

The Unified Stress Concept

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The Unified Stress Concept is a *Scientific Model* which seeks to explain the relationship of *all* disease, both physiological and psychological, to a *single* cause. If proven true, it will corroborate the mind-body unification and set a clear direction for future medicine. It could further lead to a new understanding of life, health, and wellness that would result in the eventual control and elimination most diseases and illnesses that currently afflict humankind.

PRELIMINARY CONSIDERATIONS

The following scientific concepts will be discussed prior to the presentation of the Stressor Hypothesis of Disease Propagation itself: (1) the mind-body unification, (2) life as a thermodynamically- ordered system, (3) the concept of stress, (4) the search for a scientific definition of disease, and (5) the nature of stressors. Once these concepts are well in mind, understanding the power and usefulness of the Unified Stress Theory will become readily apparent.

The Mind-Body Unification

The nature and relationship of the mind to the body has interested humankind since ancient times. Plato, Aristotle, Platonius, Augustine, and Aquinas commented on this relationship in their writings. It is, however, Descarte's concept of a separate mind and body which had the largest impact on western civilization. Descarte, in his explanation of the separate nature of man, said:

"There are certain activities, which we called corporeal, e.g. magnitude, figure, motion, and all those that cannot be thought of apart from extension into space; and the substance in which they exist is called BODY...Further, there are other activities, which we call thinking activities, e.g. understanding, willing, imagining, feeling, et cetera, which agree in following under the description of thought, perception, or consciousness. The substance in which they reside we call the thinking part or MIND."

Descarte called the thinking substance "Res Cogitans" and the body substance "Res Extensa". Western medicine has accepted Desarte's separate dualism without reservation. The result in medicine has been the creation of a dual and separate medical system; one group of physicians provides treatment for disease of the body and the second group provides treatment for disease of the mind. I call these two groups the "BODY DOCTORS" and the "MIND DOCTORS". With our increasing understanding of both Physiology (the science of the body) and Psychology (the science of the mind),

this continued adherence to the concept of separate duality has been more and more difficult to maintain. However, for the most part, western medicine has maintained it.

The result of the mind/body schism in western medicine has been to limit success in the treatment of many of disease that afflict humans. The body doctors have found that ~75% of their patients have “psychological problems” causing or contributing to the disease process. In 1977, Roche Laboratories manufactured and sold over three and a half billion tablets of Valium which were sold in the United States alone! A frequently quoted article from one of the major medical journals reports the following statistic: A study at a large outpatient medical clinic showed ~80% of the doctor-patient interviews ended with an unnecessary prescription. The body doctor finds himself in this difficult situation when his history and physical examination reveal no organic cause for his patient’s complaint. To end the uncomfortable doctor-patient interview, he prescribes an unnecessary prescription, often a tranquilizer always with risk of unnecessary and adverse effects.

The mind doctors have been even less successful than the body doctors. Most psychiatrists and many psychologists utilize psychotherapeutic modalities based more on art than science. The result being an overall success rate which is dismal. And the psychiatrists’ treatments are unfortunately much worse than simply unsuccessful, as Peter Breggin, M.D. a psychiatrist himself points out in his excellent new book “Toxic Psychiatry” their treatment of patients is almost always damaging with the result being millions of permanently disabled and brain damaged individuals.

In addition, the mind doctors often overlook treatable organic causes for their patient’s complaints. Most of the mind doctors do not have the interest or prerequisite education to fully understand the relationship between human physiology and human psychology.

Today the amount of empirical evidence to support the mind-body unification is overwhelming. What goes on in the mind of an individual certainly does affect his body. And what goes on his body does affect his mind.

Dr. Lennart Levi of the Karolinska Institute in Stockholm, Sweden, provides the following examples of the mind-body unification: (1) human action is clearly governed by the will and desires of the individual; (2) human emotions influence facial expression, body language, and behavioral patterns; (3) humans cry, a physiological phenomenon, when they think sad thoughts, see sad movies, or read sad stories; (4) humans laugh when they perceive their experience as funny. Laughter is caused by spasmodic contractions of the diaphragm muscles with tension applied to the vocal cords in a sporadic manner; (5) adolescent humans frequently blush when they hear risque stories. The blushing involves the dilatation of the capillary bed that supplies the face and upper torso with blood; (6) humans commonly faint at the sight of blood or when frightened; (7) humans commonly experience nausea and vomiting when exposed

to unpleasant sights, sounds, or smells; (8) humans frequently need to urinate when anxious or apprehensive; and (9) humans experience increased muscle tension in response to social pressure and psychological apprehension. The results of continuous muscle tension include backaches, neckaches, and headaches—the most common complaints heard in any doctors office.

Harold Wolff, a research scientist at Cornell University in New York state, studied stress and disease from 1930 until his death in 1962. During that time, he literally connected hundreds of clinical “*organic disease states*” to psychological stress and psychological inputs. Dr. Wolff invented a technique which he called the “stress interview” wherein he would bring a patient into his office and under controlled circumstances question that patient about the emotional difficulties the patient might be experiencing in his or her personal life. Dr. Wolff was able to document thousands of anecdotal situations in which many of the organic diseases, most afflicting his patients, could be exacerbated or created during the stress interview. This included migraine headache, high blood pressure, asthma, production of excess oil in the skin of individuals with acne, swelling and congestion of the nasa mucosa in individual with allergic rhinitus, and exacerbation of literally dozens of other disease states. Dr. Wolff’s research over a thirty-year period created a mountain of empirical evidence to support the mind-body unification.

