaching, speaking, and administering his practice and business interests. He remained a formidable gymnasium wrestler well into his 60s.

In 1934, a fire of undetermined origin swept through B. Lust’s sanatorium in Florida, during which Lust was severely burned. He was treated with sulfa drugs by medical doctors at the scene but his health deteriorated steadily for the next 2 years. He died on September 5, 1954. The official cause of death was listed as coronary thrombosis.

#### Louisa Lust

Louisa Lust was born in Sigmaringen, Germany, and emigrated to America, where she became an accomplished naturopathic physician specializing in treatment of women. In her practice, she implemented the time-honored nature cure methods of hydrotherapy, vegetarian diet, air and light baths, and a rational lifestyle with great skill and success.

L. Lust studied nature cure methods in London before coming to America. She was influenced by writings of Luigi Cornaro, who improved his health and prolonged his life through frugal diet. Her common-sense approach to naturopathy influenced all aspects of her practice. She often pointed out a rarely appreciated implication of the simple, naturopathic lifestyle, advocating for raw foods and fruitarian diet. L. Lust (1911) was a staunch advocate of hydrotherapy stating,

If all people understood how to use water, one half of all afflictions from disease would be removed; the other half would be taken care of by understanding how and when to eat, how to breathe, and the necessity of daily exercise. (p. 231)

L. Lust lived a Spartan existence to finance the promotion of the naturopathic profession. Her low profile shielded her from attacks by the allopathic enemies of naturopathy. However, like many naturopathic doctors, Lust worked herself to death on behalf of her profession. She secretly knew for months she was dying but remained devoted to the care of her patients up to the last hours of her life. Her unexpected death in 1925, at the age of 57—her death certificate listed the cause as chronic endocarditis—was a devastating blow to the profession, which recovered slowly.

L. Lust was original because she was “natural”—that is, she was herself. She learned early in life the secret of happiness: helping others to help themselves. The praise of her work echoes from the four corners of the globe (Posner, 1925).

#### Henry Lindlahr

Henry Lindlahr was born in Germany on March 1, 1862. He was educated as a chemist, but after emigrating to America he entered the world of business. He made his fortune in land speculation, buying cheap land ahead of the railroads and then selling it to them at higher price for their transcontinental line. At the pinnacle of his success, he was diagnosed with diabetes and was advised by his doctors to set his affairs in order. Ten years later, however, in 1903, he was 1 year away from graduation from medical school and had already started a successful nature cure practice in Chicago as a licensed drugless practitioner. Eating a modified vegetarian diet, he was enjoying unprecedented health. Over the next 20 years, he became the foremost practitioner of scientific naturopathy in

America. He began to realize that health was regulated by natural laws just as immutable as those governing gravitation.

Although Lindlahr's condition improved under his makeshift home care, his diabetes and the threat it posed to his life remained. Having exhausted all possible help from the best of America's doctors, he embarked on journey to Bavaria to seek Kneipp's natural healing. His interview with Kneipp was short and to the point: after smelling Lindlahr's breath, Kneipp said bluntly, "You have the sugar disease. You will take sitz baths, live on fruit and greens and vegetables alone. You shall have no breads, no cereal, no meats" (Lindlahr, 1973, p. 14). By the next spring, Lindlahr was free of sugar and within a few more months he lost 20 kg and fully regained his health.

Having been saved by natural health methods, he began to wonder about his friends and family members who died at early ages from similar conditions. Lindlahr felt betrayed by allopathic medicine. He believed his doctors should have warned him and his loved ones of the mistakes of eating and living that could lead to unnecessary disease and early death.

Although he was nearly 40, Lindlahr decided to study medicine. Lindlahr was an eager student. In every free moment, he studied diet and nutrition. He also hired a doctor to give him private instructions in osteopathy. During his training in medical school, Lindlahr was fully exposed to the therapeutic nihilism regarding chronic disease, which he first encountered when his doctors told him there was nothing to be done for his diabetes except to go home and prepare to die. His European nature cure experience opened his eyes to a radically different concept of disease that allowed for the cure of chronic conditions. He felt that the physician's job was to remove obstructions and to

establish normal conditions so that the healing power of nature could work to best advantage. His methods were those of nature cure doctors in the old country, adapted to 20th century Chicago and integrated with the manipulative therapies emerging in America.

In 1904, he graduated from medical school in Chicago, received his medical license, and began a fulltime practice. He quickly realized that his chances for a successful nature cure practice were limited unless he could find a way to supervise his patients' activities and meals. Thus, 2 months later he purchased a large property in Chicago, which he converted to a sanitarium.

Lindlahr was an effective combiner of various natural methods because he thoroughly understood their underlying principles (H. Lindlahr, 1922). The principle of return to nature played the biggest role in the nature cure theory and therapies practiced at the Lindlahr Sanitarium, and this especially meant a return to a more natural diet. Lindlahr believed strongly in nutrition and kept up to date on all the latest findings in that field. He understood and used foods as medicine long before vitamins were discovered. For instance, he used fruits now known to contain vitamin C to cure scurvy; brown rice, now known to contain thiamine to cure beriberi; green, leafy vegetables, now known to contain iron, to cure anemia; and Irish moss, now known to contain iodine, to cure goiter. Indeed, he sometimes filled his doctor's bag with oranges, a rare commodity in those days, when going on house calls for sick children.

Return to nature also meant adapting to a rational lifestyle. This frequently meant making changes in one's occupation or working conditions. Lindlahr was very concerned about occupational health. Some of his most difficult cases were those in which a patient

was under constant stress from a noxious working environment. He believed that dangerous industries such as mining and quarrying should be placed under government control to ensure healthy working conditions.

Lindlahr was an early opponent of tobacco use, recommended suspenders instead of belts, and crusaded against the corsets. Finally, Lindlahr believed that nothing was more important than rest and relaxation. He felt that convalescence allowed nature to make “the real cure,” and he often sent his patients on vacations in the Michigan woods.

Lindlahr believed in power of fresh air. He felt fresh air was important not only for the lungs but also for the skin. He found air baths to be effective for hot flashes, low blood pressure, weight reduction, and chronic fatigue. He used ultraviolet lamps, when they became available, as well as phototherapy and chromotherapy, and he used herbs and homeopathic remedies in his nature cure approach.

Lindlahr also understood and utilized the psychoanalytical techniques of Jung and Adler. He recognized fear as the great emotional enemy of health, but no aspect of mental and emotional health was more important to Lindlahr than self-control. He believed that disease was brought on by violations of nature’s laws and that “it can only be overcome by compliance with the law” (H. Lindlahr, 1981, p. 189).

Lindlahr was the first naturopathic doctor to distinguish himself as a scientific diagnostician. His own health experience caused him to be repelled by what he perceived as the allopathic idea that every disease has a cause and that, if the disease has not already done irreparable harm, it can be cured by removing its cause.

Lindlahr soon realized that prevention was the answer to his predicament. If disease had a cause, so did health. He wrote that natural therapeutics have “something

better to give than the treatment of disease, and that is prevention of disease” (H. Lindlahr, 1981, p. 191). He was encouraged that others were acknowledging his message that it was cheaper and more advantageous to prevent disease than to cure it. He wrote, “The successful doctor of the future will have to fall in line with this plan and do more teaching than prescribing” (as cited in V. Lindlahr, 1973, p. 29)

He had absolute faith in nature cure methods. To act on his conviction that prevention was the best form of natural medicine, he decided to liquidate his practice and devote all his efforts to teaching the public preventive health methods through lectures, books, and other publications. However, within a year of this decision Lindlahr was dead, victim of “a fatal bit of carelessness” (V. Lindlahr, 1973, p. 217). Death resulted from a neglected wound to his toe, leading to amputation, which was followed by postoperative pneumonia and death. He died on March 27, 1924, 2 hours after the operation. Lindlahr’s unexpected death was a shock to the naturopathic profession.

In evaluating Lindlahr’s career, one must acknowledge his apparent self-doubt about his own effectiveness. His goal was to demonstrate that chronic illnesses were indeed curable, so that all doctors would learn how to prevent and treat them. How satisfied he would have been with the results of those efforts we do not know, because of his untimely death. Drugless practice, which included naturopathy, chiropractic practice, and other natural methods, did gain considerable popularity during Lindlahr’s lifetime.

If Lindlahr’s work did not achieve the hoped-for changes in American health care, it nonetheless did have tremendous impact on naturopathic medicine. His emphasis on the mental and emotional aspects of health made naturopathy one of the most complete approaches to health, decades before the evolution of the concept of holism. His

insistence on prevention as the ideal form of health care was a timely innovation that continues to be validated.

Lindlahr's distinction between organic diseases (full-blown pathologies such as diabetes and cancer) and functional illnesses (disturbances in metabolism that presage the organic changes) is still fully utilized by naturopathic physicians and other holistic practitioners to guide them in preventing diseases during their incipient phases. Modern atomic theory was being formulated during Lindlahr's era, and he appears to have been influenced by it. He regarded life and matter as vibratory, defining disease as "disturbed polarity" and health as "satisfied polarity" (H. Lindlahr, 1922, p. 38). The validity of these concepts remains undisputed, and they continue to guide some of the most forward-looking medical research today, especially in the field of cancer.