Today, sixty years since Dr. Wolff first published, a unified explanation of disease must take into account the mind-body unification.

Life as a Thermodynamically-Ordered System

All objects in space-time have substance and form. The substance is matter-energy, and form is the order, structure, organization, and pattern of that matter-energy. Jules Henri Poincaré stated in 1908:

“Science is built up of facts, as a house is with stones. But a collection of facts is no more a science than a heap of stones is a house.”

It is the order, structure, organization, and pattern of the facts that make a science; and the order, structure, organization, and pattern of the stones that make a house.

An understanding of this concept of negentropy or order—structure, organization, pattern, and form; and its opposite concept entropy or disorder—structurelessness, disorganization, patternlessness, and formlessness; that is essential to a full understanding of the Second Law of Thermodynamics.

The Second Law of Thermodynamics states that in any closed system, no process can occur that increases the net order (or decreases the net entropy) of the system. The universe is heterogeneous—some regions within the universe are very hot (tars, nova, suns, etc.), and some regions within the universe are very cold (open space). The

Second Law of Thermodynamics tells us the hot regions are steadily cooling down, and the cold regions are steadily warming up. The universe as a whole will reach a state of thermodynamic equilibrium when everything in the universe is the same temperature. At this point, all physical-chemical reactions will stop. This is the state of maximum entropy. This state of complete randomness and homogeneity without any order, structure, or pattern is known as the *heat death* of the universe.

Thermodynamics distinguishes between open and closed systems. A closed system is isolated from the rest of the environment and exchanges neither matter-energy or information with its surroundings. The universe considered in its entirety is a closed system. An open system is one in which exchanges do occur, exchanges of matter-energy and information. Living systems are open systems.

Living systems are clearly ordered, and first inspection, seem to represent a violation of the Second Law of Thermodynamics. Living systems can be as localized regions in space-time where there is a continuous increase in order. However, living systems do not really violate the Second Law of Thermodynamics. They are able to increase their order at the expense of a larger increase in disorder of the universe as a whole.

James G Miller in major work, Living Systems, states that:

“Living systems maintain a steady state of negentropy even though entropic changes occur in them as they do everywhere else. They accomplish this by taking in inputs of foods or fuels, matter-energy higher in complexity or organization or negentropy (i.e., lower in entropy) than their outputs.”

Life escapes the Second Law of Thermodynamics locally by its ability to take in matter-energy of higher order than it excretes.

So when does physics become biology? Some of the best minds in Physics and biology have sought to define the non-living/living interface. While a clear understanding of that interface awaits future discovery, the thermodynamic connection has been made. Erwin Schrödinger first proposed a connection between life and the Second Law of Thermodynamics in his monogram, “What is Life?”, published in 1945. Professor Schrödinger states:

“It (a living system) can only keep...alive by continually drawing from its environment negative entropy...What an organism feeds upon is negative entropy.”

As the universe as a whole moves toward ever-increasing entropy or disorder—disorganization, chaos, randomness, patternlessness, formlessness, and homogeneity—Life is moving in the opposite direction, at least on a local basis towards ever-increasing

negentropy or order—organization, form, pattern, and heterogeneity.

The thermodynamic connection is essential to any deep understanding of life and fundamental to the unification of the biological sciences.

The Concept of Stress

“What is stress? The soldier who sustains wounds in battle, the mother who worries about her son, the gambler who watches the races—whether he wins or loses—the horse and the jockey he bet on; they are all under stress.

“The beggar who suffers from hunger and the glutton who overeats, the little shopkeeper with his constant fears of bankruptcy, and the rich merchant struggling for yet another million; they are all also under stress. The mother who tries to keep her children out of trouble, the child who scalds himself—and especially the articular cells of the skin over which he spilled the burning coffee—they, too, are under stress. This is a fundamental question in the life of everyone; it touches closely upon the essence of life and disease.”

The above quotation is taken from the introduction of Dr. Hans Selye’s book, The Stress of Life. Dr. Selye, while a medical student at the University of Prague in 1925, became interested in the phenomena he described as “*the syndrome of just being sick*”. Dr. Selye noticed that each of his patients, as they began to fall ill, had similar characteristics: “*These patients felt and looked ill, had coated tongue, complained of more or less diffuse aches and pains in the joints and of intestinal disturbances with loss of appetite. Most of them also had a fever, and enlarged spleen or liver, inflamed tonsils, a skin rash, and so on*”. Dr. Selye, despite the discouragement of his colleagues and teachers, continued studying the syndrome of “*just being sick*”. On July 4, 1936, a brief note appeared in the British journal, NATURE, under the title, A Syndrome Produced By Diverse Nocuous Agents. Since that publication in 1936, over 110,000 articles and books have been written on what is now known as the “*Stress Syndrome*”.

The result of over forty years of scientific work by Hans Selye is the creation of an explicit explanation of how the body responds to stressors. This explanation has been developed for both general and localized adaptation. Dr. Selye, who has left his mark as one of the century’s most important physicians, clearly delineated the body’s physiological response to stressors, especially as mediated through the hypothalamus, pituitary gland, and adrenal glands. Dr. Selye calls this physiological response to stressors the “*General Adaptation Syndrome*”. In addition, he also described the local response to stressors under a concept he called the “*Local Adaptation Syndrome*”. Dr. Selye’s work provides conclusive scientific evidence that stress and disease have significant relationship and will stand as the major antecedent to a generalized theory explaining the relationship of stress to *ALL* disease.

The Search for a Definition of Disease

Since the beginning of medicine, physicians have sought an understanding of the cause and definition of disease. They have not been very successful in finding either. A book entitled Theories and Philosophies of Medicine, published in 1973, has a chapter entitled, *"Disease – An Undefined Word"*. In this chapter, the authors list 39 different definitions of disease used in the history of medicine. These 39 definitions cover the entire gamut of man's experience.

None of these definitions are satisfactory from a scientific viewpoint. I will present two of the definitions that are still in widespread use today. These definitions are presently being taught to the medical students of the western world. DORLAND'S MEDICAL DICTIONARY defines disease as:

"In general, any departure from a state of health, or an illness, or a sickness. More specifically, a definite morbid process having a characteristic train of symptoms. It may affect the whole body or any of its parts and its etiology, pathology, and prognosis may be known or unknown." STEDMAN'S MEDICAL DICTIONARY describes disease thusly, *"Morbus, illness, sickness. An interruption or perversion of functions of any of the organs, a morbid change of any of the tissues or an abnormal state of the body as a whole, continuing for a longer or shorter period."*

These two definitions both fail to meet the criteria of an operational definition. They suffer from what in science is called circular logic and in fact are of little value.

Dr. Selye does not explicitly define disease in his classic work THE STRESS OF LIFE published in 1976; however, he states his preference for a definition from a much less popular medical dictionary called BLAKISTON'S NEW GOULD MEDICAL DICTIONARY. BLAKISTON DEFINES DISEASE AS FOLLOWS:

"The failure of the adaptive mechanism of an organism to counteract adequately the stimuli or stressors to which it is subject, resulting in a disturbance in function or structure of any part, organ, or system of the body."

This definition of disease is not circular and is presently the best definition available to western medicine. Any general theory of health will require an explicit operational definition of disease. That definition will need to be as absolute as the definitions we use in classical physics.

The Nature of Stressors

Dr. Selye discusses the definition of Stress at length in many writings. His simplest and most generally accepted definition is: *"The non-specific response of the body to any demand."* Selye further defines stressor as: *"that which produces stress."*

In view of the mind-body unification, we can define stressor as follows:

“STRESSOR—ANY DEMAND MADE ON THE MIND-BODY TO ADAPT.”

This expanded definition of stressor is broader and includes things not normally considered to be stressors. This definition allows to divide stressors into two general classes—external and internal stressors. The external stressors can be further divided into three types—physical stressors, biological stressors, and social stressors.

Physical Stressors—The physical stressors are any physical demand made on the mind-body to adapt. They include heat, cold ionizing radiation, chemicals, poisons, toxins, fire, electricity, and trauma of any type.

Biological Stressors—The biological stressors are any biological demand made on the mind-body to adapt. These are primarily adversary living systems which adapt by attacking and exploiting the mind-body. They may be simple or complex. Examples include viruses, bacteria, rickettsia, fungi, parasites, and predators.

Social Stressors—The social stressors are any social demands made on the mind-body to adapt. Social stressors are of two types: coercive and non-coercive. The coercive social stressors are non-voluntary demands made upon the mind-body to adapt. This would include assault, murder, rape, theft, arson, and any crime against an individual and his property. Another example of the coercive social stressors are the non-voluntary demands made by any form of political government such as taxation, regulation, restriction, and incarceration. This would further include all social stressors produced by action of the political government—i.e. war, inflation, recession, injustice, et cetera.

The non-coercive social stressors are voluntary demands made on the mind-body to adapt. They include all voluntary contractual demand relate to marriage, employee/employer relationships, personal friendships, purchase contracts, financial loans, et cetera. The non-coercive social stressors also include the positive stressors for humankind, These are the demands we place on ourselves to achieve our goals and build our civilization. So, some stressors are good for us.

Internal Stressors—The internal stressors are produced by maladaptation of the mind-body. They are the result of errors of stressor adaptability (the ability of the mind-body to adapt to stressors). The most common internal stressors encountered in humans are the maladaptive negative emotions. For this discussion, I propose to use a definition of a human emotion modified after, and expanded from, the operational definition of a human emotion by Dr. David Graham of the University of Wisconsin:

Human Emotion—“A human emotion is the internal, physiological sensation (i.e., gut feeling or inner urges to act) that a human experiences in anticipation and adaptation to

stressors. These sensations are the result of the release of powerful adaptive hormones and physiological change that occur throughout the mind-body in preparation for adaptation."