#### Otis George Carroll

Otis George Carroll was born in Illinois on February 17, 1879. As a boy, he suffered from rheumatic fever and juvenile arthritis so severe that the nails on his deformed fingers lacerated his palms. He found help in New Orleans from Alex LeDoux, a medical doctor who studied with Kneipp and founded the LeDoux Institute of Natural Therapy in 1895. After his cure, young Carroll returned home to Illinois, studied botanical medicine, and was said to have learned 750 herbs by heart. Later, he moved to New Orleans to study with LeDoux. From 1904 to 1908, Carroll formally trained in Chicago at the Cleveland College of Chiropractic and with Henry Lindlahr. At the request of LeDoux, who considered it of strategic importance for the nature cure to establish a beachhead in the Pacific Northwest, Carroll moved to Spokane, Washington. In 1908, he set up a practice, which he maintained until his death in 1962.

Carroll is remembered for originating constitutional hydrotherapy and developing one of the first tests for discerning food sensitivities. Both these methods were aimed at building health through enhanced digestion. Constitutional hydrotherapy, Carroll's greatest innovation, is the application of a series of hot and cold compresses to the chest, abdomen, and back, during which the patient is wrapped snugly in a wool blanket. By manipulating the circulation via the body's reaction to heat and cold, this treatment gently stimulates the function of the digestive tract, immune system, spinal column, respiratory system, and other vital centers underlying the treated areas. Carroll felt that the treatment improved digestion and helped the body break down and eliminate toxins that were obstructing healthy function.

By 1923, Carroll had perfected constitutional hydrotherapy, and it remained unchanged for the next 40 years. Constitutional hydrotherapy was kept alive in Spokane after Carroll's death by Leo Scott and Harold Dick, who trained and worked with Carroll. But it was only in the 1980s that it was brought back into the mainstream of naturopathic medicine through the efforts of Andre Saine.

Like many European nature doctors, Carroll believed that disease was caused by an overload of toxins in the body. Those toxins frequently were the result of faulty digestion. In constitutional hydrotherapy, Carroll had a treatment that hastened the elimination of toxins and reduced their formation, and in the constitutional food intolerance test he had a method to prevent the creation of the toxins.

Carroll was an accomplished herbalist who made extensive use of botanical medicine in his practice, in addition to hydrotherapy and nutrition. He believed that each herb was a complex medicine compounded by nature, and he therefore kept his formulas

secret. One of his most famous and frequently used formulas was formula 42, which was four parts wormwood and two parts of Cape aloes. These and most of other herbs Carroll utilized acted strongly on the gastrointestinal tract to improve digestion and elimination. Carroll also used iris diagnosis on every patient. By noting changes in the iris during therapy, he could predict when and in what organ systems a healing crisis would occur and could prepare his patients accordingly.

Carroll was a master of healing crisis management, fasting his crisis patients for 7, 14, or 21 days or more according to the “law of sevens.” The law of sevens was based on Lindlahr’s teachings of Pythagorean numerology and the Hippocratic “law of crisis” (H. Lindlahr, 1922). “It took a lot of confidence on the patient’s part too. He would preach of the reaction to them, so they knew what to expect” (as cited in Kirchfeld & Wade 1994 p. 256).

Carroll was the most prominent and influential drugless practitioner in Washington state during this time. His was the only listing in the Drugless Directory of American Naturopathic Association in 1922.

Carroll played an important role in helping to train naturopathic doctors, accepting many of them as interns at his clinic. Carroll’s clinic was housed in the downstairs of a large, beautiful mansion that provided a comfortable, homey atmosphere for his patients. He and his family lived upstairs.

Carroll clearly dedicated his life to healing. He loved his practice and worked day and night with no apparent breaks. He was always pleasant and upbeat, constantly singing or humming a tune. He exuded hope and confidence, and he never gave up on a patient.

The death of Carroll's wife in 1952 was a devastating blow, but he carried on. He had diabetes all his life and suffered from a rheumatic heart, and in 1959, at 80, he was forced to curtail his practice. He died on February 24, 1962.

Carroll remains a controversial figure in the history of naturopathic medicine, especially in Washington state. To some, he was hero who fearlessly pioneered the field of naturopathic medicine in the Pacific Northwest. To other naturopaths, who felt the sting of legal responses they believed were brought on in response to Carroll's bold methods, he was a villain who played recklessly with the privileges of his profession.

Carroll is indisputably one of the premier figures in the history of 20<sup>th</sup> century American naturopathy. His origination of constitutional therapy gained a permanent place in modern naturopathy and his pioneering work with food intolerance gave naturopathic medicine valuable insight into helping patients with food sensitivities. He helped transplant naturopathy from the East Coast to the Northwest, where it flourished despite its near demise in the east. Despite a lack of teaching skills, his willingness to serve as preceptor to numerous doctors led to the best of his methods being adopted by several influential naturopathic physicians of today, who are passing them on to a new generation of doctors.

#### James C. Thomson

James C. Thomson was born on July 18, 1887, in Scotland. At 16, he joined the Royal Navy, but 18 months later he was diagnosed with tuberculosis. He deteriorated very quickly in the naval hospital and was discharged as incurable. The sick young Thomson decided to fight for his life. He stated many years later, "The most effective

therapeutic agent of which I know consists in a determination to get well at all costs” (J. Thomson, 1954, p. 192).

With no available resources, Thomson moved to a cousin’s farm, where he devoted himself full time to the job of fighting for his life. He prayed daily that the bleeding from his lungs would stop. One day he realized that he had been so engrossed in prayers that he failed to notice that he hadn’t bled for a week. He continued to restore his health and to educate himself as much as possible in the ways of natural healing.

To study natural health and healing in depth, he decided to set off for America. He joined Lindlahr in Chicago and postulated that he had “found a comprehensive system of natural methods of treatment, bound together by a philosophy and resting firmly on a scientific basis” (C. Thomson, 1987, p. 4). From Chicago, Thomson traveled to Missouri, where he set up a successful practice long enough to become known locally as the “sunshine doctor.” From there, he went to Florida, but found its climate too warm for his health.

In 1912, he decided to return to Scotland for rest. Against the earnest advice of Lindlahr, who warned him against the “difficulties and heartbreaks” of residential practice, Thomson decided to establish a sanatorium in Edinburgh. In April 1939, after massive renovation, Thomson opened the doors of Kingston, his beautiful in-patient facility.

Thomson became one of the greatest nature cure philosophers of the mid-20<sup>th</sup> century, and his Kingston system was directly modeled on Lindlahr. The therapeutic focus of the Kingston system was diet, hydrotherapy, and spinal manipulation. Thomson believed that manipulating the spine was essential for achieving and maintaining healthy

organs and tissues. He used it skillfully to correct nerve and circulatory imbalances that hampered normal function.

Thomson was a purist in his nature cure philosophy, insisting that healing comes from within, not from outside. “Genuine Nature Cure,” he wrote, “has no use for medicaments or ‘remedies’ in any form” (J. Thomson, 1960, p. 59). He believed healing occurs only within living tissues and is as much a function of the living body as breathing. As he told a very sick patient who overcame “terminal” tuberculosis, “I cannot cure you, but you can probably cure yourself if you do as I tell you” (p. 58).

Thomson believed that chronic disease results from suppression of acute disease. Because he postulated that all diseases result from accumulated toxins and are in fact the result of the body’s attempts to get rid of these toxins, Thomson did not believe in “conferring titles upon conditions of ill health” (J. Thomson, 1947, p. 9). “Disease is never only local,” he wrote. “Your body is either all healthy or all unhealthy” (J. Thomson, 1950, p. 11). Conventional diagnosis also imparted a sense of hopelessness to patients with “terminal” disease. Thomson believed that “incurable diseases do not advance without supplies. Withdraw the cause and the body is self-healing” (J. Thomson, 1954, p. 18).

The prevention of intoxication through natural living and the allowance for detoxification by not suppressing acute disease were the keys to vibrant health, which J. Thomson (1960) believed is available to every person: “Healing is essentially a ‘do-it-yourself’ phenomenon” (p. 51). Like Lindlahr, Thomson believed that maintaining healthful habits by strong self-control was of utmost importance. “There is but one cure,” he wrote, “break the habit” (J. Thomson, 1954, p. 71). The secret to a long, healthy life

was “to live within one’s physiological limits at all times,” yet this simple goal is rarely attained, due to the worst human habit of all: “the daily adventure to see how near to disaster we can go without being caught” (J. Thomson, 1960, p. 28). Thomson was a strong advocate of prevention. Although he had good success treating advanced disease, he repeatedly emphasized that “we cannot hope for results by treating the end-effects of wrong living” (J. Thomson, 1938, p. 8). Thomson also felt there was an unseemly profit motive operating in the promotion of drugs by physicians. He liked to quote Lord Horder on pharmaceutical corruption: “Formerly the chemist was the servant to the doctor; today he tends to become the doctor’s master” (J. Thomson, 1960, p. 20).

Thomson advanced the provocative theory that chemical pesticides such as DDT and chlordane play a role in the etiology of infectious diseases such as polio and hepatitis by intoxicating tissues and making them susceptible to virus. He went so far as to suggest that the large chemical companies made out nicely by selling the cause of disease and then marketing its supposed cure. He repeatedly made radical links between health and politics, condemning the war machine and the drug machine as conspirators in keeping the world sick. “The healthy man” he wrote, “has no desire to damage or destroy anything, not even the fellow man” (J. Thomson, 1960, p. 39). He despised all specialization in medicine and considered a specialist someone “who knows nothing else” (J. Thomson, 1947, p. 14).