If a human emotion is appropriate to the provocative *stressor*, then the emotion serves as part of the mind-body's *stressor adaptability*. However, if the emotion is inappropriate, then that emotion becomes an *internal stressor* for the mind-body. Anger is the emotion that accompanies the mind-body's preparation to fight. If an individual becomes angry when attacked by a mugger, the individual's ability to fight off the mugger is improved, and, therefore, the anger is part of the individual's stressor adaptability. However, if a mother becomes angry with her two-year old child, her anger interferes with her ability to rationally communicate with her child. Since it would be irrational for the mother to want to fight her two-year old child, her anger acts as an internal stressor for her and her actions as an external stressor for the child.

Other examples of errors of stressor adaptability which produce internal stressor would include auto-immune phenomena (when the immune system of a living system loses its ability to recognize self and attacks its own cells and tissues) and cancer (when a cell type loses its identity with the living system and begins functioning like an adversary living system reproducing itself and parasitizing the living system for which it originated).

Our expansion of the concept of stressors to include physical, biological, volitional, and internal stressors results in a major simplification and an important step toward the understanding of all disease.

The above discussion of the mind-body unification, life as a thermodynamically-ordered system, the concept of stress, the search for a definition of disease, and the nature of stressors has now set the stage for the presentation of the Stressor Hypothesis of Disease Propagation. The General Hypothesis will be stated following the defining of a group of terms which will be important in understanding the Hypothesis.

BASIC DEFINITIONS

LIVING SYSTEMS—[After J.G. Miller, LIVING SYSTEMS] *"The living systems are a special subset of the set of all possible concrete system. A concrete system is a non-random accumulation of matter-energy in a region in physical space-time which is organized into interaction, interrelated subsystems or components. Living systems have the characteristics of life, including the ability to maintain a steady state of negentropy, even though entropic changes occur in them as they do everywhere else."*

ORDER—Order is used here as the equivalent of the concept of negentropy. This concept is the opposite of entropy and is derived from Classical Thermodynamics. Order is form, organization, pattern, and structure.

DISORDER—*Disorder is used here as the equivalent of the concept of entropy. It is the opposite of order. Disorder is formlessness, patternlessness, disorganization, and randomness. This concept of disorder is again derived from Classical Thermodynamics.*

STRESSOR—*Stressors are any demands made on the mind-body to adapt. More generally, stressors are any demands made on living systems to adapt. A stressor is that which produces disorder or entropy within a living system. Disorder or entropy may be produced directly by the stressor's action on the living system or indirectly by the living system's response to the threat of the stressor. Stressors can external or internal, are infinitely variable, and the amount of disorder produced within the living system is also infinitely variable. {The symbol I have chosen to represent stressor is a lowercase 's'.}*

STRESSOR ADAPTABILITY—*Stressor adaptability is the sum of the total abilities of the mind-body to neutralize or reverse stressors. More generally, stressor adaptability is the sum of the total abilities of a living system to neutralize or reverse stressors. Determinants of stressor adaptability include genetic factors, previous experience of the living system in neutralizing stressors, nutritional state, present stressor load, biological stability, and where applicable, psychological and social stability. {The symbol I have chosen to represent stressor adaptability is the lowercase letters 'sa'.}*

ADAPTATION—*Adaptation is the specific and non-specific successful reaction or response of a living system to any stressor or threat of stressor which acts upon it. The stressor is either neutralized or reversed. Within the living system, negentropy, or order, is stable or increasing. {I represent the state of adaptation by the algebraic formula ($sa - s \geq 0$). Therefore, \, Adaptation occurs when the stressor adaptability of a living system is larger than the stressors acting upon it.}*

MALADAPTATION—*Maladaptation is the unsuccessful reaction or response of a living system to any stressor or threat of stressors which acts upon it. The stressor is neither reversed nor neutralized. Within the living system, entropy, or disorder, is increasing. {I represent the state of maladaptation by the algebraic formula ($sa - s \leq 0$). Therefore, \, Maladaptation occurs when the stressor adaptability of a living system is less than the stressors acting upon it.}*

POSTULATES OF THE STRESSOR HYPOTHESIS OF DISEASE PROPAGATION

POSTULATE 1 — The purpose of all living systems is to maintain or increase the order, or negentropy, within the system.

POSTULATE 2 — Living systems which maintain or increase the order through the process of adaptation are in a state of health.

THE STRESSOR HYPOTHESIS OF DISEASE PROPAGATION

Disease results within a living system whenever the system's stressor adaptability (the total ability of the living system to adapt to stressors) is exceeded by the sum of the stressors acting upon the system.

Disease————> when $(sa - s) < 0$

(where **sa** represents stressor adaptability and **s** represents stressors)

A NEW CONCEPT OF STRESS AND DISEASE

Disease, from the stressor Hypothesis of Disease Propagation, results within a living system when the sum of stressors acting upon that living system exceeds the system's ability to adapt. Disease further results in any living system wherein the order within the system is decreasing, or the disorder within the system is increasing. Disease may be localized or generalized, and can affect part of the living system or the entire living system. Disease can affect any level of organization within a living system—cellular, tissue, organ, or organism as a whole. The Stressor Hypothesis of Disease Propagation leads to a more satisfactory definition of stress within living system. This definition of stress is patterned after the classical definition of stress from physics. *Stress in physics* is defined as follows:

If a steel wire is put under tension, then:

(physical stress) $S_p = F/A$
{(force along the wire) divided by (the cross-section area of the wire)}

For living systems, I define stress as follows:

(living system stress) $S_{ls} = s / sa$
{(sum of stressors) divided by (stressor adaptability)}

From the above definition of living system stress, it follows that disease can be said to exist in any living system wherein the stress is greater than one (1).

$S_{ls} = s / sa > 1$

Disease is an evolutionary process, and the concept of living system stress is helpful in staging disease within a living system. I find it useful to define four stages of disease that can exist within the living system as a whole or within any of the levels of organization within the living system. The four stages of disease are defined as follows:

DISTRESS—Stage 1—Distress exists within a living system when the sum of stressors acting upon the living system exceeds the stressor adaptability of the system producing a localized or generalized loss of function. The living system, by using reserves and stored energy, is able to restore function without disability.

DISABILITY—Stage 2—Disability exists within a living system when the sum of stressors acting upon the living system exceeds the stressor adaptability of the system producing a localized or generalized loss of function. The living system is unable to restore function even using reserves and stored energy. This must always include functions considered essential; should include functions considered normal; and when more is known, will include functions that are considered optimal. When using this definition of disability, it is necessary to state the level of organization with the living system to which the disability refers. Disability, by definition, is reversible.

DAMAGE—Stage 3—Damage exists within a living system when the sum of stressors acting upon the living system exceeds the stressor adaptability of the system producing a non-reversible disability. Damage can exist at any level of organization within the living system or within the living system as a whole. No cure is possible at this stage of disease.

DEATH—Stage 4—Death exists within a living system when the sum of stressors acting upon the living system exceeds the stressor adaptability of the living system producing a loss of ability of the living system to produce negentropy or order. Death is irreversible.

Disease is evolutionary—first distress, then disability, then damage, and finally death. Distress, disability, damage, and death can exist at individual levels of organization within living systems as well as the living system as a whole. The first few stages of disease—distress and disability—are curable. The second two stages of disease—damage and death—are not curable and not reversible. As the science of medicine progresses, disease presently considered damage may be converted to disability by new understanding and technology.

HEALTH COROLLARY OF THE STRESSOR HYPOTHESIS OF DISEASE PROPAGATION

Health results within a living system whenever the stressor adaptability (the total ability of the living system to adapt to stressors) equals or exceeds the sum of stressors acting upon the living system.

Health————> when $(sa - s) \geq 0$

(where **sa** represents stressor adaptability and **s** represents stressors)

The living system stress within a health living system is less than one (1).

$$S_{1s} = s / sa < 1$$

A NEW CONCEPT OF HEALTH

To produce and maintain health within a living system, it is necessary to maintain the stressor adaptability of the system in excess of the sum of stressors acting upon the system. This can be abetted by reducing the unnecessary stressors acting upon the living system, increasing stressor adaptability of the living system, or by accomplishing both of these.

Humans have more control than any other animal of the stressors that act upon their systems and their stressor adaptability. Health professional can aid the individual human in his pursuit of health, but the Stressor Hypothesis of Disease Propagation and the Health Corollary strongly suggests that control of health for any individual human resides within that individual.

In light of the Health Corollary, we can now look back on Western medicine and see that the Western physician has focused almost entirely on disability and damage. Our ignorance of distress has resulted in our neglect of it entirely. Since disease is evolutionary, and begins with distress, develops into disability, progresses to damage, and finally, leads to death, then by ignoring the first stage of disease, the Western physician minimizes his chances for success cures.

The Stressor Hypothesis and the Health Corollary result in a powerful strategy for the future of medicine. That strategy must involve teaching humans how to decrease the stressors acting upon their systems and how to increase and improve their individual stressor adaptability.

BUILDING HEALTH THROUGH STRESSOR REDUCTION

The Stressor Hypothesis of Disease Propagation demonstrates that the cause of all disease is Stressor overload. Reduction of unnecessary stressor becomes the main thrust of any satisfactory program of building health. Elimination of all stressors is not only impossible but undesirable. Life loses all meaning without stressors. Our goal, then, should be to reduce the unnecessary stressors, the destructive stressors, so that we can choose the stressors we want to neutralize and by that choice, create achievements for ourselves and for species.

Reduction of physical stressors—The physical stressors acting upon man have, to a large extent, been controlled by the advancement of our physical science and technology. At present, almost all of the natural physical stressors are controllable. We

have developed the technology to protect our selves in the most hostile of environments. Humankind is able to survive in the depths of space and at the bottom of the ocean. The life of the average citizen of Western society is surrounded with physical technology to protect him from the physical stressors. There is, of course, opportunity for continued and important improvement in the area of physical stressor control. For not only has our high physical technology protected us from most of the natural physical stressors, it has, in fact, created new physical stressors. Fortunately, even control of these new physical stressors is within our human capabilities. The ability of the physical sciences to control physical stressors is nearly unlimited. And in fact, much of the increase in new physical stressors is not related to increased physical technology, but rather, due to our misunderstanding of social stressors. Today the complete and total control of physical stressors is within the grasp of humanity.