Thomson became keenly aware of the hidden hand of organized medicine working behind the scenes. He cited instances where tuberculosis patients, cured by naturopathic treatment, were not given the clean bill of health required to return to work, after they disclosed the method by which they were cured (Kirchfeld & Boyle, 1994).

In addition to his practice and his promotion of health reform through his many books, Thomson was the principal of the Edinburgh School of Natural Therapeutics, which he founded in 1913. He also established the Society of Registered Naturopaths.

Along with Stanley Lief, Thomson helped transplant Lindlahr's scientific version of the nature cure to the British Isles, and his dynamic personality ensured that it took root and thrived. Thomson's son called him "the first physician to base his methods on proven facts, and not at all on mystery and superstition" (C. Thomson, 1970, p. 4).

Upon Thomson's death in 1992, perhaps the highest tribute paid to him came from a long time colleague who stated, "Without his strength, ability, power, and inspiration, the Society of Registered Naturopaths might have never existed, nor would we as practitioners have been here" (Harrison, 1969, p. 5).

#### Stanley Lief

Stanley Lief was born in the Baltic state of Latvia on October 9, 1892. When Lief was young, his family emigrated to South Africa to escape poverty and persecution in their homeland. Young Lief grew up "ridden with illness." As one writer bluntly stated, "He was too fat and had a weak heart" (Day, 1979, p. 84).

Receiving little help from the doctors who treated him, he grew up shy and introverted. He often sat watching the African natives at work and noted that when they got sick, "they just lay in the sun and refused to eat till well again" (Kirchfeld & Boyle, 1994, p. 277). He eventually copied this instinctive fasting and vastly improved his own poor health.

When he was 18, Lief decided to devote his life to natural healing and he worked his way to America as a ship's steward. Lief enrolled at Macfadden's International

College of Drugless Physicians in Chicago, became Macfadden's star student, and graduated with honors. In addition to his academic achievements, he also became an Illinois wrestling champion. Following his graduation, Lief traveled throughout the U.S. to enrich his knowledge at various health establishments.

Lief traveled to England, qualified as both a chiropractor and a naturopath, and became the manager of Macfadden's Healthatorium at Brighton. Lief volunteered for World War I and served in the British army. After the war, he moved his practice closer to London and established a small medical home, reaching a wider public and promoting preventive health.

Lief advocated a holistic approach and believed that disease was a systemic disturbance. He believed that the only form of treatment that will succeed is that which affects the whole body. Although Lief implemented hydrotherapy, massage, spinal manipulation, electrotherapy, a milk diet, and heliotherapy, fasting was his favorite therapeutic approach.

A look at Lief's personal health habits gives further insight into the nature cure approach he followed with his patients. He slept on an open veranda year round. Before taking his daily walk, he shaved, naked, in front of an open window, drank two glasses of cold lemon water, performed 15 minutes of exercise, and then gave himself a friction rub and cold-water body splash. Such a regimen provided him with energy and a positive outlook on life (Kirchfeld & Boyle, 1994).

Lief also possessed a remarkable instinctive understanding of the human body. As one admirer noted, "His powers of diagnosis were extraordinary and his skilled

manipulation uncanny in its accuracy. That he possessed healing powers and could transmit healing energy by touch I have no doubt” (Gorst, 1963, p. 670).

Lief constantly warned his patients against quick cures for their chronic illnesses. He suggested, “no one should expect to be cured of a disease that has been in process of development for many years, in a few weeks or a few months” (Lief, 1931, p. 249). He was very slow to give up on even the most apparently hopeless cases. “Health is natural and sickness is not,” he wrote. “Nature fights for a man’s life long after he gives up the struggle.” He believed there was hope in even the most serious conditions, because “it takes more energy and power to run the human machine in sickness than in health” (p. 205).

Lief was a complex character. Like many of his predecessors, he was a charismatic personality with little tolerance for those who would not follow his health prescriptions. His resilient vitality and easy success prompted many to call him Lucky Lief, but as his associate Wood (1963) noted, Lief’s success came from “his absolute faith in himself, his cause and his unremitting, self-sacrificing work” (p. 600).

Lief was instrumental in forming the British Naturopathic and Osteopathic Association, a merger of the National Osteopathic Association of Great Britain (founded in 1915) and the British Association of Naturopaths (founded in 1925). He served three terms as president of the association and was dean of the British College of Naturopathy and Osteopathy from its foundation until his death in 1963, at 72. After his death, Lief was acclaimed as the “best-known and greatest personality in British nature cure” (Powell, 1963, p. 602).

Lief was a true pioneer of naturopathic medicine. He founded the first and largest natural health retreat in England, developed musculoskeletal treatments that are highly valued today, and published a successful natural health magazine that effectively presented naturopathy to the British public.

### Arno Rudolph Koegler

Arno Rudolph Koegler was born on May 1, 1898, in the German province of Saxony. His childhood memories were of hiking in the mountains and of food—the beautiful fruit trees in Saxony and the wonderful chocolate that his favorite grandmother gave him. He served in the German army during World War I and was severely injured in a train accident. Directly facing death changed his life forever because he lived each day as if it were his last, and the pain and suffering he went through gave him empathy for the people who later came to see him as a doctor.

Eventually, the famous nature doctor Emanuel Felke restored Koegler to full health, and his experience led him to become a healer. In 1923, Koegler left with his family for Canada, where he set up practice in 1926 after taking courses in several American naturopathic schools.

Koegler's accomplishments as a naturopathic physician were legendary. Patients came to him from virtually every state in the U.S. and every province in Canada and he built up a record of a quarter of a million patients. He was extremely hard working, making house calls at night and never turning anyone down, even though in the early years he was not allowed to charge a fee. When a medical doctor approached him on the street, chided him for curing so many patients, and asked if he wasn't afraid of going out

of business, Koegler's quick-witted reply was, "As long as there are medical doctors around, there'll be lot of work" (Bender, 1991, p. 3).

As a physician he was a keen observer. Koegler had a practical, no-nonsense approach and was always looking for better ways to solve a problem. In fact, when he was told something was impossible, he made it a special point to ensure it could be done. He was an inventor ahead of his time; among his inventions was a homeopathic mixing machine still used by his successors, and calcium fluoride toothpaste.

Koegler's great passion was traveling and, as the president of the International Society of Naturopathic Physicians, a position he held from 1956 to 1972, he had ample opportunity to indulge. In 1957, he went on a trip through Europe, speaking before affiliated naturopathic associations in France, Germany, Portugal, Spain, and other countries. In Paris, he was presented the Prix Hippocrate for research in natural medicine, and he was appointed honorary professor of botanical medicine at the University of Barcelona. Two years later he toured South Africa. Finally, he went on an extensive speaking tour to New Zealand and Australia and even met the British queen.

The last 6 months of Koegler's life were difficult. He suffered a stroke during a prostate operation that he did not want and did not know he was getting. He was unable to speak and was uninterested in communicating. Still, his death on February 23, 1991, came earlier than expected. Perhaps one reason for this was that he was unhappy and did not like the rehabilitation hospital he was in.

Koegler was one of the naturopathic physicians who kept the flame of naturopathy alive during the dark years when the naturopathic profession in America

suffered its steepest decline. He later became a role model and inspiration for a new generation of students who would rediscover and revive naturopathy in the late 1970s.

### Joseph A. Boucher

Joseph A. Boucher was born on October 27, 1916, in Alberta, Canada. He was the eldest of eight children. He received his primary education in parochial schools and served two and a half years in the Royal Canadian Navy, patrolling the west coast of Canada.

He was discharged from the navy due to severe ulcerative colitis. Medical care failed to help him and he was told that that surgery was the only option left. Twenty-nine years old at the time, he decided to investigate another therapeutic approach before consenting to a colostomy. Boucher sought out a naturopathic physician, who helped him obtain a total remission within a year's time. Impressed with these results, Boucher began to attend lectures and read everything he could find on natural healing. In 1949, he moved with his family to Portland, Oregon, to attend the Western States College of Chiropractic, where he earned his doctorates in naturopathy and chiropractic. During summers, he attended Lewis and Clark College, where he received a degree in psychology. He graduated from all three programs with honors.

Boucher opened his practice in Vancouver, Canada, in 1954; he also was elected to the board of governors of the Association of Naturopathic Physicians of British Columbia during this time. For the next 32 years, he held various offices, from chairman of the examining board to president. In 1955, the Canadian Naturopathic Association was chartered and Boucher immediately became its executive secretary. In 1976, he served as its president.

Although he was Canadian, Boucher played an important role in the development of naturopathy in the U.S. In 1956, he joined John Bastyr and others in founding the National College of Naturopathic Medicine in Seattle, Washington. After the school moved to Portland, Oregon, Boucher traveled from Vancouver, Canada to Portland every Friday to teach classes at the college. He was involved as a teacher, board member, and board chairman of the school for 27 years. His strong leadership helped guide the National College through many financial crises. Boucher was instrumental in forming the Northwest Association of Naturopathic Physicians, a joint American-Canadian association that has sponsored the largest and longest-running annual convention in North America for over 35 years (Farnsworth, 1990).

Boucher was a naturopathic idealist and purist. He believed that true cure results only when the cause of disease is removed. When Boucher died on March 22, 1987, it was a tremendous loss to the international naturopathic community. He was an idol and guiding light to 30 years of graduating students. Some of the busiest naturopathic practices in British Columbia are conducted by doctors brought into the profession by Boucher, who have modeled themselves on his example. Boucher was true altruist in the tradition of Lindlahr.