Reduction of biological stressors—Control of the biological stressors is the brightest star on the tress of knowledge of Western medicine. Through the work of scientists like Semmelweis, Koch, Pasteur, Lister, Jenner, Erlich, And Sabin, to name only a few, has come the science to significantly control infectious agents. The biological stressors are well under control now, and with further physical and biological scientific advance could come within complete control in the very near future.

Reduction of Social Stressors—The social stressors that act on humankind are the least controlled. The coercive social stressors are the most dangerous facing individual humans and the species as a whole. Prior to 1961, the prospects of controlling the coercive volitional stressors were minimal. It was at that time that Andrew J Galambos of the Liberal Institute of Natural Science and Technology in Los Angeles, California, began his limited disclosure of a major scientific discovery which begins to bring order out of the chaos of “social science”. Professor Galambos has developed a new method for understanding human behavior social behavior he calls Volition—The science of human choosing. Once Galambos’s science of Volition is well understood and widely applied, even the coercive social stressors can be controlled.

The non-coercive social stressors offer minimal threat to humankind. These are social stressors which we voluntarily to choose to neutralized. Our successful neutralization of the non-coercive social stressors is measured by our accomplishments and creative achievements. The positive history of human achievement is the history of neutralizing non-coercive social stressors. Social stressors were neutralized by answering the right questions. Some of those questions were:

- How can man lift a thousand times his own weight?
- Does the sun go around the Earth, or the Earth around the sun?
- What is the nature of a pendulum, and how does that nature affect the universe?
- What are laws that explain the motion of the planets?
- What is the connection between electricity and magnetism?
- What is the most efficient way to transmit electrical power long distances?

How is matter related to energy?
What is the cause of childbed fever, and how do you stop it?
How can you identify the cause of an infectious disease?
How can you protect children from bacteria in milk?
How can perform surgery without risk of infection?
How can we protect our children from the smallpox virus?
Is there a magic bullet with which to slay disease?
How can we protect our children from polio?
What is the “syndrome of just being sick”?
Is there a relationship between stress and disease?

The scientists who neutralized the stressors related to these questions were: Archimedes, Copernicus, Galileo, Newton, Maxwell, Tesla, Einstein, Semmelweis, Koch, Pasteur, Lister, Jenner, Erlich, Sabin, Selye, and Wolff.

The two most dangerous and crucial social stressors acting upon humankind are reflected in the following questions:

How do we end disease among for all humans? And, how can we neutralize and eliminate the coercive social stressors to create a world without crime and without war?

The very survival of our species will depend upon the answers to these two questions. Knowledge is knowing how to neutralize stressors. Knowledge is the only solution. But knowledge cannot ensure survival for the species unless it is fully and effectively applied.

Reduction of the internal stressors—The internal stressors arise from errors or defects in stressor adaptability. The major internal stressors are the stressors related to maladaptive negative emotions. At the present time, these maladaptive negative emotional stressors are poorly controlled and the major cause of disease within the human species. The powerful negative emotions, anger and fear, are our evolutionary inheritance from our primitive ancestors. These two emotions—anger to prepare the body to kill, and fear to prepare the body to run—were absolutely essential for the adaptation of primitive humankind.

In our present age of high physical technology, individual man is leveraged to control weapons of enormous and incomprehensible magnitude. Our primitive emotions of anger and fear are rarely adaptive. Homo sapien sapiens, the present human species is approximately ~50,000 years old. Fifty thousand years ago, when our ancestors became angry, they fought an enemy or wild beast. When they became frightened, they ran for their lives.

As civilization has advanced, primarily through the leverage of physical science and technology, the times when fighting to protect one’s self or fleeing to safety have

become less appropriate How does one fight a recession or flee the high cost of living, or escape the stress of unemployment. These stressors can be neutralized, but not by fighting or fleeing.

Knowledge is stressor adaptability. Today's dangerous volitional stressors can only be neutralized with knowledge. Knowledge comes from thinking, and the emotion which maximizes man's thinking is an emotion rarely felt by modern humankind "calm". For humans to reason at their best, the think most intelligently they must be calm, not angry or afraid.

As humankind has progressed, expressing one's negative emotions has become less acceptable. Humankind has learned to suppress the emotions, to hold the anger and fear within the mind. This internalization of emotions has resulted in a major change in humankind's health. This change has been the propagation of most of the diseases that plague modern humans. These are the disease delineated by Selye and Wolff. Suppressed anger and fear produce hypertension, coronary artery disease, peptic ulcer disease, recurrent chronic infections, bronchial asthma, irritable bowel syndrome, as well as all diseases labeled psychosomatic or psychogenic.

After formulating the Unified Stress Concept in the Fall of 1978, I began an intensive review of psychology, the science of mind, to seek out tools to aid in the reduction and control of the maladaptive negative emotions.

The prospect for true emotional control was nonexistent until 1955. It was then that Dr. David Graham, at the University of Wisconsin, first defined emotion in an operational way that would lead to a science of emotional control. Dr. Albert Ellis of New York City building on Graham's definition of emotion founded a new form of emotional therapy which he called Rational Emotive Therapy. One of Dr. Ellis's students, Dr Maxie C. Maultsby, Jr., has further expanded the excellent basic work accomplished by Ellis and his associates providing excellent and effective techniques compatible with the newest understanding of the duality of human intelligence which he designates as Rational Behavioral Therapy.