#### John Bastyr

John Bastyr was born on May 16, 1912, in New Prague, Minnesota, a Bohemian (Czech) immigrant community. Bastyr had an appendectomy at age 9, and when his incision opened up and started to drain while he was outside climbing a tree, his mother “went out and got some plantain and put it on the wound and it healed up within a week. She knew what to do” (Bastyr, 1989, p. 6).

Bastyr was educated in parochial schools and enrolled in the Seattle College of Chiropractic. In 1936, he enrolled at Seattle's Drugless Institute. In all, Bastyr went to school for 6 years. In addition, Bastyr studied homeopathy with Walter James, a student of Adolph Lippe. Lippe had been a student of Constantine Hering, who had been a student of Samuel Hahnemann. Bastyr studied homeopathy intensively with Bryant for 3 years, putting him fifth in line from Hahnemann, the founder of homeopathy. Bastyr first opened his practice in Seattle at the depth of the Great Depression and went on to become the premier naturopathic obstetrician in America.

Bastyr's success in obstetrics can be attributed to the meticulous preparation of his patients. To minimize fear, he thoroughly educated women about the birth process. To deal with pain, he taught them relaxation exercises. To prepare the uterus and birth canal, he made various hydrotherapeutic applications. To ensure a healthy baby he put the mother on a nutritious diet. To prevent erythroblastosis, long before the genetic basis was understood, he implemented light therapy from a cobalt blue lamp.

To minimize maternal discomfort during birth, he often conducted the later stages of labor in a warm water bath, either delivering the child under water or, more often, moving the mother to the kitchen table to complete delivery. To ensure that babies got a healthy start, he insisted that mothers nurse their children until their teeth came in, which signaled the appearance of ptyalin, the amylase enzyme necessary for complicated digestion. Bastyr had mastered these techniques, standard practice in the current natural childbirth movement, over 50 years ago. As he eloquently stated, "We had very little complications" (Bastyr, 1989, p. 31).

In spite of his busy schedule, Bastyr still found time to gather and prepare many of his own herbal remedies. He made many trips to the mountains surrounding Seattle to gather herbs that would not otherwise have been available for his patients.

Bastyr was famous as naturopathic practitioner, but his role in the development, even the survival, of naturopathic education is insurmountable. His medical knowledge made him valuable in the classroom, and his instruction in the clinic was unparalleled. He taught special techniques of diagnosis and treatment and instilled in his students the more general wisdom to “always touch the patient and to read at least one article about medicine each night before going to bed” (Pizzorno, 1989, p. 4). Bastyr was knowledgeable about the latest nutrition research; he emphasized the importance of one’s attitude toward eating over what one actually ate. “I don’t believe there is an ideal diet” he said in a 1986 interview. “The nutrition we believe in is what is important” (p. 4).

Bastyr became the prototype of the modern naturopathic doctor who culls the latest findings from the scientific literature, applies them in ways consistent with naturopathic principles, and verifies the results with appropriate lab studies. He died on June 29, 1995, at 83.

## CHAPTER THREE

### DISCUSSION OF SIX CORNERSTONES OF OPTIMUM HEALTH

There are six important cornerstones of optimal health. These six cornerstones include: fresh air, sunlight, proper diet, pure water, exercise, and rest.

Nature is doing her best each moment to make us well. She exists for no other end. Do not resist. With the least inclination to be well, we should not be sick (Henry David Thoreau, as cited in Murray & Pizzorno, 1998, p. 1).

Changes are occurring in health care. As health-care costs skyrocket, the trend of returning to nature is emerging as a paradigm in medicine. Emphasis is being placed on understanding the influences of the environment on optimum health. As our understanding of the environment and the human body evolves, new explanations of cause and effect develop.

The situation is most evident in the realm of physics (Chopra, 1993). The classical cause-and-effect views of Descartes and Newton were replaced by quantum mechanics, Einstein's theory of relativity, and the theoretical physics of Stephen Hawking. In classical physics, every action was viewed as having an equal and opposite reaction. The new paradigm incorporates possibilities instead of certainties and takes into consideration the tremendous interconnectedness with nature and natural health.

Historically, paradigm shifts in medicine lagged behind shifts in physics, but the medical paradigm shift is now in progress. The old paradigm was that the human body functions like a machine. The new paradigm focuses on the interconnectedness of body, mind, emotions, social factors, and the environment in determining optimal health. Rather than relying on drugs and surgery, the emerging model utilizes natural techniques

to promote optimal health. The era of self-empowerment and taking an active role in maintaining one's optimal health is beginning.

At the forefront of these changes is an emphasis on the prevention and self-management of chronic diseases. The self-management of chronic disease focuses on promoting optimal health by addressing the six cornerstones of natural health. Natural health and optimal-health philosophy encourage personal responsibility for wellness, congruent with naturopathic philosophy and the nature cure model.

The health benefits and cost-effectiveness of prevention programs focused on maintaining optimum health have been clearly demonstrated. Studies have consistently found that participants in wellness-oriented programs reduce their number of days of disability by 43%, reduce the number of days spent in a hospital by 54%, and decrease the amount spent on health care by a remarkable 76% (Pelletier, 1993).

Regular exercise is a major key to maintaining healthy balance and optimal health (Weil, 1997). Although the immediate effect of exercise is stress on the body, with regular exercise the body adapts; it become stronger, functions more efficiently, and has greater endurance. The entire body benefits from regular exercise, largely as a result of improved cardiovascular and respiratory function. Exercise enhances the transport of oxygen and nutrients into cells. At the same time, exercise enhances the transport of carbon dioxide and waste products from the tissues of the body to the bloodstream and ultimately to the eliminative organs. As a result, regular exercise increases stamina and energy levels. Exercise promotes the efficient burning of fat. Muscle tissue is the primary user of fat calories in the body; the greater the muscle mass, the greater the fat-burning capacity.

Exercise also positively affects mood. Anxiety, depression, and low self-esteem diminish greatly with regular exercise. Exercise alone has been demonstrated to have tremendous impact on improving mood and the ability to handle stressful life situations. A study by Farmer, Locke, and Mosciki (1988) found that increased participation in exercise, sports, and physical activities was strongly associated with decreased symptoms of anxiety, depression, and malaise.

Regular exercise has been shown to increase powerful mood-elevating substances in the brain known as endorphins. The effect of endorphins is similar to that of morphine, although much milder. In fact, endorphins were so named because of their morphine-like effects (*endo* from “endogenous” and *rphin* from “morphine”). There is a clear association between exercise and endorphin elevation, and when endorphin levels increase, mood follows (Carr, 1981).

As reported by Lobstein, Mosbacher, and Ismail (1983, p. 69), the health benefits produced by exercise extend to a number of bodily systems and functions.

- Musculoskeletal system: increases muscle strength; increases flexibility of muscles and range of joint motion; produces stronger bones, ligaments, and tendons; minimizes chance of injury; and enhances posture, poise, and physique.
- Heart and blood vessels: lowers resting heart rate, strengthens heart function, lowers blood pressure, improves oxygen delivery throughout the body, increases blood supply to muscles, and enlarges the arteries to the heart.
- Bodily processes: improves the way the body handles dietary fat; reduces heart disease risk; helps lower blood cholesterol and triglyceride levels; raises levels of HDL, the “good” cholesterol; helps improve calcium deposition in

bones; prevents osteoporosis; improves immune function; aids digestion and elimination; increases endurance and energy levels; promotes lean body mass; and burns fat.

- Mental process: provides a natural and positive mood shift, helps reduce tension and anxiety, improves mental outlook and self-esteem, helps alleviate moderate depression, improves the ability to handle stress, stimulates improved mental and cognitive functions, induces relaxation, and improves sleep.
- Longevity: for every hour of exercise, there is an average 2 hour increase in longevity.

Exercise is clearly one of the most powerful natural health modalities available to everyone.

Water is the solvent for all soluble ingredients in the blood and cells and is the medium in which all other nutrients are found. Two parts hydrogen and one part oxygen form water. While the presence of water is abundant on earth and most other substances on our planet dissolve into water, pure water does not exist naturally on earth.

Our bodies are at least 60% water. Water is present in many bodily fluids and plays an important role in some of our most important bodily functions. The mineral salts that help carry electrical currents throughout the body can be found in electrolytes, which are carried by water. There is large amount of variability in water requirements amongst people; the amount of water a person needs is influenced by activity level, nutrition and climate.

Water is vital to optimal health. Each day, the human body requires an intake of over 1liter of water to function optimally (Weil, 1995). One function of the body's self-

healing system is to filter the blood with the help of the kidneys. The kidneys, heart, and blood work together to clean and purify the body of waste from various sources. The body's purification system works optimally when there is enough water present in the body to carry away the waste. As such, a lack of water, or dehydration, interferes with the body's purification process. This is one reason that it is imperative to drink an adequate amount of water each day.

Evidence collected over the last 30 years suggests that there are a large number of chemicals in our water that are health damaging. The amount of these chemicals in our drinking water continues to increase. The source of some of the chemicals in our water is unknown, but a large portion of the chemicals are those currently used in human industry and agriculture. For example, we now know that chemicals used in the soil find their way into our drinking water.