For individual humans, the most destructive stressors we face are the maladaptive negative emotional stressors. Based on the seminal work of Graham, Ellis, and Maultsby, new techniques and methods have emerged and continue to emerge that make it possible to gain absolute emotional control. and total psychological stability. Today, it is possible for most humans to learn to control their emotions to the extent that an individual can decide when they will have an emotional response, how much of an emotional response they will have, and how long they will maintain that emotional response. This level of emotional stability can free humankind from the "diseases of modern living".

BUILDING HEALTH BY INCREASING STRESSOR ADAPTABILITY

Stressor adaptability is the total ability of a living system to adapt to the stressors action upon it. Dr. Harold Wolff, in his book, *STRESS AND DISEASE*, published following his death in 1968, stated the following:

“The stress generated from a situation is based on a large part on the way the affected subject perceives it; perception depend upon a multiplicity of factors including the genetic equipment, basic individual needs and longings, earlier conditioning, influences, and a host of life experiences and cultural pressures ... The particular adaptive pattern evoked by a noxious agent or threat is the resultant of the past life experience which conditions individuals to react in specific ways. Hence, ideology and disease become a function not merely of participating incident and setting, but largely of the past of the individual and his stock.”

Viewed in light of the Unified Stress Concept, genetic coding can be seen to be the recording of how a living system is to react to a specific stressor. Our genetic material carries the instructions fro the cells of our body to follow when neutralizing stressors. Other determinants of stressor adaptability would be our nutritional state, our constitution, our experience with previous stressors, and the education and training that we have to help us deal with stressors.

Context is an essential feature in understanding an individual living system’s response to stressors. All stressors are viewed in context—in relation to all other stressors action upon the system. Stressors have varying amounts of significance, based on the context which they represent to each individual experiencing them.

Dr. Paul Nelson writes as follows in a book entitled, *LIFE, STRESS, AND ILLNESS*, published in 1974:

“It is difficult to conceive of an adequate theory of stress which does not involve, in some way, psychological elements of perception and cognition; and those elements in turn would seem to require than attention be given to the environmental context or the event structure within which life changes occur as well as attributes of the individual’s role, personality, and cultural, pat experience, aspiration, and his role, personality, and cultural. past experience, aspiration, and his physical and mental states of health as they relate such life changes, their interpretation, and emotional, physiological, and behavioral responses which may be evoked.”

The brain is the most powerful organ of adaptation. It is the most singularly powerful organ of stressor adaptability. All perceptions are integrated in the brain, and cognition or recognition of stressors must be accomplished within the brain. It has been well documented that if the brain fails to perceive a stressor as a stressor, the living system will not react and thereby fail to adapt to the stressor. In view of the importance of the brain to stressor adaptability, the mind-body unification seems accomplished.

Increasing stressor adaptability in humans then seems possible through several mechanisms. I propose the following:

1) Stressor conditioning—Physical conditions is, in reality, a type of stressor conditioning. It is accomplished by exposing the living system to increasingly larger stressors of a specific type so that the living system can practice adapting to the stressors, and later, the living system will find itself able to adapt to a large stressor of the same type.

2) Improvement of human genetics through genetic counseling can produce large improvements of stressor adaptability. The science necessary to accomplish this is available now.

3) Nutritional improvement—Through the development of a science of nutrition, it will soon be possible to improve the state of living systems and increase their stressor adaptability.

4) Elimination of internal stressors—The internal stressors are defects or errors of stressor adaptability. As humans learn absolute emotional control, they can do much to rid themselves of these errors and internal stressors.

5) Development of intellectual tools of stressor adaptability—As humans learn and understand their environment and universe more explicitly, they create intellectual tools, as well as technological tools, to aid them in adapting to the stressors in their environment. Knowledge is knowing how to neutralized stressors. Knowledge is stressor adaptability.

Stressors are extremely important to all living system. Without stressors, living systems have no purpose. This is especially true for humans; stated another way, without goals, humans have no purpose. the power of the individual stressor adaptability for individual man. Individuals with longer goals have continually demonstrated their ability to resist stressors in a more effective way. Many of the most important humans of the species in terms of the importance of their achievements to civilization have been the longest lived. Harold Wolff states in his book on STRESS AND DISEASE:

“Man’s ability to adapt, that is to remain free of disease, depends not only on his inherent capacities and past experience, but also on his motivation and the support and refreshment that his environment can afford him.”

All too frequently, modern man attempts to adapt to stressors in an inappropriate fashion. This results in maladaptation. Selye has delineated the mechanism for the disease of maladaptation. When maladaptation occurs within a living system, the mechanism for adaptation fails and ends up creating more disorder than it neutralizes

or reduces. This results in the creation of high internal stressors. The majority of maladaptive responses by humans are due to inappropriate negative emotions. The science and technology for Rational Emotional Control is now available. Its application will allow most human to learn to cure and to prevent these diseases of maladaptation.

As humans come to understand and then effectively apply the principles of the Unified Stress Concept they will learn to increase their stressor adaptability and decrease the unnecessary stressors acting upon them. They will thus obtain the benefits of better health, increased productivity, and lengthened longevity.