Clean water is necessary for most life on earth and it is imperative for optimum health. There seems to be increasing awareness about the importance of clean water. This is evident in the fact that providing clean and safe drinking water has become a major multimillion-dollar industry. The sale of bottled spring and filtered water and water filtration systems are now commonplace. Given the importance of clean water, additional research on how to keep our water supplies safe is needed. Drinking enough contaminant-free water is likely a most significant optimum health factor (Haas, 1992).

Fresh air and the breath are also imperative for optimal health and wellness. One can learn specific breathing techniques to improve physical, mental, and spiritual well-being. Similar to water, our air has been contaminated and polluted by human industry. Polluted air is deleterious to health; it increases respiratory problems and decreases the

strength of the immune system. Scientists suggest that air pollution is threatening the earth's health by damaging the ozone layer and upsetting the balance of forces that maintain climate and weather patterns.

One of the basic requirements for good health is clean air to breathe (Weil, 1995). When living and working in an urban area, it is essential to find a microenvironment created by trees, with fresh air that is significantly healthier to breathe. The life- and health-giving property of clean, fresh air enhances the nourishing properties of the act of breathing.

According to Weil (1995), osteopathic doctor Robert Fulford worked from the principle that breathing is the key function of the organism and that restriction in breathing leads to dysfunction and disease. He paid attention not only to the movements of the chest and diaphragm but also to subtle movements in the central nervous system that are not recognized by most medical doctors or osteopaths. These pulsations of the brain and its associated structures are another kind of respiration, perhaps the most fundamental rhythm of life.

Taking into consideration the impact of fresh air and breathing on maintaining optimum health, there is a dire need for advocacy of fresh air for all. Air pollution is of great concern in regards to optimum health. High levels of chemical irritants in the air affect health status in smoggy, heavily populated, or industrial areas. Indoor air pollution at work, at home, at stores, or at the hair salon may be much worse than outdoor air pollution, because there is more contamination with less dilution.

According to Haas (1992), air pollutants are released directly into the atmosphere by industry or the discharge of industrial waste. Advocacy for reducing air pollution is

needed in addition to stricter enforcement of industrial controls and reduction of the manufacture of unnecessary products, such as Styrofoam, that may generate more severe pollution and continue negatively impacting health status.

Sunlight is also important for optimal physical and psychological health. Energy from the sun is life-sustaining and the sun's frequencies impact our mood and behavior. According to Liberman (1991), "each separate frequency, or color of the spectrum, has nutritional value, and is the food for the initial development and constant development of certain aspects of our being" (p. 203).

The ancient Egyptians, Romans, Greeks, and other major cultures made significant medical use of light. Although the Egyptians were the first to use color for healing, the Greeks were actually the first to document both the theory and practice of solar therapy (as cited in Liberman, 1991). Heliopolis, the Greek city of the sun, was famous for its healing temples, in which sunlight was broken up into its spectral components (colors), and each component was used for a specific medical problem. As noted by Liberman,

Herodotus, the father of heliotherapy (a medical therapy involving exposure to sunlight) wrote that "exposure to the sun is highly necessary in persons whose health needs restoring and who have need of putting on weight. In winter, spring, and autumn, the patient should permit the rays of the sun to strike full upon him; but in summer, because of excessive heat, this method should not be employed in treating weak patients." (p. 8)

Sunlight held a therapeutic and divine meaning for those cultures.

Farmers are much attuned to seasonal variations in the intensity of sunlight, which influences the budding, growth, and dormancy of plants. It is also apparent that animals are as involved as plants in this solar connection, inasmuch as their hibernation, migration, and breeding occur seasonally and thus appear very much related to changes in sunlight exposure. In humans, exposure to sunlight significantly influences health. Just about every human function is affected by sunlight. According to Liberman (1991), fertility and mood are two of the most profoundly affected. Examples of this can be seen in many northern European countries, such as Norway and Finland, where months of darkness occur annually. In those countries, there is a direct correlation between decreased exposure to sunlight and a higher incidence of irritability, fatigue, illness, insomnia, depression, alcoholism, and suicide. Interestingly, in Finland more children are conceived during the months of June and July, when the sun shines approximately 20 hours per day, than during the winter months (as cited in Liberman, 1991).

Sunlight also increases the manufacture of vitamin D in the body, and almost acts like an extra calcium source, because vitamin D improves absorption of any available dietary calcium. Calcium is critical for optimum health during the growth years of infancy and childhood, but it is also important throughout life to keep our bones healthy.

As our air becomes more polluted, however, avoiding excessive sun exposure is very important. There has been a marked increase in skin cancer in recent decades, as a result of the thinning of the ozone layer caused by air pollution with chlorofluorocarbons. This means that sun's ultraviolet rays are less filtered and more dangerous now than they were several decades ago (Haas, 1992).

Rest and sleep is basic for optimal health (Weil, 1995). During rest and calmness, the parasympathetic nervous system dominates. The parasympathetic nervous system controls bodily functions such as digestion, breathing, and heart rate during periods of rest, and is designed for repair, maintenance, and restoration of the body. According to Murray and Pizzorno (1998), during restful periods the heart rate is reduced and the heart beats more effectively. Blood pressure is reduced. Blood is shunted toward the internal organs, especially those organs involved in digestion, and the rate of breathing decreases as oxygen demand is reduced during periods of rest. Sweat production decreases because a person who is calm and rested does not experience nervous perspiration. Production of digestive secretions is increased, greatly improving digestion, and blood sugar levels are maintained in the normal physiological range.

A whole field of medicine called psychoneuroimmunology is arising to deal with issues relating to the relationship between the need for rest, immunity, brain function, and disease, examining such problems as AIDS, cancer, and chronic viral conditions.

Nutrition is a basic component of optimum health and preventive medicine and also is an area for effective corrective medicine for many common health problems (Haas, 1992). The public's knowledge of nutrition shifted in recent years. People's ideas about the balanced diet changed from an emphasis on meals containing a meat, a dairy food, a cereal grain, and fruits and vegetables to a more natural diet lower in fat, protein, and refined carbohydrates. Whole foods, unprocessed and without chemical additives, are again becoming central to the American diet. Meals are becoming more simple, containing fewer foods.

There is some evidence that the human gastrointestinal tract can more easily digest plant foods than animal foods. It's important to note that the meat our ancestors consumed was different from the meat we consume today. The desire for tender meat has produced beef with a fat content of 25% to 30% or higher, compared to a fat content of less than 4% for free-living animals or game (Murray & Pizzorno, 1998). The type of fat found in this meat is also considerably different. Domesticated beef contains a large amount of saturated fats. Murray and Pizzorno highlighted the fact that, in contrast, wild animals contain over five times more polyunsaturated fat per gram, and approximately 4% of fat is beneficial omega-3 fatty acids. A diet characterized with a great deal of saturated fat is associated with increased cholesterol levels and the risk of heart disease, a diet rich in omega-3 fatty acids protects against both.

According to a Surgeon General's report (U.S. Department of Health and Human Services, 1988), humans are best suited to a diet comprising primarily plant foods. This suggestion is supported by evidence showing that moving away from a predominantly plant-based diet increases the risk of heart disease, cancer, strokes, arthritis, and other chronic diseases. Many health and medical organizations recommend that our diets consist primarily of plant-based foods to achieve protection against such diseases.

## CHAPTER FOUR

### A REVIEW OF EVIDENCED BASED RESEARCH

Two very important factors that are often overlooked and are causing illness in our world are the toxic chemicals that are now in our air and water. One of the most polluted country in the world is India.

An article by Kandlikar and Ramachandran (2000) focused on the causes and effects of air pollution in India, specifically urban Mumbai and Delhi, by examining the literature. The focus was on the causes of air pollution including the negative health effects as a result of exposure to pollution in India's "mega cities" with specific emphasis on particulate air as a cause of mortality and morbidity from air pollution. The authors cited studies conducted in the U.S. by the U.S. Environmental Protection Agency (EPA) that found 20,000–100,000 deaths due to particulate pollution per year ( as cited by Kandlikar & Ramachandran, 2000). The authors synthesized the literature by performing their own comprehensive calculations of source inventories for particulate matter. The major sources of polyaromatic hydrocarbons (PAHs) are thought to be vehicles, industry, power plants, domestic fuel, combustion, and miscellaneous sources. The main categories of urban air pollution sources in India are vehicular emissions, industrial emissions, fuel used for cooking and burning of household wastes and emissions from small businesses and cremation grounds.

Urbanization in India increased the use of personal vehicles. Between 1986 and 1991, the Government of India (GOI) found that the total number of vehicles in India increased from about 9 million to 25 million; 70% of the vehicles are gasoline-fueled personal vehicles ( as cited by Kandlikar & Ramachandran, 2000, p. 633). Similarly, the

use of gasoline and diesel fuel for these vehicles doubled from 1981–1994, increasing from 1.5 and 7.2 million tons, respectively, in 1981, to 3.5 and 14.8 million tons in 1994 (as cited by Kandlikar & Ramachandran, 2000). Diesel fuel is mostly used by for buses, trucks, and other commercial vehicles, and power plants.

The main pollutants released by vehicles are carbon monoxide (CO), NO<sub>x</sub>, particulate matter (PM<sub>10</sub>), volatile organic compounds, and semi volatile polyaromatic hydrocarbons (PAHs) (Kandlikar & Ramachandran, 2000, p. 635). Sulfur oxides are emitted in various quantities; exhaust gases from gasoline-fueled vehicles also contain lead (Pb) additives.

In order to translate numbers of vehicles into gross pollution emissions, emission factors for each vehicle category must be created. As such, emission factors within vehicle categories vary a great deal. The authors suggested that vehicles in India emit more pollution than vehicles in other industrialized countries. Most vehicles in India do not use pollution control equipment, vehicular maintenance is poor, and emission standards and monitoring are rarely enforced. In addition, traffic moves slowly in Delhi, and slower speeds (<30 km/h) with acceleration and deceleration are associated with higher emission factors.

Kandlikar and Ramachandran (2000) highlighted the issue of the quality of the fuel used. Kerosene is subsidized because it is often used for household cooking for lower-income groups. Gasoline fuel is mixed with as much as 30% kerosene and 10% lubricating oil by some drivers. Diesel fuel is also mixed with kerosene. The use of kerosene and lubricating oil increases emission factors, but it is not known by how much.

A Monte Carlo simulation analysis by Kandlikar and Ramachandran (2000) revealed the number of vehicles in urban areas increased by more than fivefold over the past two decades, no single type of vehicle dominated the emission of all primary pollutants, and vehicles with two-stroke engines and cars are worse than buses. Thus, the magnitude of pollutant emissions from traffic in Delhi exceed those in Mumbai and other cities because there are more vehicles in Delhi than in Mumbai, Calcutta, and Chennai combined. Cars have higher levels of emissions per kilometer and there are more vehicles in Mumbai than in Delhi; vehicles with two-stroke engines dominate emissions in Delhi.

India is heavily industrialized with over 1500 large-scale industrial units and over three million small factories (Kandlikar & Ramachandran, 2000). Mumbai and Delhi are both major industrial centers. People, who live in Mumbai, are exposed to a disproportionate amount of industrial emissions. Shah and Nagpal estimated that there are 40,000 small-scale plants and big industries in the Mumbai area, of which 32 are classified as hazardous (as cited by Kandlikar & Ramachandran, 2000). Textile mills, chemical and pharmaceutical engineering units, and foundries contribute to air pollution.

It is difficult to measure the amount of pollution emitted from plants. Construction of inventories for specific chemicals is a resource and time consuming. Detailed inventories for each industry and each plant can be calculated only through regular emissions monitoring. We can assume that Mumbai and Delhi have substantial emissions of toxic substances and heavy metals.

In 1996, the GOI found that coal-fired power plants generate two-thirds of India's electric power (as cited by Kandlikar & Ramachandran, 2000). Its coal-fired power capacity was expected to grow from 55 GW in 1996 to 80GW by 2002. Indian steam coal

is high in ash content (30%–50%) and silica and aluminum (>90%). The disposal method of fly ash from power stations is through mixing it with water; and pumping it through pipes to ash disposal ponds. Coal combustion in thermal power plants also emits a variety of toxic heavy metals, such as Pb, Zn, Ni, Co, Cd, Cr, and Cu.

Delhi has three coal fired power plants. The total quantity of fly ash from the three power plants is about 6000 tons per day. Kandlikar and Ramachandran (2000) calculated PM10 emissions from power plants in Delhi by using the above estimates for fly ash production and a range for ESP collection efficiency of 97.5%–99.5%. The resulting estimate for PM10 emissions was between 45,000 and 125,000 tons/year.

Mumbai has one major thermal power plant that uses multiple fuel types—coal, natural gas, and oil. The URBAIR study by Shah and Nagpal estimated that the total PM10 emitted from power plants in Mumbai is roughly 1500 tons/year (as cited by Kandlikar & Ramachandran, 2000). This is less than the estimate for Delhi because this plant uses coal for only one fifth of its fuel needs. Alternatively, Delhi power plants are completely coal based. The authors estimated that the PM10 emissions from Mumbai are in the range of 7000–20,000 tons per year.

Some studies estimated particulate emissions resulting from industrial combustion of fossil fuels for Mumbai and Delhi. A GOI white paper from 1997, on air pollution in Delhi, estimated that PM10 emissions from other industries were roughly equal to power plant emissions (as cited by Kandlikar & Ramachandran, 2000). In the case of Mumbai, the World Bank URBAIR study estimated the PM10 emissions for Mumbai at 2377 tons per year (as cited by Kandlikar & Ramachandran, 2000).

The use of products in homes is also a major source of pollution in India. For example, emissions from burning wood, coal, and cattle dung cause indoor and outdoor pollution. Coal, kerosene, and liquefied petroleum gas are often used for cooking and heating in India, especially among the lower classes. Based on their calculations, the authors estimated that the total consumption of kerosene in Mumbai was 550,000 kl/year or 44 liters/person/year in 1992 (Kandlikar & Ramachandran, 2000). Kandlikar and Ramachandran also highlighted that a large undocumented source of PM<sub>10</sub> is the burning of household waste, leaves, and garbage in city streets and dumps. The emission factors for such sources are estimated to be 8–37 kg/ton. The emissions from the burning of these products results in large quantities of PM, carbon monoxide, unburned hydrocarbons. The latter are carcinogenic. The inefficient burning of solid-biomass-based fuels in largely populated areas should be a health concern. The authors suggested that more efficient smokeless stoves and better ventilation mechanisms can reduce the levels of emissions.

Next Kandlikar and Ramachandran (2000) discussed the impact of personal exposure to such pollution using the concept of “exposure effectiveness.” They stated, Exposure effectiveness of a source provides a way to calculate the overall societal impact of the source’s PM emissions. It comprises three components: the concentrations of PM, in the immediate vicinity of people, that are a direct result of unit emissions from that source; the total number of people that are affected; and the length of time that people are exposed to pollutant concentrations. (p. 653)

Estimates of exposure effectiveness of source categories from the literature were provided and there was a clear class effect. More specifically, there were differences in

exposure to PM between income groups. Emissions from indoor combustion and exposure was highest for low-income groups, while high-income groups were not more likely to be exposed industrial and vehicular emissions. Middle-income classes were exposed to indoor and outdoor emissions. The authors concluded that low-income people's PM exposure levels were two or more times higher than middle- and high-income groups' exposure.

Next Kandlikar and Ramachandran (2000) addressed the pollution caused by heavy metals and Polycyclic Aromatic Hydrocarbons (PAHs). They stated that many airborne heavy metals are carcinogenic, and refer to the WHO development of lung cancer risk values for some of these metals (e.g., the lifetime risk from breathing 1g of arsenic/m<sup>3</sup> is  $1.5 \times 10^{-3}$ , while for nickel it is  $3.8 \times 10^{-3}$ ). PAHs are formed by the incomplete combustion of fossil fuels such as industrial oil combustion, and cooking fuel (kerosene, coal, wood, and dried cow manure). WHO estimated that the lifetime risk of lung cancer from breathing 1 ng of the PAH benzo (*a*) pyrene/m<sup>3</sup> is  $8.7 \times 10^{-6}$  (as cited by Kandlikar & Ramachandran, 2000).

Kandlikar and Ramachandran (2000) suggested that respiratory disorders, cardiovascular disease, tuberculosis, lung cancer, blindness, perinatal effects such as stillbirths and low birth weights, and death are associated with inhalation exposure to airborne PM. However, they also mentioned that more research is needed in this area—specifically in India. The studies in this area were hindered by confounders such as socioeconomic status, health, occupational exposure to particulate matter, and co-pollutants. They concluded that the sources of air pollution in urban India are poorly understood.

Heinrich et al. (2005) summarized evidence linking indicators of health to air pollution generated by transportation. The chapter reviewed evidence from epidemiological and toxicological studies on the effects of transport-related air pollution on health. More specifically, Heinrich et al. reviewed and summarized the literature on mortality, respiratory morbidity, allergies, cardiovascular morbidity, cancer, pregnancy, birth outcomes and male fertility.

Identifying the health effects caused by transportation pollution is a challenge. Studies conducted in Europe and North America by the WHO Regional Office for Europe found a relationship between death and indicators of air pollution, specifically fine PM and ozone (as cited by Heinrich et al., 2005). The Air Pollution and Health: A European Approach project examined data from 29 European cities and estimated that an increase in the daily number of deaths was associated with a  $10\text{-}\mu\text{g}/\text{m}^3$  increase in daily black smoke concentrations (as cited by Heinrich et al., 2005). Other studies associated black smoke with respiratory and cardiovascular mortality (Ballester et al., 2002; Le Tertre et al., 2002; Zmirou et al., 1998; Sunyer et al., 2000, as cited by Heinrich et al., 2005). The association was stronger for mortality from respiratory illness and the risk of dying associated with black smoke was greater for older women and people with chronic obstructive pulmonary disease. The risk of death from per  $10\text{-}\mu\text{g}/\text{m}^3$  increment of black smoke increased 1.95 for living near a major road.

Several epidemiological studies found associations between mortality and occupational exposure to transport emissions. Stern et al. (as cited by Heinrich et al., 2005) found that tunnel officers had higher mortality from atherosclerotic heart disease than people in the general population of New York City; tunnel officers also had a higher

risk of mortality from heart disease than bridge officers (Heinrich et al., 2005, p.130). Balarajan and McDowall's study of mortality of lorry drivers in London found excess deaths from stomach cancer, lung cancer, bronchitis, emphysema and asthma (as cited by Heinrich et al, 2005). The empirical studies on this topic suggest that transportation-related air pollution may contribute to the increased risk of death from exposure to air pollution.