CONCLUDING THOUGHTS ON THE UNIFIED STRESS CONCEPT AND THE FUTURE OF HUMAN MEDICINE

Humans are unique among the lifeforms of Earth in their ability to create Knowledge. Knowledge is—knowing and understanding the universe, knowing and understanding nature, knowing how to neutralize stressors, knowing how to solve problems. Humanity's most powerful tool of discovery has been the scientific method—*observation*: the gathering of facts; *hypothesis formation*: the proposed relationship or structure of those facts; *extrapolation*: prediction and extension of the understanding based upon the hypothesis; and, finally, *corroboration*: were the predictions and extensions correct?

When the predictions and extensions of a hypothesis are always correct, the corroborated hypothesis is granted the stature of *Scientific Theory*. *Scientific Theory* is humankind's most powerful kind of knowledge, it forms the basis for humankind's most positive achievements, and is honored as the finest achievement of the human mind.

Nowhere has the *Scientific Method* been used more effectively than in the physical sciences. And nowhere has the application of *Scientific Theory* been more successful than in western civilization. We have been fed, clothed, housed, heated, cooled, transported, entertained, protected, healed, soothed, and pampered endlessly by the products of physical science.

We humans are at a much more primitive stage in our understanding of life. Life scientists have accumulated the largest amount of facts of any branch of knowledge, but as yet have no overall unified understanding with which to correlate these facts. The life sciences stand at the same stage of intellectual evolution that the physical sciences stood just prior to the publication of Isaac Newton's Principia Mathematica.

With the wide dissemination of the understanding inherent in the Unified Stress Concept it is probable that our human understanding of disease and medicine will exponentially increase in a fashion similar to that which occurred with the publication of Newton's work. By this statement, the author does not infer that progress has not been

made in the biological sciences. Much progress has been accomplished through the accumulation of biological data, discoveries in limited areas of biology, and extensive application of the physical sciences to biology. One only need visit any modern medical center or research laboratory to find engineers, technicians, computers, image technology, and signs of high physical science everywhere.

Isaac Newton's Principia Mathematica led to the unification of the physical sciences and produced the "*Industrial Revolution*". The Unified Stress Concept seeks to unify the biological and psychological sciences to launch the "*Adaptational Revolution*".

By comparing the Unified Stress Concept to the Principia Mathematica, the author does not compare himself to Isaac Newton, the importance of any human to a civilization is determined by that civilization's acceptance and use of that individual's work. Today all humans have accepted and are immensely benefited by Newton's hypotheses, while today the hypotheses that form the Unified Stress Concept are all but unknown.

This disclosure of the Unified Stress Concept has been, by format, limited. Although all the essential features of the basic hypotheses are present, I have presented only a small amount of the anecdotal and substantiating material that was available to me. Several concepts, which were handled only superficially in this disclosure, are of major significance and importance to the human species. These include the revolutionary new discoveries on how the human brain works by Sperry and Bogen; the concept and full exposition of Rational Psychology; the concept and exposition of Problem Solving Technology; the concept and use of relaxation training in medical science; the concept of stress avoidance and stress bandaids in our present civilization; and the application of the Unified Stress Concept to groups of individuals, organizations, communities, societies, and the species as a whole. In addition, a major leap forward for humankind awaits the future publication and application of Andrew J. Galambos' Science of Volition.

And now I would like to borrow from Isaac Newton, one last time, "*If I have seen farther than others, it is because I have stood on the shoulders of Giants.*"

My teachers have been legion. I have based my work on that of hundreds of scientists that have gone before me. I wish to pay credit to Hans Selye, Harold Wolff, Walter Cannon, Stewart Wolf, Lennart Levi, Paul Nelson, Isaac Newton, Jules Henri Poincaré, Erwin Schrödinger, James G. Miller, David Graham, Albert Ellis, Maxie C. Maultsby, Jr., and to my wife Judith Wilken, one of the best scientists I have ever known. I benefited enormously and continually from her critical thinking and original contributions.

And finally, I must make special mention and pay credit to Andrew J. Galambos. as the major antecedent for this work. The Unified Stress Concept was created after my extensive exposure to Galambos' Science of Volition. My understanding of science, the scientific method, and how innovation occurs is the result of my having the privilege of being a student of Professor Galambos from 1974 through 1980. In addition, I learned the thermodynamic connection for life from Galambos' work, The Purpose of Life.

The test of the rightness of any hypothesis lies in corroboration The Stressor Hypothesis of Disease Propagation was formulated over a six-month period, beginning late August of 1978. As a physician providing care for patients on a daily basis, I have had ample opportunity to corroborate the essential features of this Hypothesis. Widespread corroboration and acceptance, of course, can only come after widespread disclosure. The usefulness of any hypothesis depends upon application. I have been applying the Unified Stress Concept to my own life and to the lives of my patients for over two decade now. I am satisfied that such application is of great benefit to me and to my patients. In over twenty years of application, I have found no instances in which the principles are not valid.

The Unified Stress Concept explains the relationship of all disease, both physiological and psychological, to a single cause. It further corroborates the mind-body unification and demonstrates a direction for future medicine.