Studies have also shown a relationship between transport-related air pollution and non-allergic respiratory deaths. Janssen et al. (as cited by Heinrich et al., 2005) did a study with 2503 schoolchildren aged 7–12 years and found that soot and nitrogen dioxide were associated with increased non-allergic respiratory symptoms near streets with high traffic. Exposure to sulfur dioxide was consistently associated with cough, phlegm, and upper-respiratory symptoms, and exposure to nitrogen dioxide was related to cough, throat or nose irritation. Buckeridge et al. (as cited by Heinrich et al., 2005) found that exposure to transport-related air pollution was associated with bronchitis, chronic obstructive pulmonary disease, pneumonia and hospital admission among adults. Other studies also found an association between transport-related air pollution and a variety of health problems (Clench-Aas et al., 2000; Northridge et al., 1999 as cited by Heinrich et al., 2005). Research also found an association between bronchitis and cough with exposure to transport-related air pollution (Braun-Fahrländer et al., 1992; Brunekreef et al., 1997; van Vliet et al., 1997; Ciccone et al., 1998; Nitta et al., 1993, as cited by Heinrich et al., 2005).

Researchers have explored the association between transportation-related air pollution and allergic respiratory illness. This association remains unclear. Heinrich et al.

(2005) mentioned that some studies found positive associations between traffic surrogate variables and the prevalence of wheeze in children and adults, others did not. While there is evidence that transport-related air pollution can increase the risk of allergy development and exacerbate allergic reaction, but this evidence is weak.

Brunekreef et al. (as cited by Heinrich et al., 2005) found that living close to roads and high levels of black smoke in schools was associated with diminished lung function. There are also studies that examined the elevated risk of coronary heart disease in professional drivers; there seems to be a risk here but it is not well understood. A range of studies suggest an increased risk of various types of cancer in people exposed to higher levels of transportation-related air pollution over time. A wide range of studies indicates an increased risk of various types of cancer in people with prolonged exposure to higher levels of transport-related air pollution. For example, increased incidence of and mortality from lung cancer was reported for railway workers and drivers (Heinrich et al., 2005).

In 2004, the WHO Regional Office for Europe indicated that air pollution was associated with post-neonatal infant mortality (Heinrich et al., 2005). However, there is a lack of studies that explore pregnancy outcomes and transportation-related air pollution. Heinrich et al. also mentioned the hypothesis that transportations-related air pollution may affect male fertility, but few studies explore this hypothesis.

A few short and long-term intervention studies explored how improvement in air pollution can improve health. During the 1996 Summer Olympic Games in Atlanta, Georgia, a modified transport strategy was implemented (as cited by Heinrich et al., 2005). For more than 10 weeks data on the number of medical emergency visits, the

number of hospitalizations for asthma and non-asthma events, air quality, weather conditions, and traffic and public transportation was collected. The amount of PM<sub>10</sub>, nitrogen dioxide and ozone was also measured. The results showed a significant decrease in the number (41.6%) and incidence of acute care events for asthma (RR: 0.48; 95% CI: 0.44–0.86) during the Olympic Games (Heinrich et al., 2005, p. 157).

Suggested long-term solutions for reducing air pollution include building tunnels, diverting traffic to different routes, constructing roundabouts and regulating speed; however these solutions have not been heavily studied. Changes in fuel composition might benefit health. Evidence for this can be found in the 1990 fuel restriction in Hong Kong which required all power plants and road vehicles use fuel oil with a sulfur content of not more than 0.5%. In the year post-intervention sulfur dioxide was reduced by 53%, and was sustained at 35–53% for 5 years (as cited by Heinrich et al., 2005). The intervention also found a post-intervention average gain in life expectancy of 0.73 years for men aged 25–100 years, because of a 10- $\mu\text{g}/\text{m}^3$  reduction in exposure to sulfur dioxide for 15 years (p. 159). Evidence on the effectiveness of these interventions is also limited.

Woodruff, Parker, and Schoendorf (2006) linked mortality and high air pollution levels are linked. Air pollution is measured by particulate matter (PM) in air and studies in countries with high PM have found an association with infant mortality. The PM which previous studies evaluated focused on PM with approximately 10 micro meters in aerodynamic diameter, but recent studies suggest that it may actually be the smaller PM with approximately 2.5 micrometers in diameter or less which is more toxic.

Woodruff et al. (2006) suggested that PM 2.5 may be more toxic because most of PM fraction is from combustion sources such as cars, utilities and wood burning, rather than typical sources, such as road dust and agricultural fields. The study monitored air pollution from 1999 to 2001 in California and studied the births that live close to PM 2.5 monitors. The study found 788 postneonatal deaths for the analysis. Of the 788 infant deaths, 51 deaths were from respiratory causes (13 of which were from bronchopulmonary dysplasia), 136 death from SIDS, and 55 from other external causes. The authors found no significant relationship between PM 2.5 presence and SIDS. This conclusion differs from previous analysis, and the article speculates it may be that the diagnosis for the SIDS is stricter than in the past or that the previous relationship was diagnosed with PM 10.

The researchers also concluded that there is a relationship between postneonatal mortality from respiratory causes and long term exposure to PM 2.5. Of the respiratory deaths, the relationship was stronger among the low-birth weight infants as well. The study concluded that there is an association between respiratory-related postneonatal mortality and fine PM air pollution in California.

Elizabeth Bast (2002) reported that U.S and Canadian water pollution increased 26%. The amount of industrial pollution dumped into U.S and Canadian rivers, lakes, and streams rose 26 percent in the period from 1995 to 1999, according to a report released by the Commission for the Environmental Cooperation (CEC). The report also noted that air omissions declined. In 1999, the U.S. accounted for 90% of toxic pollutants released by the two countries. The commission, a tri-governmental body established to address regional environmental issues, used national “pollutant release and transfer registers”- the

U.S Environmental Protection Agency's Toxic Release Inventory and Canada's National Pollutant Release Inventory-to analyze the two countries' toxic releases. Because Mexico's system is voluntary and not all entities report their emissions, it was not included in the compilation.

The number of national pollutant registers worldwide has grown rapidly in recent years, fueled by public demands for the right to know about the hazardous substances produced by local industries. Organizations from grassroots groups to the World Bank now encourage public dissemination of information as means to empower citizens, particularly in poor communities. The Organization for Economic Cooperation and Development, a trade-promoting body representing 30 industrial countries, directed its member countries to develop pollution registers in 1996. Eleven of those countries now have registers, and eight more are developing systems.

Although pollution registers are becoming more common, different methods make comparisons arduous and even inaccurate. The U.S., for example, reports 643 chemicals to Canada's 245. However, one of the chemicals not included in the United States' list, hydrogen sulfide, represents almost 70 percent of the Canadian releases in 1999. CEC member governments recently resolved to further standardize the collection and reporting of information. The U.S. 2000 Toxic Release Inventory showed that total releases of toxic chemicals had declined to 7.1 billion pounds, 8% less than in 1999. Hardrock mining companies, manufacturing, and the electric utilities were the top polluters in 2000, accounting for 95% of releases. Mining was by far the largest culprit, accounting for 47% of the toxic releases.

Jack Griffith and Wilson B. Riggan, (1989) conducted a study to identify potential association between hazardous waste sites and ground water pollution with cancer in U.S. This study was initiated in response to the requirements set forth in the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (PL 96-510), also known as CERCLA or the “Superfund law,” the EPA identified 538 HWSs considered to be significant threat to the environment or to the public health, and ranked them in a National Priorities List (NPL). Although there have been several methodology and review papers published concerning the need for studies to determine the health hazards associated with the disposal of toxic wastes in dump sites. The objective of this study was to identify pattern that would possibly suggest link of cancer incidents associated with hazardous wastes disposal.

For this study, the water samples were taken from an aquifer that was within 4.8 km of the HWS. The aquifer provided sole source ground drinking water (no municipal water from alternative sources available) to an “exposed” population characterized as being “at risk to exposure.” Chemical contamination of the sample was confirmed by laboratory analysis. Using the NPL, 593 sites were identified that had contaminated ground drinking water. Selected sites were found among 339 counties in 49 of the contiguous states, and analytical evidence of 198 chemical compounds ranging from trichloroethylene to mineral spirits were found. In the following analyses, 223 statistical comparisons were completed, and clearly, one would expect several positive results to occur by chance alone if the conventional significance level of .05 were used for each comparison. A more conservative approach is to establish an overall significance level of .05 and to test each of  $k$  comparisons within a group at the  $.05/k$  level. For each cancer

site, i.e., the 3065 counties in the contiguous U.S., 19 were cross-classified to determine whether the county had an excessively high number of death and whether it was among the 339 HWS counties. A chi-square analysis, correcting for continuity, was performed for each cancer to test for an association between HWS and excessive numbers of deaths. Because these analyses included 24 tests of significance, each test was performed at the p less than .002 level using the Bonferroni procedure.

Cancer sites found to have significant association with HWS counties were grouped into four geographical regions and chi-square analyses were performed within the region to test for association between HWS conies and excess mortality on region wide bases. The four groups were EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont); EPA Region 2 ( New jersey, New York); EPA Region 3 (Delaware, Maryland, Pennsylvania, Virginia, West Virginia); and EPA Regions 4-10, comprising the other contiguous states. These analyses employed 56 tests of significance, and consequently each test was performed at the p less then .0009 level.

To ascertain inter-relationship among the cancer sites, linear correlation analyses within and between genders groups were performed on the age-adjusted mortality rates among the HWS sites. These analyses employed 143 tests of significance, and consequently each test was performed at the p less then .0003 level.

Among the 13 cancer sites following findings are presented: four cancers (bladder, stomach, large intestines, and rectum) that show statistical association with HWSs and that have been liked in previous studies to hazardous wastes disposal sites. Bladder cancer is reportedly more prevalent in males than females, and has been associated with occupational exposure to dyes, electric cable manufacturing, the leather

industry, chemical and petroleum industries, and painting and rubber industries.

Occupational exposures related to asbestos, metal dust, coal mining, and other factors (e.g. birthplace and diet) are believed to play role in the etiology of stomach cancer. In the U.S., cancer of the large intestine is most common in the northern part of the country, and in urban rather than rural areas, and with cancer of the rectum follows only lung cancer as the principal cause of cancer deaths among adult Americans. Occupational exposure related to asbestos and other factors such as migration and diet believed to play role in the etiology of cancers of the large intestine and rectum.

Using the Pearson product-moment correlations of age-adjusted cancer mortality rates between and within male and female groups for the HWS counties, strong correlation reported between males and females for rates of cancer of the lung, stomach, large intestine, and rectum. For females, there were significant correlations of rates, between cancer of the breast and pancreas, lung, kidney, stomach, large intestine, and rectum. The relationship between cancer of the breast and cancer of the rectum was particularly strong. There was also a correlation between rates of lung cancer and rates of rectum cancer for females. For males, there are significant correlations between bladder cancer rates and rates for esophagus, large intestine, and rectum. Esophagus rates were also significantly correlated with rates for stomach, large intestine, and rectum for males. Of particular interest is the significant correlation among cancer rates for stomach, large intestine, and rectum for males and females.

To make more refined comparisons and to achieve an aspect of “matching,” the HWS counties were grouped into four geographic regions and compared to other non-HWS counties within that same region on the basis of the frequency of being declared to

have excess number of deaths. The results of these comparisons suggests that there is an increased frequency of excess cancer deaths in EPA Region 1 for female breast cancer; in Region 3 for bladder cancer in females, cancer of the large intestine in males and females, and cancer of the rectum in males; and in Region 4-10 cancer of the lung in males and females, females breast cancer, and bladder, esophageal, and rectum cancer in males. EPA Region 3 appears to be the only geographical area in which then excess deaths for both men and women from cancers of the gastrointestinal tract occur.

Several investigators described the methodological difficulties with aggregate studies: individual exposure is unknown, thereby limiting exposure and outcome linkages; exposure may vary greatly within geographical areas, thereby possibly diluting the findings; and cofounders are often unknown or otherwise difficult to associate with individuals. Perhaps the most perplexing problem in developing human health data related to toxic wastes sites is in the assessment of exposure experienced by the study populations because it is seldom possible to have direct evidence of exposure in terms of body burden residues found in human tissues or fluids. Exposure must often be estimated from questionnaire data, employment records, and from air, water, and soil monitoring of the environment surrounding the dump site area. To further complicate matters, the toxicity of chemicals may vary over time through transport. Researchers must also contend with complex mixtures of chemicals and there have been few attempts to estimate health effects related to such exposure. Furthermore, chemicals are often non-specific as they relate to a particular disease, and outcome measure may require long latency periods before disease assessment is possible. Finally, the size of populations

living around HWSs are usually small, a situation that may result in studies with low statistical power and inconsistent results.

In this study, the researchers noted the occurrence of excess gastrointestinal cancer mortality among men and women in the counties and states forming EPA Region 3 presents an interesting conundrum. While it is clear that more definitive epidemiologic studies are necessary to assess the actual relationship between excess death related to cancer of the stomach, large intestine, and rectum in counties with HWSs, it is an interesting hypothesis, that excess mortality from these cancers may be related to the ingestion of carcinogens or carcinogenic promoters arising from industrial wastes leaching from waste disposal sites.

It is important to note that individuals in the HWS counties may have been exposed to chemical pollutants while working for companies that created the waste, through contamination of local food supplies, emissions into the ambient environment, and contaminated water. Likewise, the HWSs may be located in areas that are more industrialized, less desirable for residence or differ from other U.S. counties in other ways, leading to sizeable differences in personal habits, ethnic, and other factors linked with cancer risk between residents of these and other U.S. counties. In addition, the population using the contaminated ground drinking water may be very small compared with the total county population, and levels of contamination may be very low. Thus, it is clear that more definitive studies are necessary to assess the magnitude of any adverse health effects associated with waste sites and polluted ground drinking water. It appears from this data, however, that HWS locations may be used as an initial index of possible exposure to toxic chemicals.

## CHAPTER FIVE

### CONCLUSIONS

This writer, as previously noted, has the purpose of reviewing philosophy of natural health in an effort to understand the concept of optimal health and wellness for application to society at large. To that end, the writer presented a broad concept of historical outline and identifying variables in achieving and maintaining optimal health without identifying them as such, to determine whether those concepts would find acceptance.

The foundational concepts of natural and optimum health include: an emphasis on personal responsibility for wellness, a broad perspective of nature's role in healing, preserving nature's treasures such as fresh air, sunlight, pure water, making choices of proper diet, exercise and rest, an inclusive approach to modalities with focus on mind and body connection. The result of this literature reviewed and evidenced based research demonstrated, beyond the expectations of this author, that a large segment of modern population already understands and accepts these concepts to a large degree.

Reviewed literature identified a significant relationship with nature as central both for natural health and optimal health, and as a foundation for a mind and body connection. Pioneers in naturopathy and natural health agreed with philosophical construct of natural and optimal health, and found it useful as a mechanism for clarifying values. The author believes that this concept, presented in a seminar, workshop, or counseling sessions, can provide a valuable foundation to help clients evaluate their lifestyles and priorities, establish new patterns of thought and behaviors, and encourage them into taking personal responsibilities for their wellness.

The American healthcare system assumes the presence of a person in an important functional role-the primary physician-that oversees and manages the overall health of everyone assigned to his or her care. For a number of reasons, this assumption does not hold.

First, most physicians do not, by design, concern themselves with natural and optimum health in any holistic sense. Instead, the system, through medical education, insurance reimbursement, technical innovation, and investment in facilities and equipment, directs virtually all of its resources toward the alleviation and management of diagnosed problem. An enormous array of health and wellness alternatives fills in the gap: self-help books and videos, classes, health and fitness clubs, counseling, supplements, and wide range of natural and therapeutic practices.

Second, the vast majority of people do not use these alternatives at the direction of their primary care physician. Some may discuss practices with a primary physician; most do not bother. In the experience of the author in the work-place, a physician asked about a yoga class, a diet, a spiritual practice, a complimentary medicine, or alternative therapy, will most likely respond with indifference, as long as the practice does not challenge the institution of mainstream allopathic medical practice. Ten years ago, for example, Behavioral Health Scientists lay outside that mainstream, and received negative reactions from M.D. practitioners. Today, Behavioral Health Scientists gained acceptance from the mainstream and from insurance companies, and an M.D. practitioner may not only acquiesce, but give a referral or work as a team member in primary care office. The change over time has little to do with philosophical positions; the typical M.D. practitioner does not accept the foundational theories of mind-body connection 10 years

ago and does not accept them today. Rather it underscores the point that the primary physician for the most part does not really manage health or promote optimal health, wellness, and healing; she or he responds to immediate complaints and requests, by usually prescribing a drug or referral to another acceptable physician.

Finally, most physicians receive extensive training in the activities they will perform, and limited training in wellness, or optimal health alternatives. The business realities of their practice do not allow for the time to become familiar with alternative practices, or more importantly, to understand that healing will occur naturally in the human body, if it is given what it truly needs, that is fresh air, sunlight, proper diet, pure water, exercise and rest. The nature of medical practice demands that office visits respond to immediate needs and generate immediate revenue. As a final comment in this regard, one might note that the modern term *managed care* does not refer to health care professional managing wellness of the client. Rather, it describes a system in which accounting professionals manage the profitability of an insurance and pharmaceutical company.

A system of health, wellness, optimal and natural health founded on the principles above requires, of both the caregiver and the client, an investment of time to develop a relationship, understand the person, discern the spirits, and offer guidance toward bringing together balance between mind and body. Clients can derive great benefit from having someone in this role, a person who not only responds to occasional crises, but also manages the ongoing process of healing, natural and optimal health. The author does not mean to discount the contribution of practitioners who offer a particular service, including the allopathic physician and anyone else who fulfills a specialized role.

Practitioners who can do so should offer their clients this service; practitioners who have other priorities should work willingly with a person in this role, and should encourage their clients to seek such advice. Working together, they form truly integrative care.

#### Implications for Additional Research

The author intends to implement a series of seminars in which participants can spend some significant time evaluating the concept of natural and optimal health and the various factors that enhance or obstruct it. Follow-up evaluations of seminar participants will provide data for a longitudinal study of the effects of this process.

The literature and research review for this study do not include sufficient information on recent man-made natural disasters effecting natural, optimal health and mind and body. The author speculates that foundational values of fresh air, sunlight, proper diet, pure water, exercise and rest form common threads in the human experience, and the understanding mind/body connection will put to end dualistic view on health. Further research in this area could provide additional information to be utilized in a collaborative care setting with a primary care physician, and would enhance understanding of mind/body connection in optimal health.

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